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Supplemental Municipal Groundwater Supply Investigation for the City of Selkirk

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Report to:

Manitoba

The Manitoba Water Services Board
and

CITY OF SELKIRK

The City of Selkirk

Supplemental Municipal Groundwater Supply Investigation for the City of Selkirk

PROVINCE OF MANITOBA
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Nov. 30/2015
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Certificate of Authorization
Friesen Drillers Limited
No. 4018 Date: Nov. 30/2015

November 30, 2015

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- Manitoba Conservation and Water Stewardship.
  - Mr. Rob Matthews, P.Geo.
  - Ms. Kylene Wiseman, P.Geo.
  - Mr. Bruce Webb, P.Eng.

Study Team

The study team consisted of the following individuals:

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  - Ms. Paulynn Estrella, B.Sc.(Mn.E.) – Hydrogeological Engineer in Training
  - Mr. Justin Neufeld, B.Sc. (Geology) – Technical Assistant
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  - Mr. Peter Friesen – Lead Driller
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  - Mr. Jason Friesen – Operations Manager

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- Landmark Planning and Design Limited – Public consultation
  - Mr. Donovan Toews, B.Sc. MCP. – Planner and Public Consultation Specialist
  - Mr. Curwood Ateah, B.A. MCP - Planner and Public Consultation Specialist
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  - Mr. Steve Wiecek, B.Sc. (G.E.), P.Geo. P.Eng. – Hydrogeologist
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Notes

This study will utilize imperial measures, with the exception of water quality data and some velocity information, which will use metric measures. The use of the study will follow the limitations and disclaimer in the report. Some of the data collected during this study was obtained from Manitoba Conservation and Water Stewardship. Friesen Drillers has made no attempts to verify the information. It is assumed to be correct. The reports collected for background research on this aquifer have been obtained from public sources.

Executive Summary

Friesen Drillers was retained by the City of Selkirk and the Manitoba Water Services Board to undertake a hydrogeological assessment of a proposed municipal groundwater supply for the city. The City of Selkirk has struggled with water supplies for over 50 years. The site of the new proposed water supply is located at 14-14-4E in the RM of St. Andrews. This site was first proposed as a water supply for the City of Selkirk in 1973.

Selkirk is the terminus of a regional flow system, which extends from the Stonewall Uplands in the west, with the ultimate discharge at the Red River. Various transmissive barriers in the bedrock prevent groundwater flow into the central part of the City of Selkirk. In the mid 1980's, it was concluded that the City of Selkirk production wells were over pumping the transmissive condition of the bedrock. The drawdown cone has reached a depth where the water supply could become compromised in the future. Groundwater levels are on an increasing upward trend in the surrounding areas, and nearby springs are discharging significant amounts of good quality groundwater.

An extensive public consultation program was undertaken on this project to address resident concerns and issues. Two public open houses were held to discuss the project and the results.

Two 12 inch diameter well was installed at the site and the north well was tested for 7 days, with 2 days of recovery. Approximately 7 feet of drawdown resulted at the pumping well after the 7 day period at a rate of nearly 800 U.S.G.P.M. The groundwater quality remained stable throughout the testing. 22 wells were monitored at various distances for well responses during the pumping tests. During the extensive testing, no water supplies were interrupted.

The proposed extraction of approximately 1,456.5 acre feet per year is not expected to cause static water level fluctuations beyond normal natural water changes in the area caused by seasonal and climatic effects.

The well is expected to provide a small drawdown at distance during operation, particularly within 1,000 feet surrounding the site.

Additional monitoring and annual reporting is required to monitor the carbonate aquifer in the area. Additional details of the recommendations are contained in the report.

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Appendix A – Existing Water Rights Licenses
Appendix B – Land Title Certificate for Park Road Site
Appendix C – MCWS Exploration Permit Application and Authorization
Appendix D – Estimated Long Term Water Supply Requirements and Population Projections
Appendix E – Well Inventory
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Appendix L – Sediment Sample Analysis Results – University of Manitoba

Introduction

Friesen Drillers Limited is pleased to present this report detailing the results of our investigation into a proposed additional municipal groundwater supply for the City of Selkirk. The City of Selkirk has struggled with municipal groundwater supplies within its boundaries for nearly 100 years. This new proposed water supply plans to develop groundwater supplies outside of the City of Selkirk, within the Rural Municipality of St. Andrews, in an area known as the western high transmissivity zone (Render, 1986). This area was proposed as a potential municipal scale water supply in 1897 by the City of Winnipeg (Herring, 1897). Extensive investigations were conducted in the area in 1973 by Manitoba Conservation and Water Stewardship (MCWS) (Rutulis, 1973) as part of a plan to address the City of Selkirk groundwater supply issues. Since then, a substantial amount of work has occurred with water supplies for the City of Selkirk.

The City of Selkirk currently relies on four wells contained within the existing well field for water supply. Of these four wells, the Christie Well, provides nearly 75% of the water supply. The Christie well is also diminishing in capacity. In 1986, F.W. Render of MCWS Groundwater Management Section concluded that the City of Selkirk was over pumping the transmissive condition of the bedrock, and that immediate attention was required. Recent work has projected that pumping water levels within the City of Selkirk drawdown cone will become critical by 2018, and that the supply wells will not be able to maintain their diminishing pumping rates. Although the City of Selkirk is currently licensed for an allocation of 1,751.1 acre feet/year (2,160 dam^3/year), it is evident that the city wells cannot produce this volume due to decreasing pumping water levels within the City of Selkirk drawdown cone.

In May 2014, WSP Consulting prepared a Master Plan Report for the City of Selkirk's future water supplies and wastewater treatment facilities (WSP, 2014). The report called for an immediate development of a more secure water supply to meet Selkirk's current requirements.

As a result, the City of Selkirk and the Manitoba Water Services Board (MWSB) developed a joint project to secure Selkirk a more reliable water supply to meet current needs. The existing water supply is planned to be maintained, and pumping would continue after a period of recovery.

WSP (2014) have determined that the existing allocation of 1,751.1 acre feet per year is sufficient to meet the City of Selkirk's water supply needs. However, the existing well field is not capable of providing sufficient water to meet the peek needs of the city and additional pumping capacity needs to be developed at the proposed NW14 – 14 - 4E site, in the area near the 1973 investigations conducted by MCWS.

As such, the total water supply allocation for the City of Selkirk should remain at 1,751.1 acre feet per year, with recovery monitoring and re-analysis. A water supply of 1,456.5 acre feet/year (1,796.65 dam^3/year) has been requested to be developed at the proposed NW14 – 14 - 4E well field, with the exiting well field located in Selkirk, providing the remainder of the allocation.

The following report details the results of the investigation.

Historical Context – Water Supplies within the City of Selkirk

Early Times

The Selkirk area was initially purchased from the Hudson's Bay Company as site for the development of a town site for settlers. The land was purchased by the Earl of Selkirk, and the town site was named in his honor at its formation in 1882. Initially water supplies came from the nearby Red River, although quality was an issue with the murky waters of the Red River.

The development of groundwater as a water supply in the Selkirk area began in the 1890's with the establishment of three groundwater supply wells for the Selkirk Mental Hospital (Render, 1986). This was followed in the early 1900's with the establishment of a municipal water supply by the City of Selkirk from two wells designated as the Jemima and McLean wells, located near the center of the town site (Render, 1986). In 1915, the Manitoba Rolling Mills was constructed, and a water supply of approximately one million gallons per day was developed from several wells within the complex (Render, 1986).

The two municipal wells provided water supply for the City of Selkirk until 1968 when the Christie well was installed to meet growing demand. At present, the McLean well remains in service, with major upgrades completed on the well in 1959 and 1997. The Jemima Well collapsed in 1978 and was abandoned. In 1997, the Tower well was installed near the former Jemima Well location as a replacement for the original Jemima Well. In 1986, the Rosser Well was added online, as the fourth and final well.

1960 to 1972

Formal investigations into the hydrogeology of the Selkirk area began in the early 1960's following the establishment of provincial and federal groundwater departments (Groundwater Management Section, Water Resources Branch for the province, and the Inland Water Directorate, Water Resources Branch for the federal government). In 1964 and 1965, J.E. Charron of the Inland Waters Directorate completed field studies of the Selkirk area (Charron, 1974). The study included an inventory of over 3,000 wells in the Selkirk Area, both east and west of the Red River, as well as the collection of information concerning the numerous springs and flowing wells. Significant findings of this study include:

- A total of 44 springs were identified. The two largest springs found were Poplar Spring in 1-14-2E and Blue Spring in 8-16-3E. The discharge from Poplar Spring was estimated to be 3.0 million U.S. Gallons per day (Charron, 1974).

- A total of 100 flowing wells were identified on the west side of the study area and 159 flowing wells found on the east side. The rate of flow from the wells on the west side of the area was found to be higher than those on the east side. One flowing well located in SW19-13-3E, near the Poplar Spring was discharging groundwater at an estimated rate of 2.5 million U.S. Gallons per day.

- The combined total discharge of groundwater from springs and flowing wells in the Selkirk area was estimated to be 5.9 million to 12.9 million U.S. Gallons per day.

As part of a pumping test in 1965 of a new well at the Manitoba Rolling Mills facility, the province established the first network of permanent groundwater monitoring wells that monitor groundwater levels in the Selkirk area (Render, 1986). Since that time, a record of groundwater levels in the area has been maintained, and has been used to monitor changes in groundwater levels in the area in response to changes in precipitation and groundwater use.

1972 to 1973

By the early 1970's, the combined pumping of groundwater by both the City and the industrial users in the area were causing water levels in the aquifer to reach a critical level in the Selkirk area. Although the Manitoba Rolling Mills were stressed, the City of Selkirk wells were particularly affected by this issue. This was due to low levels of groundwater recharge in the early 1970's due to low precipitation. The Manitoba Rolling Mills wells were also noted, through stable isotopic analysis, to be drawing a significant amount of evaporitic water, indicating that the Red River was being drawn into the aquifer in that area. The ability of the City of Selkirk system to continue pumping the required volumes of water was being significantly compromised. In response to this, investigations were undertaken by MCWS (Rutulis, 1973) to identify additional potential alternate municipal groundwater supply sources outside the city limits. The investigation included the drilling of test holes and the installation of test wells in an area extending from north of Oak Hammock Marsh (where flowing wells and springs exist) to the Garson area. As part of this investigation, 17 test wells were converted to permanent groundwater monitoring wells (Render, 1986) which form part of the groundwater monitoring network being utilized to date. The Rutulis (1973) investigations also utilized previous studies in the area which detailed groundwater resources (Johnston, 1934 and Herring, 1897)

Based on the results the previous investigations and their own research, a well site was proposed at NW-14-14-4EPM in the RM of St. Andrews for additional testing and further investigations (Rutulis, 1973). This site had been identified in the previous research as having highly transmissive conditions. The site offered several hydrogeological advantages and was selected for the following reasons:

- It was west, and up gradient of the low transmissivity zone which was preventing the movement of additional groundwater into Selkirk.

- It was in an area where groundwater pressures in the carbonate aquifer are at or near surface.

- It was the closest location (less than 8 km) to the city water treatment plant where wells of suitable capacity could be developed, and therefore the capital and operating costs would be lower. Various pipeline routes had been proposed at the time.

In 1973, MCWS conducted an extensive investigation of the 14-14-4E location (Rutulis, 1973). The investigation started with the drilling of 17 test wells extending from within the City of Selkirk limits to as far northwest as 21-14-4E (a distance of approximately 9.7 km from the City limit). The initial test wells were drilled within and immediately north of the city limits. These test wells encountered low transmissivity conditions in the carbonate aquifer that were unsuitable for establishing water supply wells of suitable capacity for a municipal system. The investigation then extended further to the northwest and determined that suitable high transmissive conditions existed within the 14-14-4E area and to the west.

1972 to 1973(cont'd)

On the basis of these test results, the decision was made to conduct additional, more detailed investigations on the 14-14-4E area.

The additional investigations included the installation of two 10 inch diameter pumping wells within 14-14-4E, a network of monitoring wells, and the completion of two long term pumping tests on the aquifer at this location. The first pumping test was completed at a rate of 475 U.S. Gallons per minute for a period of 30 hours. The second pumping test was completed at a rate of 660 U.S. Gallons per minute for a period of 29 hours. Based on the results of this investigation, the following conclusions were made:

- The testing demonstrated that it would be possible to establish wells in this area with capacities in the range of 700 to 1,500 U.S. Gallons per minute. The study found that the majority of the groundwater was obtained from the fractured bedrock at the top of the bedrock sequence, and the overlying carbonate rubble zones and sand/gravel layers. Deeper zones of fractures in the bedrock only contributed a small proportion of the groundwater in this location.

- The study found that a withdrawal of up to 3,400 acre feet/year (4,200 dam^3/year) of groundwater use would be sustainable in this location (Rutulis, 1973). The study noted that the discharge from the springs located north of Stony Mountain was on the order of 17,000 acre feet/year (21,000 dam^3/year). It is noted by Rutulis (1973) that this groundwater discharging to the springs is groundwater that would normally flow to the Selkirk area if the low transmissivity zone northwest of Selkirk did not exist.

- The 1973 study recommended the installation of 12 inch diameter wells with specialized stainless steel screens designed to allow the water from the Upper Carbonate Aquifer and overlying rubble zone to be accessed through the well design.

The study also considered the advantages and disadvantages of groundwater versus a surface water (Red River) supply in terms of 1973 knowledge and regulations. It was noted that a surface water source would require significant amounts of treatment and that the chemistry/temperature of the water would vary significantly over the year. As such, major adjustments to the treatment process would need to be continuously made. Groundwater provides a stable water chemistry which only requires minimal treatment.

Increased recharge to the aquifer during the summer of 1973 increased the groundwater levels and reduced the urgency to establish immediate short term supplemental water supplies. However, it was recognized that an alternate water supply was still required to address the ongoing long term water supply issues. Subsequent to 1973, the decision was made to switch to a surface water source from the Red River in 1977, and the well field was shut down. The system was maintained operationally during the period of river water use.

1977 to 1979

The conversion of the city water system to a supply from the Red River was completed in the spring of 1977. The use of the Red River as the primary source of water continued from the spring of 1977 until December, 1979. Ongoing concerns about the quality of the Red River water lead to the decision to a partial return to pumping groundwater from the city wells in late 1979. Subsequent to 1979, surface water was used intermittently until 1996 to supplement the groundwater supply when the well network was not capable of meeting the peak day demands or when the wells had to be shut down for maintenance.

During the period 1977 to 1979, the city implemented a program of metering water use at each service connection which had a significant effect on the rates of water consumption. As is common with many municipal water supply systems, the change to water use charges based on actual consumption (versus fixed sum payments) results in a significant reduction in water use as the cost for water is now directly tied to the amount used.

1979 to 1986

From late 1979 to 1986, the City of Selkirk used groundwater withdrawn from the Christie and McLean wells as the primary water supply. River water was still used to supplement the supply during peak demand days when the groundwater wells could not maintain sufficient flow to meet daily demands. This included 1985 when up to 50% of the water supply was being drawn from the river to maintain the system. To complicate matters further, during times of increased water use, the City of Selkirk used to call upon the Selkirk Mental Hospital wells to pump chlorinated groundwater from their wells, into the city distribution system. This occurred on a number of occasions from the 1960's until just after 2001, when staff became concerned about the poor condition of the existing wells at the site.

1979 to 1986 (cont'd)

During this time, a thorough review of the hydrogeology of the Selkirk area and its water supply capacity was completed by the province (Render, 1986). The study provided a comprehensive overview of the hydrogeology of the Selkirk area and the sources of recharge of groundwater which contribute water to Selkirk's existing groundwater supply. The study identified that the primary problem causing Selkirk's ongoing difficulties in maintaining pumping capacity was that the aquifer cannot transmit water fast enough to the area of Selkirk's supply wells to replenish the volumes removed (Rutulis, 1973). Significant volumes of water are available outside the Selkirk city limits, particularly to the west. The study made the following conclusions and recommendations with regards to the options available to Selkirk to improve their peak day pumping capacity, and to address the ongoing long term water shortage:

- It was recommended that standby wells be constructed adjacent to the Christie and McLean wells to provide redundant pumping capacity in the event of a well failure or wells needed to be shut down for service. The McLean well was modified/upgraded and the Tower Well was installed in 1997. A new well for the Christie site was constructed in 2014, with the old well maintained for back up use. The details are contained in Appendix A.

- It was recommended that an investigation be conducted to determine the feasibility of obtaining additional peak day pumping capacity by installing a new pumping well on the north side of the city. This recommendation was followed up with the Lily Street well investigation (UMA, 1997).

- It was recommended that the potential to utilize the wells at the Selkirk Hospital or to construct new wells south of the hospital be investigated. This recommendation was followed up on in 1986 (UMA, 1986).

- The potential to develop new water supplies to the east of the Red River in the area of Birds Hill or the Belair Moraine was considered. The potential to develop these areas was considered decent; however, the cost of installing up to 20 kilometers of pipeline as well as major crossings of Highway 59 and the Red River was very high. Further investigations of these options were not recommended primarily due to high cost.

- The development of wells in the Western High Transmissivity Zone (14-14-4E area) was considered to be the most realistic and economic approach (Render, 1986). It was recommended that in addition to developing supply wells at this location, the existing city wells should be maintained in operation so that groundwater continues to be withdrawn from both the eastern and western recharge areas and the effects of groundwater withdrawal are dispersed.

In 1986, UMA Engineering Limited was retained to evaluate the possibility of using the wells at the Selkirk Hospital to supplement the flows from the Christie and McLean wells so that peak demand flows could be maintained. The significant conclusions of this study are as follows:

- The hospital wells were very old (circa 1890), in poor condition, and could not be reliably used as a supplemental supply for the city.

- Pumping of the hospital wells would result in interference effects with the existing pumping wells in the area, such that pumping from the existing wells would be reduced and the net gain in total short term peak pumping capacity was minor.

- The study identified that the best short term solution to meet the peak day demands and provide back-up pumping capacity would be to install two new wells. One would be west of the water treatment plant, and the second would be installed adjacent to the Christie well as a back-up to that well.

The long term solution to Selkirk's ongoing issues with maintaining supply and peak day pumping capacity could only be achieved by the installation of new wells outside the immediate Selkirk area (Render, 1986). The 14-14-4E area, northwest of Selkirk was identified as a suitable location for these new wells (UMA, 1986).

1987 to 1993

In order to increase the Selkirk's peak day pumping capacity, the Rosser well was installed near the Red River in 1997. The new well in conjunction with ongoing pumping from the Christie and McLean wells resulted in an increase in the total pumping capacity, however, interference effects between the various pumping wells still resulted in the continued inability of the system to meet the peak day demands and periodic use of river water to supplement flows continued. The use of river water continued until 1996.

1993 to 1998

UMA Engineering Limited was retained to examine the existing city well system and other groundwater uses in the area to determine whether increases in the system capacity could be obtained through improvements within the city limits (UMA, 1993). The significant findings of this study are as follows:

- It was found that the pumping capacity of the individual existing supply wells had declined since the wells were first installed (up to a 50% decline in the case of the McLean well) due to their age, declining groundwater levels, as well as the accumulation of encrustation in the wells.

- It was estimated that discharge from the springs west of Selkirk varied from 4 to 8 million U.S. Gallons per day. The source of this water was recharge in the Stonewall Uplands flowing west towards Selkirk.

- The existing city wells were found to be only able to meet demands during periods when precipitation was normal to above normal and groundwater demands were average to below average. During periods of drought and during the peak summer months, the supply still had to be supplemented with river water.

- It was found that there was no potential to develop additional wells to the south (due to interference effects with the Manitoba Rolling Mills wells), and southwest (other well users in the area). It was found that some potential existed to develop supply wells on the north side of Selkirk which may provide additional peak day pumping capacity, but was unlikely to result in a sustainable withdrawal of additional water in the long term.

The study recommended the following:

- To undertake a test well drilling program on the north side of the city to investigate the potential to develop additional wells in that area.

- That the McLean well be reconstructed so that it only withdrew water from the lower carbonate aquifer and that a new well be installed nearby that withdraw water from the upper carbonate aquifer.

- That a stand-by well be constructed for the Christie well to provide back-up pumping capacity.

A test well drilling program was undertaken in 1994 (UMA, 1994) to follow-up on the recommendations from the Render (1986) and UMA (1993) study to investigate the potential to develop a new supply well within the northern city limits. Seven test wells were drilled between Greenwood Avenue and the northern City Limits. Based on the results of the initial investigations, a site located on Lily Avenue was selected for additional testing which included the installation of an 8 inch diameter test well and the completion of a 24 hour pumping test at a rate of 260 U.S. Gallons per minute. Based on the positive results from this initial investigation, it was recommended that a large diameter test well be installed and a pumping test conducted at a rate of 350 U.S. Gallons per minute for a period of 7 days.

From 1995 to 1997, an extensive work program was undertaken to follow-up on the 1994 Lily Avenue Investigation, undertake testing of the existing city wells, and implement a regional groundwater sampling program in response to potential water quality concerns identified during the Lily Avenue investigation (UMA, 1997). The significant findings of this study were:

- Testing of the existing city wells found that the total pumping capacity of the wells had declined by approximately 40% from when the wells were first installed. It was found that the existing wells could no longer meet average day demands and that the need to utilize river water to make up shortfalls would be frequent. It was recommended that the existing wells be redeveloped in an attempt to improve their capacity sufficiently to meet the average day demand.

A 10 inch diameter test well was installed at the Lily Avenue site and a 7 day pumping test conducted at 350 U.S. Gallons per minute (UMA, 1997). The testing concluded the following key results:

- Pumping the Lily Avenue well resulted in drawdowns in the water levels in the existing city wells of up to 3 feet due to interference effects between the various pumping centers. It was determined that the Lily Avenue well could be pumped over the short term to supplement the existing water wells but river water would still need to be used at times of very high demand. The Lily well could not be used as a long term source of water without significantly reducing or shutting down the flow from one of the other existing city wells due to the effects of interference drawdown.

1993 to 1998 (cont'd)

- Analysis of the drawdown effects of the Lily well in conjunction with the existing city wells found that the efficiency of the existing city wells would need to be improved so that they could meet the average day demands. The Lily well could only be used for short term peak day pumping to supplement the flow.

- The testing found that the drawdown cone from the Lily well extended under the Red River and was likely resulting in an influx of surface (river) water into the aquifer. It was also found that water quality deteriorated during the test, with increasing levels of nitrates. The source of the nitrates was found to be groundwater impacted with nitrates on the east side of the Red River which was drawn towards the pumping well during the test. It was recommended that a regional groundwater sampling program be done to further evaluate the potential effects of Lily well pumping on water quality, particularly with respect to nitrates from the east side of the river. A regional groundwater sampling program was initiated and has continued through to 2014 (EGE, 2014). The results of this sampling have confirmed the ongoing presence of elevated levels of nitrate on the east side of the Red River.

- An inventory of existing domestic wells in the area of influence of the Lily well found a number of wells that may be affected by the pumping of the Lily well and would require mitigation if the Lily Street well was put into service. The required mitigation varied from the lowering of the existing pump intakes to the need for a new domestic well to be installed.

In 1998, a work program was undertaken to improve the capacity of the existing wells and the ability of the well system to produce the required volumes of water (UMA, 1998). The work program included the redevelopment of the Christie and Rosser wells, the installation of a liner into the McLean well so that it only pumped from the lower carbonate aquifer, and the installation of the Tower well in the upper carbonate aquifer to replace the flow lost by the installation of the liner in the McLean well. The work program was successful in increasing the total pumping capacity of the existing wells by 15%, which was roughly the equivalent of the average day demand at that time. However, it was still not sufficient to meet peak day demands (UMA, 1998).

1999 to 2004

During this period, the City of Selkirk continued to obtain water from the 4 city supply wells (Christie, McLean, Tower and Rosser). During 2003, groundwater levels were low due to declining precipitation and the existing 4 supply wells could not meet the peak day demands. In order to maintain supply, an emergency hook-up to the Selkirk Linen Services well system was made to obtain more water. The water was not directed to the water treatment plant for treatment prior to being pumped into the distribution system. The temporary hook-up was not in conformance with regulatory requirements and the decision was made to not consider this alternate source as an emergency back-up in the future.

2005 to 2006

A study was undertaken by Cochrane Engineering (Cochrane, 2005) to review the potential water source options northwest of Selkirk in the southern Interlake region. The study reviewed the following 5 potential sources of water:

- 8-16-3E – This location is approximately 30 kilometers northwest of Selkirk and is the site of 3 flowing relief wells installed by the province in the 1970's to lower groundwater levels and alleviate some of the problems in the area associated with large discharges of groundwater to the surface and the effects this was having on drainage in the area.

- 6-15-3E – This location is approximately 23 kilometers northwest of Selkirk and is the site of Poplar Spring which has an estimated outflow on the order of 1,585 U.S. Gallons per minute.

- 17-15-3E – This location is approximately 24 kilometers northwest of Selkirk and is the site of several flowing relief wells installed by the province in the 1970's to alleviate drainage issues associated with the large discharges of groundwater to surface in the area.

- Wavey Creek – This site is approximately 19 kilometers northwest of Selkirk. The potential of diverting part of the surface water flow in this creek was considered. The creek at this location drains water from the relief wells and Poplar Spring.

- 14-14-4E – This site is located 7 kilometers northwest of Selkirk and is the site of the 1973 investigation completed by the province as a potential water source for the City of Selkirk.

2005 to 2006 (cont'd)

The 2005 study found that the 14-14-4E site was the preferred alternative due to its proximity to the city and that it was a groundwater source which requires less treatment than surface water. As such it was a more cost-effective option. The diversion of water from Wavey Creek was the second best option.

In 2006, the City of Selkirk undertook a review of the condition, capacity and regulatory conformance of the city water treatment plant and raw water supply (Cochrane, 2006). The study recommended significant upgrades to the water treatment plant and also recommended upgrades to the raw water supply. With regards to the existing 4 wells, it was found that the wells were considered capable of meeting average day demands, but could not meet peak day demands. It was also noted that the supply system was reliant on all 4 wells operating and that there was no redundant capacity to maintain supply if one of the wells failed or is taken off-line for service. It was recommended that the city develop additional supply wells that allowed the city to maintain the required peak pumping rates, and provided for the necessary redundant pumping capacity.

As part of the 2006 work program, the Christie Well was inspected and rehabilitated (Bell, 2006). The inspection found that the casing of the well was highly corroded and there was a substantial build-up of iron and manganese within the well. It was also found that even after development; the specific capacity of the well was still only 40% of its original capacity due to declining static levels since the well was installed. It was recommended that the well be replaced to provide a mechanical back up only, without addressing the water supply shortage issue.

Also in 2006, the city commissioned a study to conduct preliminary assessments towards developing the additional supply wells recommended in the Cochrane 2006 report. The site selected for development was the 14-14-4E site recommended in the 2005 study and identified in other past historical studies (UMA 1993 and 1997, Render 1986, Rutilus,1973).

2007 to Present

In 2011, preliminary investigative work was undertaken at the 14-14-4E site (Wiecek, 2011). The work consisted of the drilling of eight test holes and the installation of three monitoring wells. The investigation confirmed that it was not possible to establish suitable capacity wells closer to the city, consistent with past investigations, and that the preferred location for the new supply wells was at NW14-14-4E.

In early 2011, the City of Selkirk formed a water task force to address the issues and challenges related to their water supply. As a result of many meetings of the task force and council, it was elected to go ahead with the development of a well field at NW14-14-4E after the test wells had been drilled in the area. A public open house was held in the City of Selkirk to introduce the project to the residents in the area. The residents reacted negatively to the project, and great deal of opposition was felt. The public was upset about the concept that Selkirk would be taking local groundwater resources and that unsuitable drawdown and quality changes would result. The RM of St. Andrews also had concerns about the proposed water supply project occurring within their jurisdiction. As a result of these concerns, The City of Selkirk elected to not go ahead with the project at the time due to the public opposition.

WSP Engineering was retained by the city to undertake a water and wastewater master plan study (WSP, 2014). The study included a full review of the water and wastewater system, including current and future demands and the ability of the systems to meet those demands. The study found that the water supply well capacities have continued to diminish, and that there was a need to construct redundant pumping capacity within the city limits to address the city's ability to maintain flows in the event of a failure of one or more of the supply wells. The study also identified the need to establish a supplementary supply outside the city limits to address the long term issue of the system's ability to meet peak demands. One of the key recommendations in the WSP master plan document was the replacement of the Christie Well.

In the spring of 2014 the City of Selkirk contacted Friesen Drillers about the mechanical replacement of the Christie Well. During the design of the proposed replacement well, the city staff requested that Friesen Drillers redesign the well to allow for a higher well yield in the new well. After extensive review and analysis, Friesen Drillers concluded that the hydraulic problems with the Christie Well could not be fixed, as the main problem with the well was declining pumping water levels. In order to review the issues, the city requested Friesen Drillers review all the hydrograph stations in the area. The stations are shown on the following page as Figure 1.

2007 to Present (cont'd)

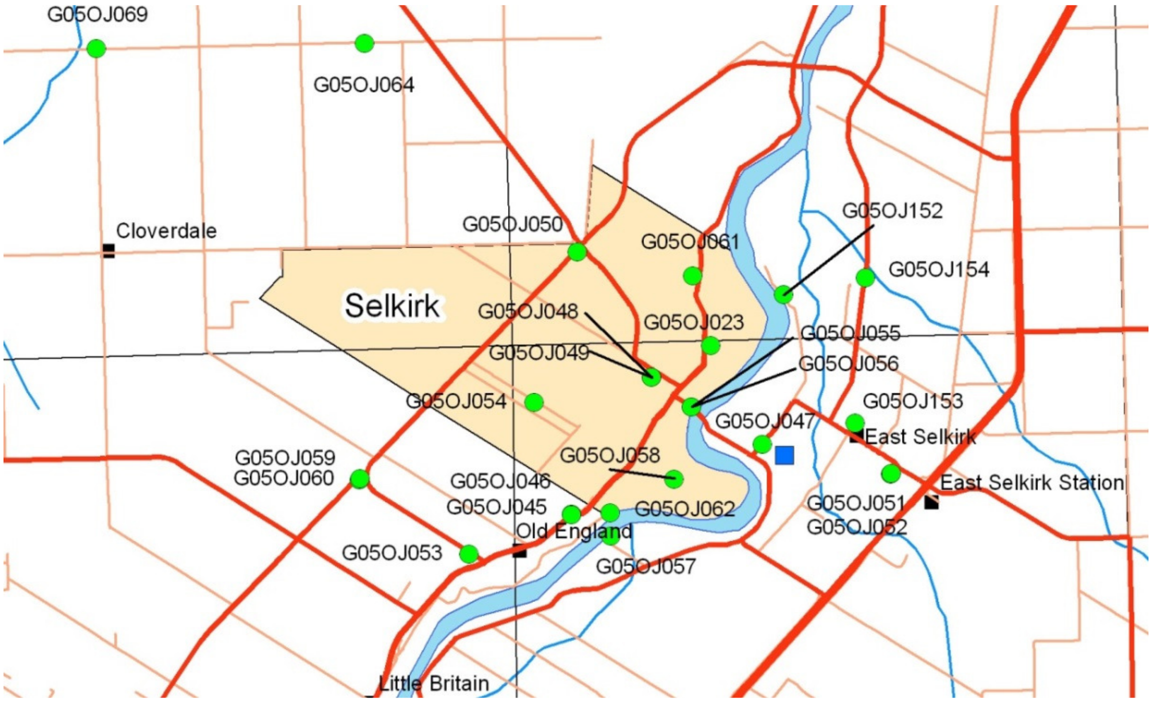

Figure 1 – MCWS Observation wells around the City of Selkirk (source – MCWS, 2009)

All of the hydrograph stations were reviewed, and a potentiometric surface map was created around the City of Selkirk, which is shown below as Figure 2.

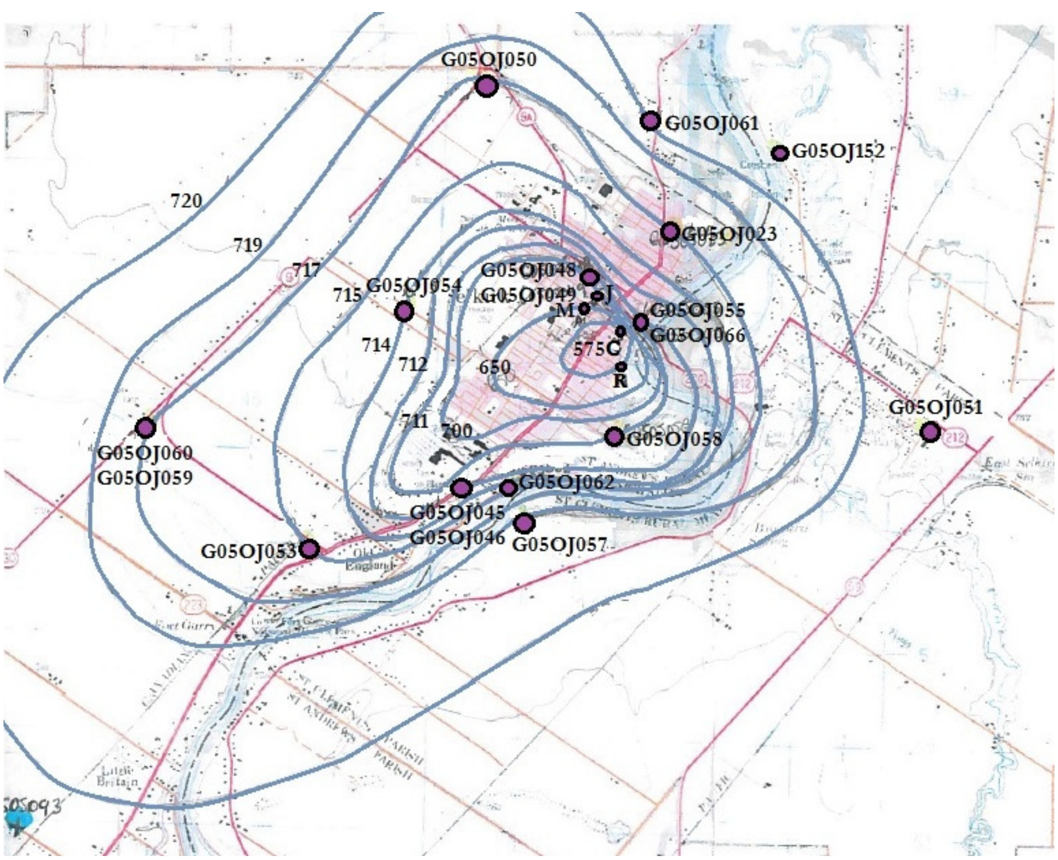

Figure 2 – Summer 2014 potentiometric surface map around the City of Selkirk. Note that the drawdown contours are in feet.

2007 to Present (cont'd)

The review of the hydrographs in the area generally showed that water levels in the Manitoba interlake were elevated completely surrounding the City of Selkirk. The effects of many years of increased precipitation showed that static water levels in the carbonate aquifer were rising. Examples of the hydrographs are shown below as Figure 3.

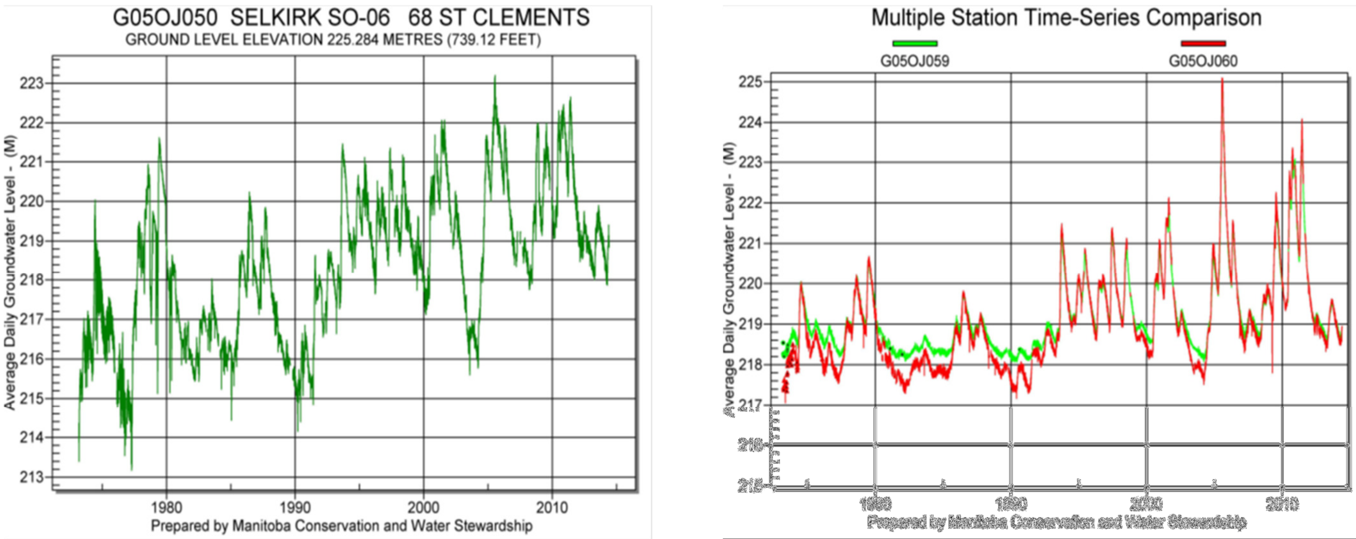

Figure 3 – Examples of increasing long term hydrograph stations surrounding the City of Selkirk (source – MCWS, 2014)

In accordance with the regional hydrograph analysis, the analysis of the stations within the City of Selkirk showed a more alarming trend. Hydrograph stations located near the Christie Well were showing declining trends. A particularly alarming issue was noted in G05OJ056 when the operating pumping water levels of the Christie Well were plotted. The hydrograph analysis showed a declining trend that would start approaching the main permeable fracture zone in the Christie Well at 190 feet below grade. Pumping water levels were predicted to continue declining, and showed that near 2020, the Christie Well would have considerable issues maintaining any water supply, and that the flow rates would be reduced substantially. This is figure is shown below as Figure 4. During 2014, static water levels in the Christie Well were approaching 175 feet below surface, and the only major fracture zone supplying the well was noted to be at 190 feet below grade.

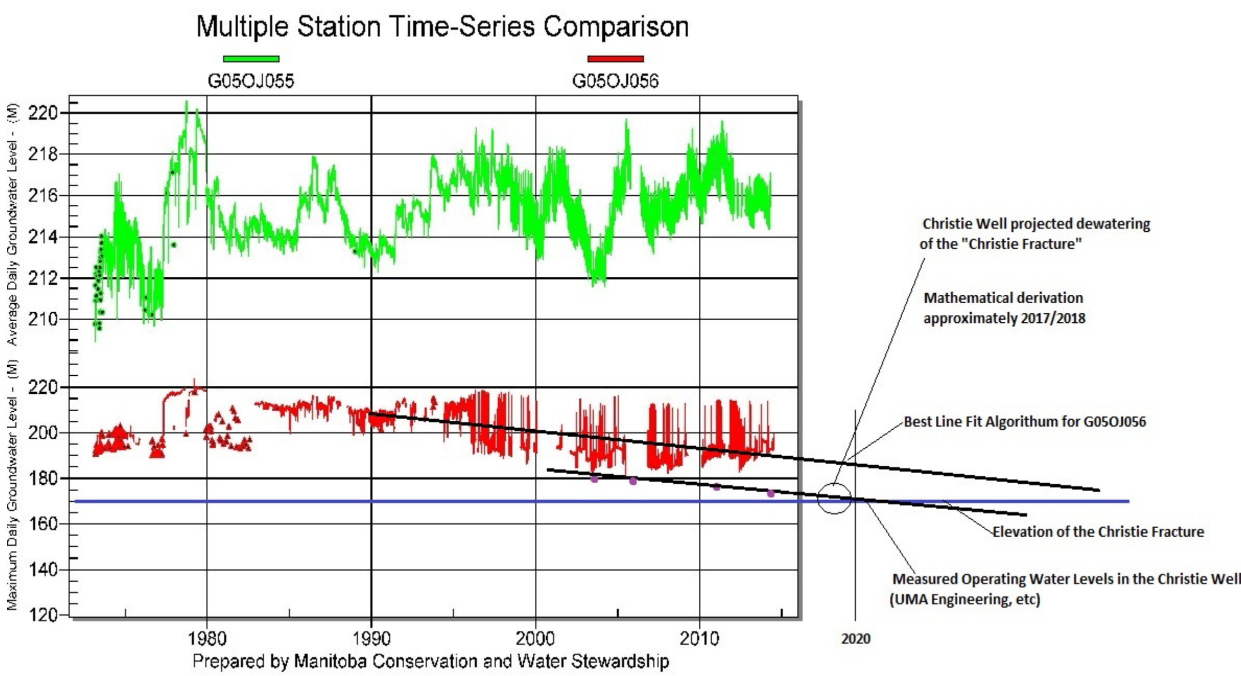

Figure 4 – Hydrograph analysis of the operating pumping water levels of the Christie Well (data source – MCWS, 2014)

2007 to Present (cont'd)

Through a detailed hydraulic analysis, the investigation confirmed that combined effect of the four pumping wells in the City of Selkirk area were over pumping the transmissive condition of the bedrock. Due to the transmissive condition, groundwater is not able to flow into the Selkirk area fast enough to replace the water that is pumped out. The review conducted confirmed the predictions made in 1986 by F.W. Render during his investigations. What is especially concerning is that fact that Selkirk's population has changed little over the last 40 years, and in some years has shown a negative growth rate. Yields from the cities 4 wells have generally been declining since at least 2006. Figure 5, shown below, depicts the annual use of the 4 city wells (WSP, 2014)

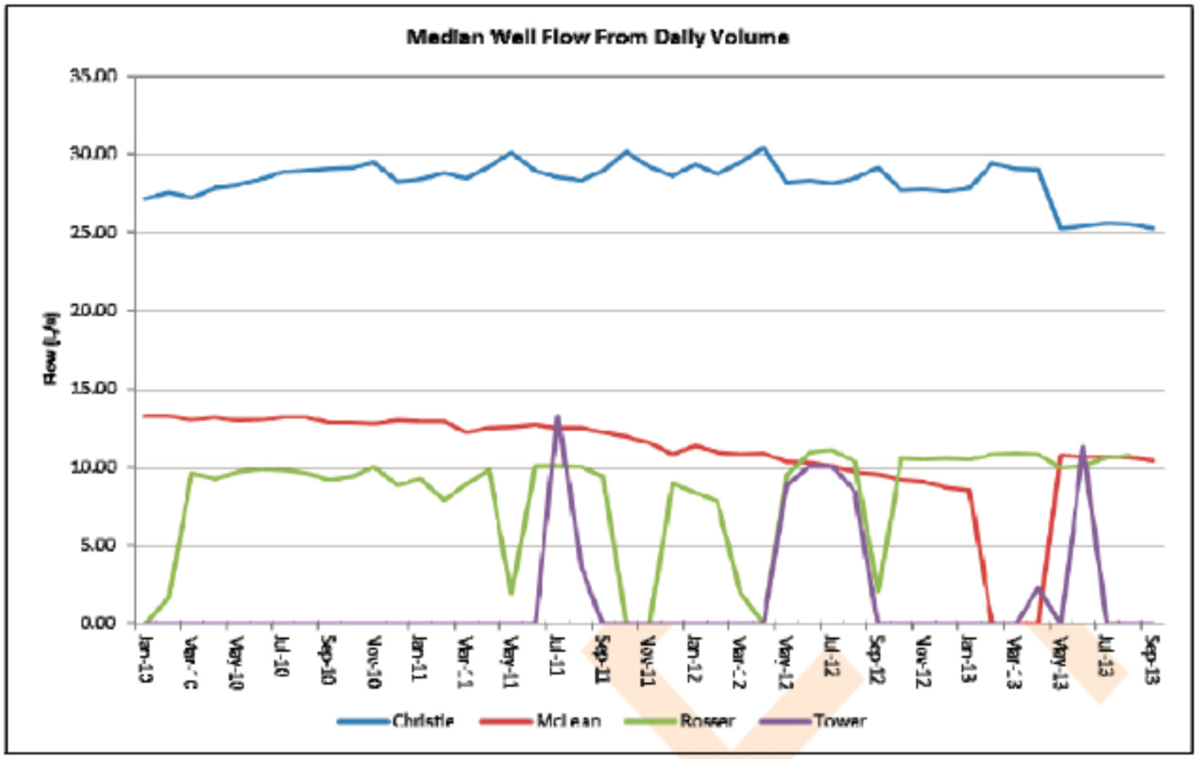

Figure 5 – Yields from the City of Selkirk production wells (source – WSP, 2014)

In the late summer of 2014, it became apparent a very serious situation had developed in Selkirk, and that immediate action needed to be taken to deal with the issue. The many years of alternative solutions and short term repairs/modifications had not solved the long term water supply capacity problem. The situation was especially serious at the Christie Well, as it was supplying at times 75% of the water supply for the city.

In the summer/fall of 2014, the City of Selkirk went ahead to replace the Christie Well to deal with the aspect of mechanical back up. The existing Christie Well would be maintained as back up well in the event of a mechanical failure of a pump or motor (Appendix A).

Based on this information, the City of Selkirk approached the MWSB to develop a new project to address the long term water supply issues for the city. Due to the negative reception that the project received during the 2011 attempt, it was decided that public consultations would take place in a different manner. Despite developing a plan for a new water supply, it was decided that the city would maintain and largely replace the existing well field to allow it to be used in the long term as a water supply into the future.

Population Trends and Water Use

The City of Selkirk has had a fairly stable population over the last 40 years, with an average growth rate of 0.17% (WSP, 2014). It should be noted that at various times in the past, the growth rate for Selkirk has been negative. Currently, based on the Statistics Canada 2011 census, Selkirk's population was noted to be approximately 9,934 people. The historical population trends are shown on the following page as Figure 6.

Population Trends and Water Use (cont'd)

Year	Population Served	Compounded Growth Rate
1971	9,330	
1976	9,862	1.12%
1981	10,037	0.35%
1986	10,010	-0.05%
1991	9,815	-0.39%
1996	9,881	0.13%
2001	9,752	-0.26%
2006	9,553	-0.41%
2011	9,934	0.79%
Overall CGR 0.17%		

Figure 6 – Overall population totals – City of Selkirk (source – WSP, 2014)

Overall, the population has changed little from 1971 to present, growing only 4 people during that 40 year period of time. There has been some commercial development in the city, which has been fairly significant in the western areas, leading to the city becoming a regional service center. The commercial area in the western part of Selkirk has grown considerably in the last ten years. In addition, a new regional medical center is being built to replace the former Selkirk Hospital, which would likely increase Selkirk's status as a regional service center for the entire area.

Originally water use Selkirk was unmetered, with users simply paying a service charge for access to the water supply (WSP, 2014). This has changed, and now all individual water use is metered with charges being stipulated by the city with review from the Public Utilities Board of the Province of Manitoba. The City of Selkirk has also increased their charges for water use from the City distribution system recently to keep up with ongoing maintenance and operating costs.

Currently, the City of Selkirk's water use is approximately 334 L/person/day (WSP, 2014), with the average use dropping per year over the last several years. Selkirk's water use conservation plans have been very aggressive in reducing the per capita consumption for the City. Some of the major programs have included the following:

- A major program for the installation of low flow toilets within the city.
- Programs at reducing water consumption within the city by major water users.
- Additional digital real time monitoring of flows for the advanced detection of major water leaks.

Additional details are contained within the WSP master plan for the City of Selkirk's water supply/wastewater infrastructure which was developed in 2014.

Available Water Supply Options Considered

The City of Selkirk has a well-documented struggle with their water supplies, dating back many years. During this time, additional water supply options have been reviewed and addressed, with the most obvious one being the Red River, which was implemented for several years in the late 1970's.

The most obvious choice of an alternate water supply for Selkirk is the Red River. As noted above, the Red River was used continuously and cyclically in the past as a water supply. At times, the water supply from the wells was blended with river water to provide the required flow rates. Although this was acceptable at the time in terms of regulations, it is no longer so.

After the Walkerton and North Battleford tragedies in Canada in the early 2000's, various groundwater protection and surface water treatment acts were developed in Canada. In Manitoba, the Safe Drinking Water Act was developed and put into force in 2001. This

Available Water Supply Options Considered (cont'd)

act makes a strong technical distinction between groundwater and surface water. Surface water sources now require significantly more complex and expense treatment to remove such things as Giardia, Crypto-Sporidium, various bacteria's and viruses that can be present in surface water. It would no longer be acceptable to simply chlorinate river water and inter-mix the water supply within the distribution system of the city which has been previously utilizing groundwater.

In addition, recent flooding in the area damaged the river intake for the City of Selkirk, and it was finally decommissioned after the 1997 Red River flood. Siltation and sedimentation had also been a problem for the water supply from the Red River, along with temperature and turbidity problems. The city water treatment plant is no longer acceptable to treat river water meeting current regulations.

Render undertook an extensive review of the available groundwater development options in 1986. Render concluded that the best hydrogeological solution for the City of Selkirk's water supply in 1986 would be to utilize the Bird's Hill Glacio-Fluvial Complex to the east of the city. Due to the piping costs and the difficulty in piping the water supply under the Red River and under the floodway, the option was deemed to be more expensive. Conditions in the Birds Hill glacio-Fluvial complex have also changed in the last 30 years as well, with additional development occurring. Regulations also have also changed, and it is likely that the water supply would be deemed as Groundwater Under the Direct Influence of Surface Water under the new Safe Drinking Water Act. Render concluded in 1986 that the most technically and economically feasible option for the future long term water supply was the development of wells within the western high transmissivity area (Render, 1986).

It should be noted that Render (1986) also suggested other groundwater development options, including placing additional wells within the City of Selkirk existing drawdown cone. In many cases, these options were attempted, or could not be attempted due to interference with existing water supply users in the area. A major production well was attempted to the north, as detailed in the previous sections, which was not able to be put into service due to interference with the existing wells. Overall, many of the options of siting additional wells in the city were acknowledged to be technically challenging and likely only suitable for smaller yields and short term solutions. It is also important to note that at the time Render was conducting his analysis in the Selkirk area, operating water levels were almost 75 feet higher than currently measured today. Render's cross section from 1986 is shown below as Figure 7, with the current and 1986 water levels depicted.

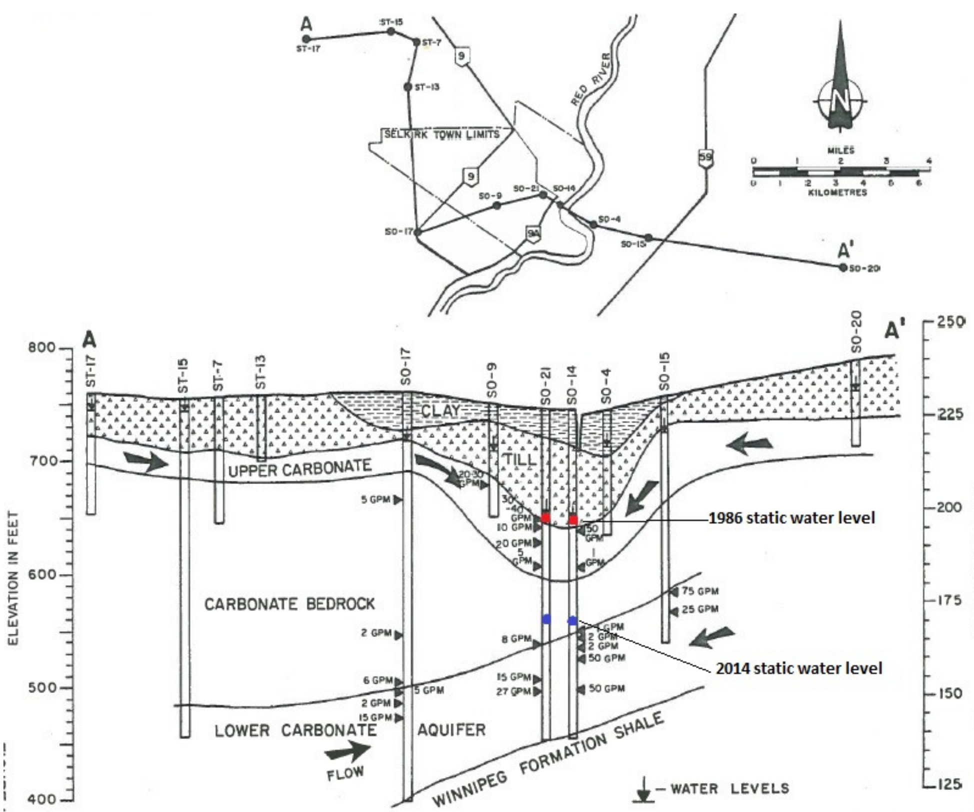

Figure 7 – Geological cross section through Selkirk showing operating water levels (source modified – Render, 1986)

Available Water Supply Options Considered (cont'd)

As part of the work conducted for this project, all of the available water supply options for the City of Selkirk were compiled into list of acceptability. This compilation is shown below as Figure 8.

	OPTION 1 Construct RM of St. Andrews Groundwater Wells	OPTION 2 Construct Oak Hammock Marsh Area Groundwater Wells	OPTION 3 Use Oak Hammock Marsh Surface Water	OPTION 4 Construct Birds Hill Groundwater Wells	OPTION 5 Construct Other Well Sites around Selkirk	OPTION 6 Use Existing or New Wells plus Water Conservation Program	OPTION 7 Use Red River Surface Water
DESCRIPTION	Construct a well and supply line in the RM of St. Andrews as identified in 1973.	Similar to Option 1 but there would be an additional six miles of piping.	As this is surface water, upgrades to the Selkirk water treatment plant may be required and an additional six miles of piping.	With this option, the water quality would be good and quantity is excellent, however water would be piped and pushed below the Red River and possibly the floodway.	New wells near the Manitoba Rolling Mills (MRM) plant and/ or wells east of the City of Selkirk, including East Selkirk/ Garson/ Tyndall.	Construct a new well within the City of Selkirk. This may meet short term requirements but within a few years the supply problem would return.	Construct a new water treatment plant along the Red River. This surface water would require treatment to meet new regulations.
POTENTIAL RISK/ IMPACT	VERY LOW	VERY LOW	VERY LOW	MODERATE (Groundwater protection is limited due to permeable soil conditions.	MODERATE TO HIGH MRM wells may include pathogens and bacteria issues. With the East wells there is potential for nitrate and de-watering issues.	HIGH Will not meet Selkirk's medium or long term water requirements.	MODERATE TO HIGH There are pathogen and bacteria concerns – during flooding periods, there may not be adequate treatment.
QUALITY OF SUPPLY	Appears **VERY GOOD** This will be confirmed by detailed technical investigation.	Appears **VERY GOOD** Would require further investigation to confirm.	ACCEPTABLE	VERY GOOD	MRM wells blend groundwater with river water. Quality is good but requires treatment. High shallow bedrock conditions to the east have created some issues with nitrates in the groundwater.	ACCEPTABLE	Considered a **HIGH RISK** water supply. New regulations (put in place following the Walkerton and North Battleford E. Coli outbreaks) would mitigate this risk.
CONSTRUCTION FEASIBILITY	GOOD	MODERATE Extensive piping required.	MODERATE Water treatment plant upgrades and expensive piping.	POOR Extensive piping distance and the difficulty in piping across the Red River and Floodway.	QUESTIONABLE City of Selkirk may not be able to acquire the rights to use the water. High bedrock conditions and transmissive conditions are not good. In some cases pipes cross the Red River.	GOOD but supply not feasible. The bedrock in Selkirk is not transmissive enough to allow the volume of water to enter the area to meet current demands.	GOOD Water treatment plant required.
COST	GOOD	MORE EXPENSIVE	EXPENSIVE	VERY EXPENSIVE for piping works.	MORE EXPENSIVE May be costly to deal with MRM water rights. Piping costs expensive.	**MORE EXPENSIVE** (short term) or **VERY EXPENSIVE** and not cost effective (long term).	VERY EXPENSIVE Upgrade or construct the treatment plant and river intake.
COMMUNITY ACCEPTANCE	Concerns from local residents and landowners have to be addressed.	Concerns from local residents and landowners have to be addressed. Higher cost than Option 1.	Likely **LOW** due to high costs and potential concern from environmental groups.	Likely **LOW** due to high costs. Concerns from local residents/landowners have to be addressed.	LOW with MRM water as it has a high percentage of river water. Low to moderate with eastern wells as concerns from local residents and landowners have to be addressed.	LOW Since existing supply is not feasible and conservation measures are slow to be accepted.	LOW There were many complaints about the quality of water in the 1977/80 period and the poor perception of using river water.

POOR OR LOW | MODERATE OR QUESTIONABLE | GOOD OR VERY GOOD

Figure 8 – Available water supply options – City of Selkirk water supply (Landmark Planning, 2015)

Overall, the most ideal water supply for the City of Selkirk in terms of technical and economic terms was the location of a new well field within the western high transmissivity zone that was tested in 1973 by the province. This option represented the most technically and economically feasible option to deal with the long term issues of Selkirk's water supply.

Scope of Services

During the late summer of 2015, staff from the MWSB approached Friesen Drillers to develop a scope of work for the analysis and testing of a proposed water supply for the City of Selkirk near the 14-14-4E site in the RM of St. Andrews. Very early on in the proposal development, the following conditions were recognized:

- The existing water supply of the City of Selkirk was in a very tenuous position, and an immediate solution was needed very quickly. The technical analysis conducted on the existing water supplies indicated that serious issues in maintaining capacity would be noted be 2018 to 2020. Due to the amount of time required to implement the water supply at the 14-14-4E site, project duration and timing would be critical.

- The City of Selkirk had one well, constructed in 1968, which provided at times up to 75% of the water supply, had no mechanical back up in the event of failure.

- The previous attempt to undertake this project several years earlier met with a substantial public opposition and a great deal of concerns about groundwater protection of existing water supplies.

Scope of Services (cont'd)

- Due to the location of the site and the number of concerned stakeholders nearby, it was highly likely that this project would be highly controversial, and would require a substantial effort into public consultations and technical analysis.

In order to develop this project, Friesen Drillers developed a team approach to the project, working with staff from Landmark Planning and Design for the consultation aspects, and W.L. Gibbons for the project background and development. Based on team's our review of the available historical documentation and our experience, the following scope of services was developed to deal with the technical and consultative efforts for this project:

- It was acknowledged that the public consultation would form a major part of this project. Prior to conducting any work on the site, public consultations would begin with private land owner meetings and discussions. Additional stakeholder groups would also be met with in smaller groups separately. Upon completion of these meetings, a public open house would be held to discuss the project, and to help local residents understand the rational for the project, and to have input into the technical program.

- Undertake consultation with the RM of St. Andrews council and staff.

- During the initial consultation, and extensive amount of background research and analysis into the regional hydrogeology was undertaken.

- During the public meetings, a request was made for private residents to make their wells available for monitoring stations during the field analysis work.

- Prepare and apply for a groundwater exploration permit for the site from Manitoba Conservation and Water Stewardship (MCWS) – Water Use Licensing Section (WULS).

- Review all of MCWS hydrograph monitoring stations for long term water levels and groundwater chemistry/isotopic chemistry. In total over 90 stations were reviewed as part of the regional investigations.

- Undertake a well inventory within a 2.0 mile radius of the proposed production well site at NW 14-14-4E. The well inventory would also serve to identify which residents would be willing to allow for transducer monitoring, and to determine where data gaps would exist in the monitoring network.

- Upon completion of the well inventory, a secondary round of public meetings and stakeholder meetings would be held to update the project. Regular update meetings would be held during the course of the project with all groups and stakeholders.

- Complete the drilling and installation of six observation wells in the carbonate aquifer. The observation well locations would be planned for areas were available monitoring wells do not exist.

- Design and install two 12 inch diameter production wells, and complete the required developing. Short term specific capacity tests would be performed on both wells.

- Undertake a 7 day hour pumping test and three day recovery on one of the proposed supply wells, with a pressure transducer monitoring network to monitor water level response over pumping period, including the collection of groundwater quality samples for isotope and geochemical analysis. It was planned to have as many as 30 observation wells during the testing.

- Review the capacity of the well field, and calculate the proposed impact from pumping at various rates.

- Conduct a final round of public land owner and stakeholder meetings, completing finally with an open house for the general public.

- Complete a detailed report of the technical investigations and public consultations.

- If the results are successful, prepare an environment act proposal for the project.

Scope of Services (cont'd)

The City of Selkirk and the Manitoba Water Services Board gave approval to proceed with the project on October 29, 2014 through Engineering Agreement No. 14-43.

It was acknowledged in the project proposal that the work would likely take a year to complete, with final reporting aimed for completion by late November, 2015. The technical aspects of the project are described in this report, with a complete report on the public consultations by Landmark Planning and Design contained in Appendix B.

Regulatory Requirements for Municipal Groundwater Supplies

Water Rights Act and Existing Licenses

The Province of Manitoba has the responsibility to distribute water under the Water Rights Act. This act requires that anyone using water exceeding 25,000 L/day for commercial, industrial, agricultural, and municipal use must obtain a license under the act. This is also required for industrial and geothermal heating/cooling applications. Water rights licensing is based on a first in time, first in right procedure. For groundwater projects, an exploration permit is required prior to starting the project. In order to provide approval for the exploration permit, MCWS – Water Use Licensing Section (WULS) reviews the available aquifer allocation (if available), to determine if the project is potentially suitable.

Upon completion of the testing of the project, MCWS-WULS reviews the proponent's proposal to determine if there are any third party impacts that may result. If these impacts are present, mitigation factors may be required. These include such things as groundwater interference plans, well repairs, replacements, and pump inspections. These programs are usually undertaken by the proponent of the project. Reports are usually prepared for the project by a consulting hydrogeological engineer or hydrogeologist.

If the application is deemed acceptable and third party impacts are managed or addressed, MCWS-WULS will issue a license for the diversion of groundwater. The proponent then has the right, under some conditions, to the water supply for a specific duration.

The City of Selkirk currently holds a license for their existing water supply. These have been regularly updated and amended over the years. The details of their current license are contained in Appendix C. Previous licenses are also contained in Appendix C. The main aspects are provided below:

- License No. 2009-073 – allows for the pumping of 1,751.13 acre feet/year (2,160 dam^3/year) from four wells within the city. Water is not allowed to be pumped from any of the wells if the water levels fall below:
    - Christie Well – 192 feet below grade.
    - McLean Well – 192 feet below grade.
    - Tower Well – 85 feet below grade.
    - Rosser Well – 185 feet below grade.
- The maximum instantaneous flow rate of diversion shall not exceed 1.9 ft^3/s (0.054 m^3/s).
- The license is for municipal use.

There a number of additional conditions and clauses on the license. The current water rights license is valid for 20 years.

It should be noted that the City of Selkirk is currently utilizing about 65% of their annual allocation for water use from MCWS – WULS, with water use generally declining. At no point in the available record did the City of Selkirk ever exceed their respective annual allocation from their license. WSP confirmed that Selkirk's use was about 65% through their extensive work on the City of Selkirk master plan in 2014 (WSP, 2014). The annual water use by the City of Selkirk is shown on the following page as Figure 9.

Water Rights and Existing Licenses (cont'd)

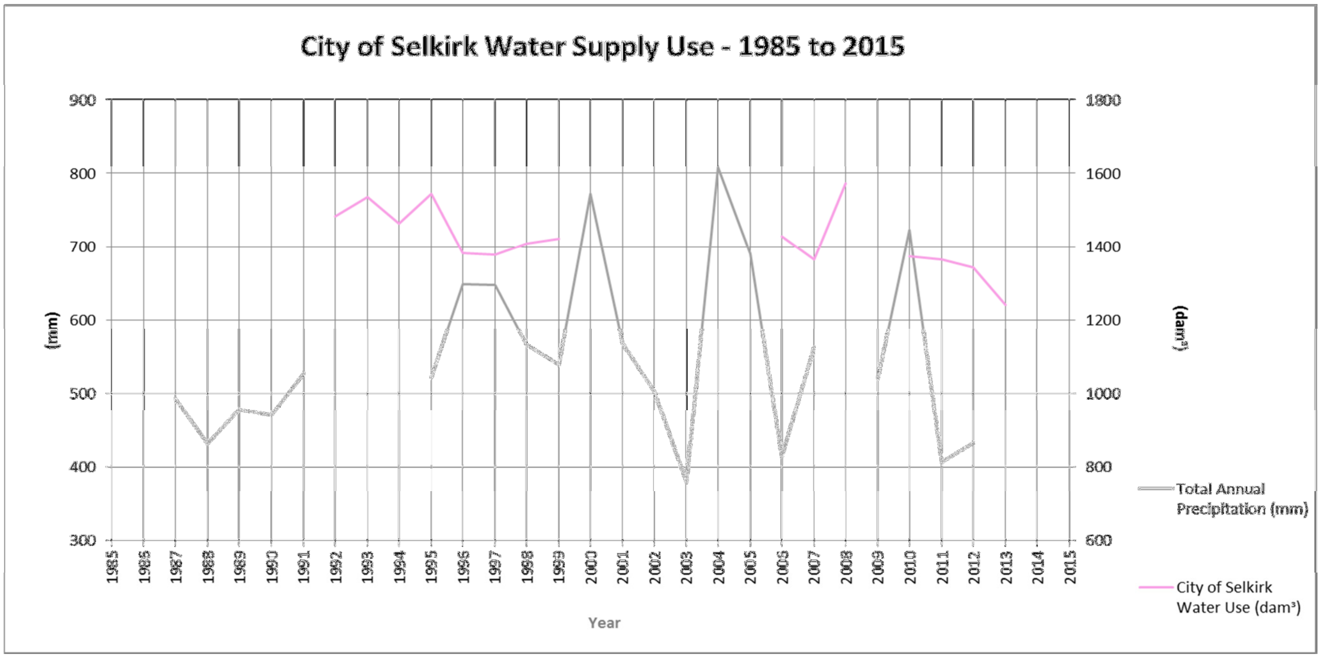

Figure 9 – Annual water use records – City of Selkirk (source – City of Selkirk, 2014)

All of the existing wells are located on lands owned by the City of Selkirk. The city does not own the mineral rights to the lands where the wells are located, as these rights have been retained by the crown.

The proposed NW 14-14-4E well site is located within the RM of St. Andrews on lands that are owned Her Majesty the Queen in the Right of Canada, with the Crown controlling the mineral rights to the site. The well sites have been located within the public right of way road allowances on a municipal road allowance.

The nearest First Nation to the site is the Brokenhead First Nation I.R.#4, which is located about 30 km to the northeast.

Friesen Drillers submitted a groundwater exploration permit on April 15, 2015. The application provided a requested new groundwater diversion allocation of 1,456.5 acre feet/year (1,796.65 dam^3/year), although this was acknowledged that this estimate could change considerably based on the testing and analysis. MCWS – WULS issued a groundwater exploration permit on April 24, 2015. There were a number of conditions on the exploration permit, which corresponded well with the defined scope of work for the project. The authorization permit allowed for the testing of the wells under the supervision of a consulting hydrogeologist or hydrogeological engineer.

A copy of the groundwater license application and subsequent authorization is attached as Appendix D.

Environment Act License

In the event that a requested groundwater supply project exceeds 200 dam^3/year, a Class 2 environment act license is also required. This is required under the Environment Act of the Province.

An Environment Act Proposal is prepared by the proponent for a water supply project. This proposal usually involves the identification of any potential environmental effects from the water supply diversion. The proposal usually identifies potential third party impacts and possible effects. Mitigation measures are usually proposed and evaluated. The proposal is usually advertised for public comment and review. Often times, environmental groups and organizations review these proposals to ensure that environmental effects are taken into consideration. In the event that there is a significant amount of public opposition to a potential project, the Minister of Conservation and Water Stewardship may order the Clean Environment Commission to hold public hearings to review the

Environment Act License (cont'd)

project and the proposed concerns. Although these public hearings are rare, they have been held for water supply projects in Manitoba in the past.

Copies of environment act proposals are also submitted to various organizations within governments for comments and review. Often, water supply proposals involving groundwater use are reviewed by the Provincial Groundwater Management Section of MCWS. If the environmental impacts are deemed to be minor, or the mitigation proposals are acceptable, the director will issue an environment act license for the development or project.

The requirement for environment act assessments for water supplies was put into force in the mid 1990's. As a result of this requirement, several water supply systems that did not originally obtain an environment act license, would be requested to undertake this aspect upon a request for additional groundwater use allocation.

The City of Selkirk's existing water supply does not currently hold and an Environment Act License, as the license pre-dated the environment act process, and no changes have been requested since that time. The new project at the 14-14-4E site involves a new water supply; therefore a new Environment Act License application will be required for the site. This application will be filed at a later date in a separate document.

Water Supply Requirements

The City of Selkirk generally has a low population growth rate, and is only predicted to reach 11,000 people by 2038. The annual allocation on the existing license of 1,751.1 acre feet per year is likely to have more than enough capacity to address Selkirk's long term water supply needs, based on current growth patterns (WSP, 2014).

The WSP master plan identified that the existing well field is incapable of supplying the City of Selkirk's present and future peak demands and recommended a new well field be developed outside the city, capable of supplying 60 % of the city's future peak demand pumping rate of 903 U.S.G.P.M. (1,456.5 acre feet/year or 1,796.65 dam^3/year) (WSP, 2014).

Through a review of the background historical information, and the WSP master plan, it is evident that the City of Selkirk will not have to change their existing allocation of water supply (WSP, 2014).

A copy of the WSP master plan for Selkirk is attached in Appendix E.

Site Setting

The Selkirk area is located along the western bank of the Red River north of the City of Winnipeg. The area was settled in 1813 on a tract of land purchased from the Hudson's Bay Company. The city became incorporated in 1882. The Red River has always been an important link in the Selkirk area, serving as a major transportation hub for Lake Winnipeg freight heading to and from the northern communities. In the late 1880's, the provincial government constructed the first part of the Selkirk Mental Health Facility west of the town-site. This facility was expanded significantly after the First World War, and became a major employer in the community. In 1915, the Manitoba Rolling Mills steel fabrication plant was built on the south side of town, which quickly became a major industrial employer. Due to its location on the Red River, a coast guard station was built, along with fish processing plants, and ship building slipway along the west bank of the Red River. During the Second World War, a major nitro-glycerin plant was built in East Selkirk by Canadian Industries Limited. Although the plant is no longer there, there is still a CIL road in East Selkirk near the former site. In the 1960's, Manitoba Hydro constructed a large thermal power plant in East Selkirk, which also became a large employer for the area. The power plant was powered by coal initially, which was brought in by rail.

The Selkirk area is near the discharge of the Red River into Lake Winnipeg, and is firmly within the Red River Drainage Basin. Typically surface drainage is directed towards the Red River, which subsequently flows into the Lake Winnipeg system, which ultimately discharges into Hudson's Bay. The climate in the area is continental, and shows typical variability of seasons and precipitation. According to Environment Canada, precipitation is typically around 500 to 525 mm/year, although it has been noted to be increasing over the last 40 years (Environment Canada, 1982). The average temperature in southern Manitoba is about 3.3 degrees Celsius (Environment Canada, 1982).

Site Setting (cont'd)

Surface drainage in the Selkirk area is typically directed to the major ditching which extends to the river. The area is generally of low relief, and parts of Selkirk are prone to flooding annually. The Selkirk Golf Course is located in an area which typically will flood during high water levels on the Red River. The majority of precipitation occurs during the spring to fall period.

Oak Hammock Marsh lies about 9 miles to the west. The marsh, which is a point of groundwater discharge, is a major ecological feature in the area, and is extremely important to the area. Much of the remaining land around the Selkirk area is used for agriculture.

The city is a major service center for the area with a current population nearing 9,834 people, making it the seventh largest city in Manitoba (Statistics Canada, 2014). The city encompasses 24.87 km square (City of Selkirk, 2015), and has a population density of 395.4 people /km^2.

The proposed well site lies approximately 8 km from the city water treatment plant, and is predominantly a farming/homestead area. Surface drainage is typically to the east towards the Red River. The well site location is at the corner of McRae Road and Meadowdale Road in the RM of St. Andrews.

Surrounding the proposed well field at Meadowdale Road, the following land use is present:

- North: Agricultural lands and rural residential properties.
- East: Agricultural lands and rural residential properties.
- South: Agricultural lands and rural residential properties.
- West: Agricultural lands and rural residential properties.

The proposed well location is shown below as Figure 10.

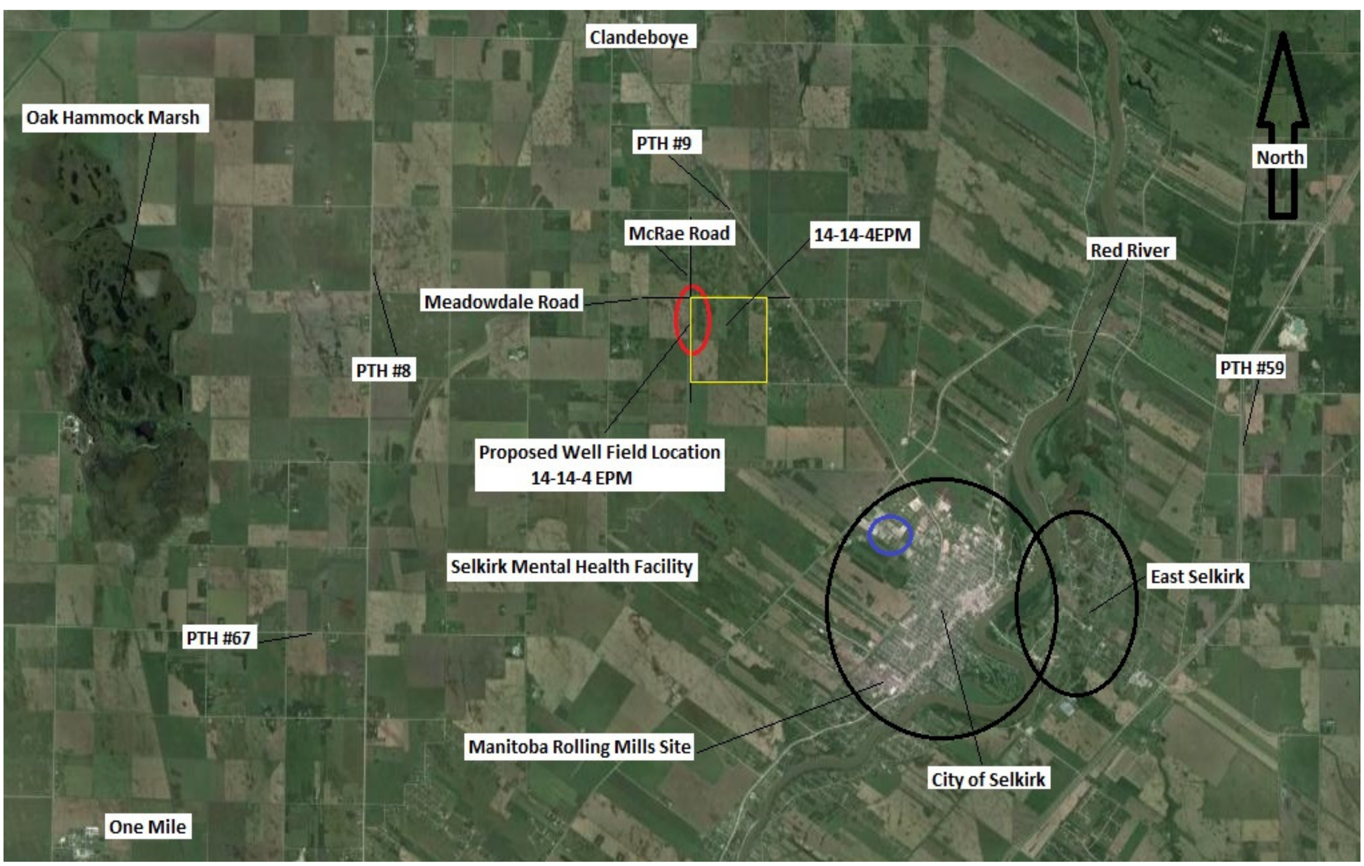

Figure 10 – General site location – City of Selkirk (source – GoogleEarth, 2015)

Geology of the Selkirk Area

Bedrock Geology

The Selkirk area is located within the eastern fringes of the Western Canadian Sedimentary Basin (WCSB), or the Williston Basin. The WCSB is a wide spread wedge shaped sedimentary basin with Precambrian bedrock as the basement feature. Figure 11, shown below, details the extent of the WCSB, and shows the location of the study area.

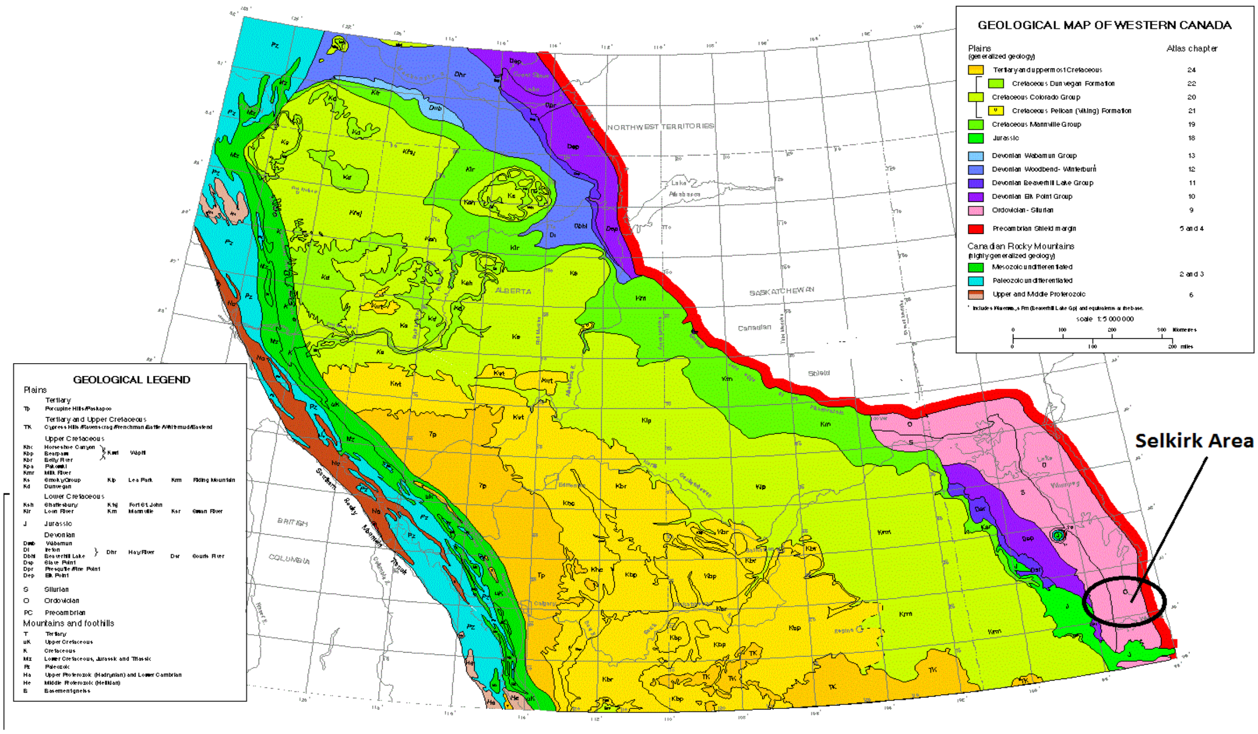

Figure 11 – WCSB showing location of the Selkirk area. (source - Alberta Geological Survey, 2009)

The basin extends throughout the central Canadian plains, and underlies about 1.4 million km^2 (Alberta Geological Survey, 2009). The basin extends north into the Northwest Territories, to the eastern fringes of the Rocky Mountains, and westerly, into central Manitoba. A large portion of the basin extends into the northwest United States. Precambrian igneous and metamorphic rocks form the basal geologic unit across the WCSB.

The bedrock geology in the Selkirk region comprises basement Precambrian rocks overlain by a succession consisting of gently westward dipping Paleozoic sedimentary rocks. The formations are gently dipping at 5 to 10 feet per mile towards the west (Betcher, 1986). The Ordovician Red River Formation (Dog Head, Cat Head, Selkirk and Fort Garry Members, in ascending stratigraphic sequence) forms the main sub crop in the Selkirk area (MGS, 2009). This formation is composed of mottled dolomite at the base topped by carbonate-evaporite cycles of basal argillaceous dolomite, fossiliferous mudstone/wackestone, laminated dolomite and capping anhydrite.

Subsequent evaporite solution has obscured the full carbonate-evaporite cycle in the study area (MGS, 2009). The Red River Formation is weathered to variable degrees, containing both areas with minor fracturing and areas with extensive fracturing and solution cavities and karstic features. Regionally, the Red River Formation comprises a 760 ft. succession that thins northward and ranges locally from 172 ft. in east-central Selkirk to 300 ft. near the SW corner of the PTH 9 by-pass. The Red River Formation overlies the Winnipeg Formation, a 285 ft. (maximum) interlayered quartz sandstone and shale unit, and is overlain by the Stony Mountain (Gunn, Penitentiary, Gunton and William Members, in ascending stratigraphic sequence) and Stonewall Formations, units composed of calcareous shale with argillaceous and fine-grained dolomite, which together form the Stonewall upland region to the west (Render, 1986). The thickness of the limestone bedrock increases to the west.

A regional geological cross section approximately includes the City of Selkirk area is shown on the following page as Figure 12. A bedrock geology map is also shown on the following page as Figure 13. The various stratigraphic layers are also shown in Table 1 on the following page.

Bedrock Geology (cont'd)

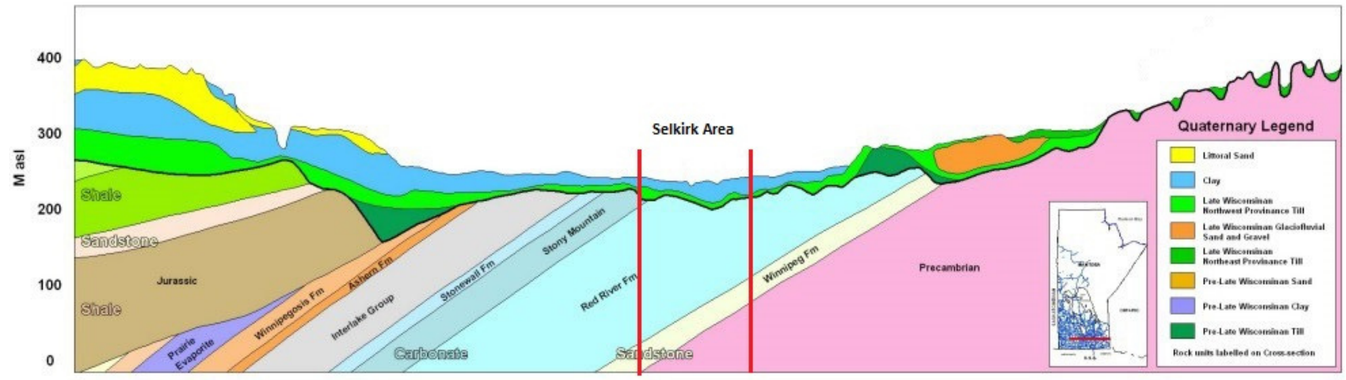

Figure 12 – Geological cross section approximately through the Selkirk area. (source – Matile and Keller, 2007)

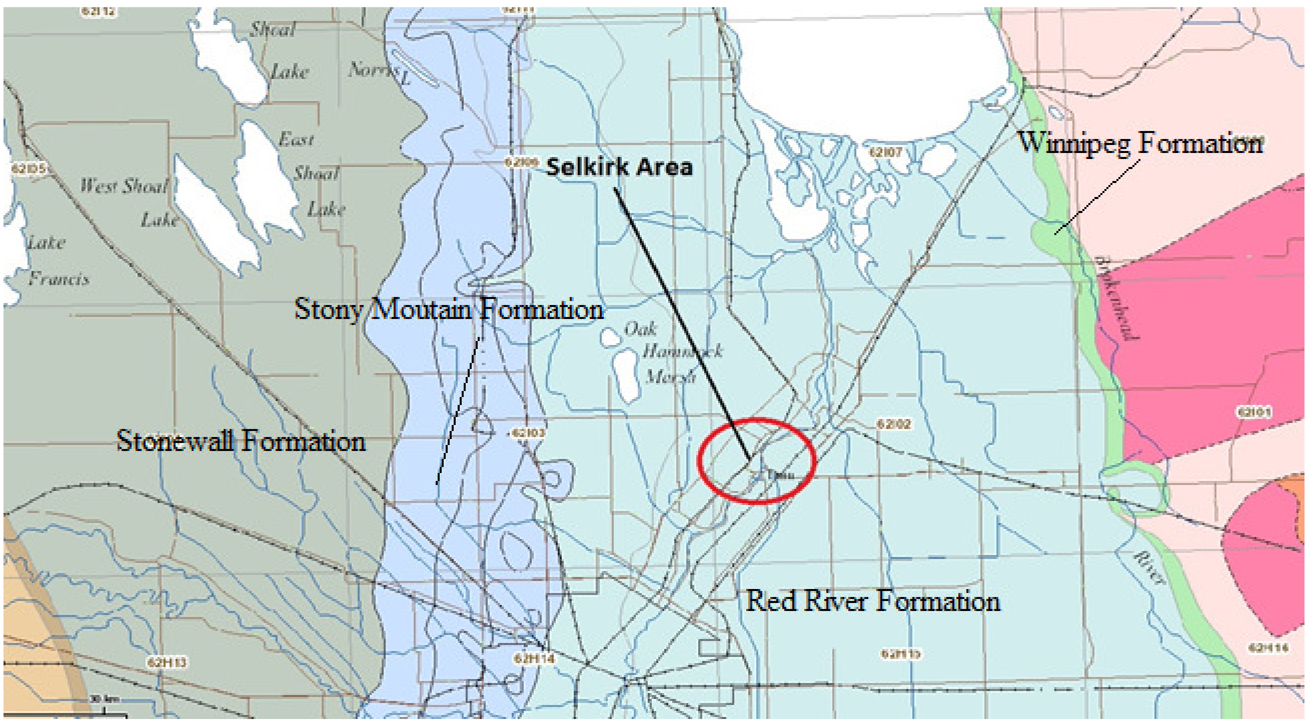

Figure 13 – Bedrock subcrop map – Selkirk area (source – MGS, 2015). Note that the light blue is the Red River Formation. The colours depicted on the map are referenced in Table 1, shown below.

Table 1 Stratigraphic Formations – Selkirk Area					
Era	**Period**	**Formation**	**Member**	**Lithology**	
Paleozoic	**Silurian**	**Stonewall Formation**		Dolostone	
	Ordovician	**Stony Mountain Formation**	**Gunton Member**	Dolostone with shale	
			Penitentiary Member	Dolostone with shale	
			Gunn Member	Shale	
		Red River Formation	**Fort Garry Member**	Dolostone	
			Selkirk Member	Dolostone	
			Cat Head Member	Dolostone	
			Dog Head Member	Dolostone	
		Winnipeg Formation		Sandstone and shale	

Table 1 – Stratigraphic formations – Selkirk area (MGS, 2015)

Surficial Geology

Offshore glaciolacustrine sediments from Glacial Lake Agassiz form a majority of the surficial deposits in the Selkirk region. Predominantly composed of clays, silts with minor sands, these low relief, massive and laminar deposits are up to 70 ft. thick throughout the region. Within the City of Selkirk, these deposits range from non-deposition to 40 feet in thickness. In the southern areas of Selkirk, the clays have been completely incised by the Red River (Render, 1986). In addition to the lacustrine clays, alluvial deposits of sand, gravel and clay form bars up to 65 ft. thick, most notably to the immediate west of Oak Hammock Marsh and around the Belair moraine.

The lacustrine clays are underlain by glacial drift deposits, up to 70 ft. thick, which extend through most of the region and are exposed at surface to the east and west of the Selkirk, in the uplands around Stonewall and in the north towards Teulon. The till unit is named the Libau Drift (Render, 1986). The drift is composed predominantly of dolomite and limestone fragments in a silty clay matrix (Matile & Keller, 2007 and Render, 1986). The permeability of the Libau drift is 2 to 3 orders of magnitude higher than that of the overlying lacustrine clays and is highest where abundant sand and gravel are present (Render, 1986). Further, Render (1986) notes the till in areas north and south of Town has been completely incised by the Red River, which suggests that the river is directly connected with the underlying carbonate aquifer system.

A surficial geology map is shown below as Figure 14.

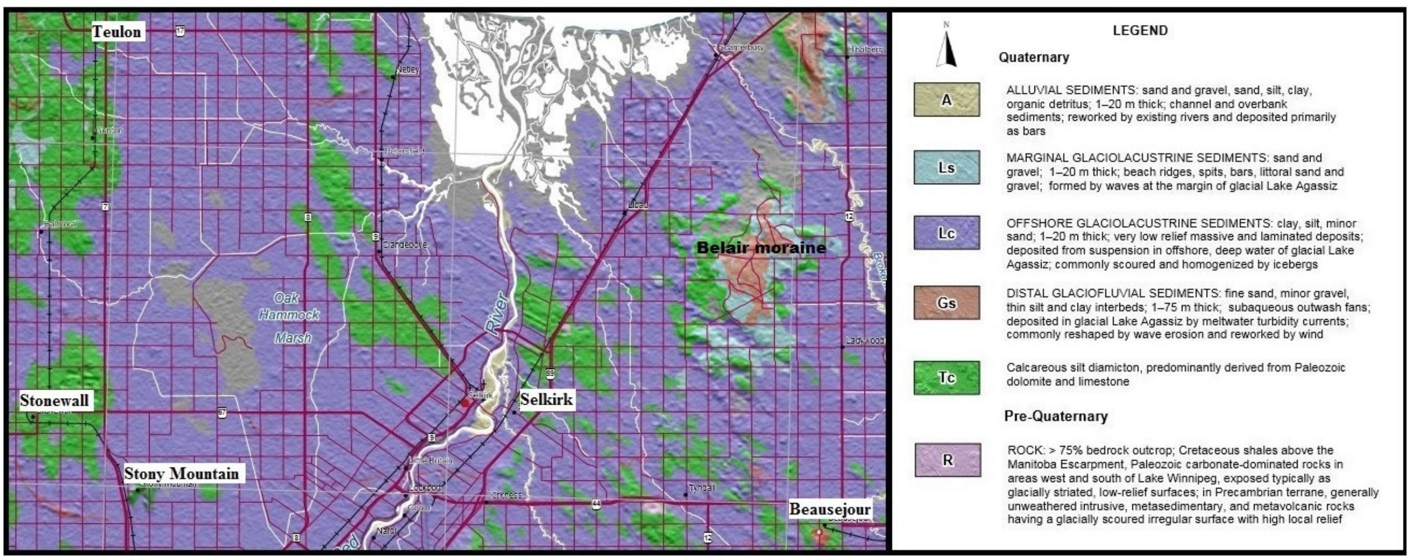

Figure 14 – Surficial geology – Selkirk area (source – MGS, 2015)

Extensive as the regional overburden is, the irregularity of the bedrock surface results in areas of diminished surficial deposition and local bedrock exposure. Regionally, overburden is thinner where the bedrock surface is high and thicker where the bedrock surface is depressed. In the upland region of Stonewall, for example, carbonate bedrock is exposed in ditches and is within a few feet of the surface throughout the local area. The area around the Town of Stony Mountain is another topographic high in the bedrock, and has thin to bare overburden with carbonate rock exposed at surface. Further bedrock exposure occurs in the aforementioned areas where the Red River has completely incised surficial deposits and flows directly upon the carbonate bedrock (Render, 1986). Areas of bedrock exposure are important for understanding the regional hydrogeology, as they serve as recharge areas for groundwater aquifers.

Bedrock Surface Conditions

As part of the regional geology and hydrogeology investigations, Render (1986) undertook mapping of the bedrock surface in the Selkirk area. The irregular, undulating bedrock surface is shown on the following page as Figure 15. The mapping also clearly identified the presence of a major depression in the Selkirk area, which Render names the "Selkirk Bedrock Depression".

The bedrock in the region is karstic in nature with an irregular upper surface that results in numerous rises and depressions. Much of the area directly to the west of Selkirk is relatively level, undulating between 710-720 ft. A prominent feature occurs southeast of the Selkirk, where the upper bedrock surface rises 50 ft. in the direction of Birds Hill. A few topographical depressions occur, mostly along the river channel, the largest and most prominent of which is the Selkirk bedrock depression, which directly underlies Selkirk.

Bedrock Surface Conditions (cont'd)

Through reviewing the bedrock surface, there is evidence of extensive weathering events which exploited variations in structure and lithology to develop the regional bedrock surface topographical relief. The incorporation of shale within the Stony Mountain and Stonewall formations, and the extent of dolomitization between subunits of the Red River Formation, as examples, increased the robustness of the rock, contributing to variable weathering.

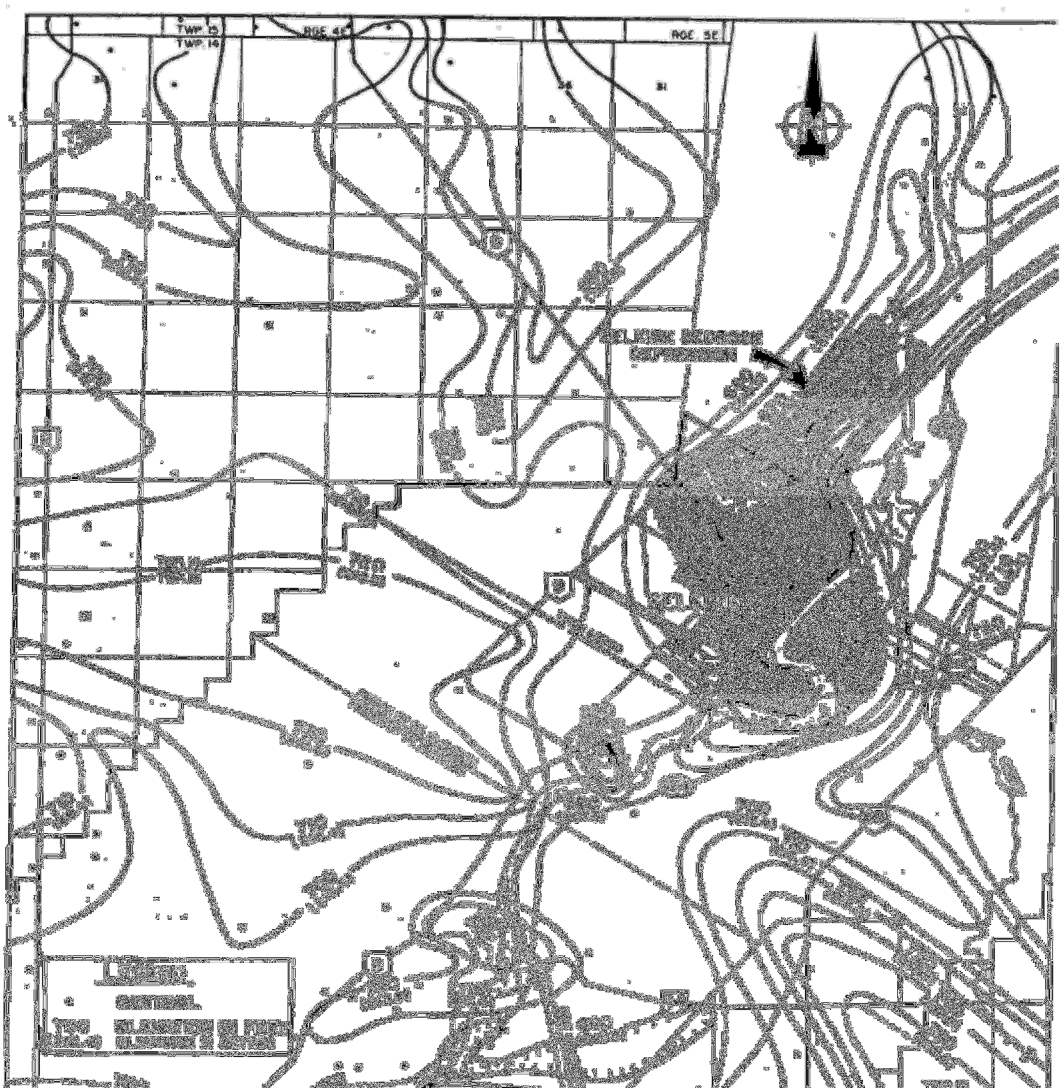

Figure 15 – Bedrock surface topography (source – Render, 1986)

It can be noted that the upper Red River Formation is significantly reduced under the Selkirk area. Structural considerations that contribute to reduced thickness include porosity, grain size, and the distribution of fractures within the bedrock. Rocks with high porosity and widespread fracture systems are generally more permeable and will be subject to greater fluid circulation and ultimately to greater dissolution which increases the likelihood for extensive erosion and the development of collapse structures (Boggs, 1995). Reef structures may have also contributed to the development of collapse structures, as they are prone to dissolution, making them more easily structurally compromised. Collapsed reef structures may explain the presence of local bedrock depressions observed within the Selkirk region, particularly features that extend parallel to basin boundaries which represent regions of similar depositional conditions.

Another plausible cause for localized bedrock depressions, such as the "Selkirk Bedrock Depression", is plunge basins. Given the old age of the carbonate bedrock, it is possible that a scenario developed where water, diverted over a falls onto the, then exposed, extensively fractured bedrock, would weather and erode a local portion of the rock to create a depression. The marked boundary between the upper and lower carbonate aquifers suggests a more robust middle portion to the Formation, a feature which may have provided increased stability to inhibit continued downward erosion.

Bedrock Surface Conditions (cont'd)

The Selkirk bedrock depression, a crucial factor in the hydrogeology of the Selkirk area, is an extensive depression that reduces the thickness of bedrock in the central area of the city by up to 60 ft., from 690 ft. at the outskirts of Selkirk, to less than 640 ft. in the middle. According to Render (1986), the depression is part of a channel that extends beyond the Town limits to the north. Deposition of surficial materials into the Selkirk bedrock depression is irregular with regard to radial symmetry. Groundwater entering the depression from different directions will encounter different sediments of variable thickness and, given the variable permeability between the clay and the till, be subjected to different hydrological parameters as it migrates toward the center of the depression (Render, 1986).

Hydrogeology of the Selkirk Area

General Groundwater Occurrence and Principle Aquifers

The principle aquifer in the Selkirk area is the Carbonate Aquifer System, which is a regional aquifer system extending throughout the Manitoba Interlake. The aquifer extends past The Pas, and well beyond the US/Canadian border to the south. The location and extent of the carbonate aquifer system in Manitoba is shown below as Figure 16.

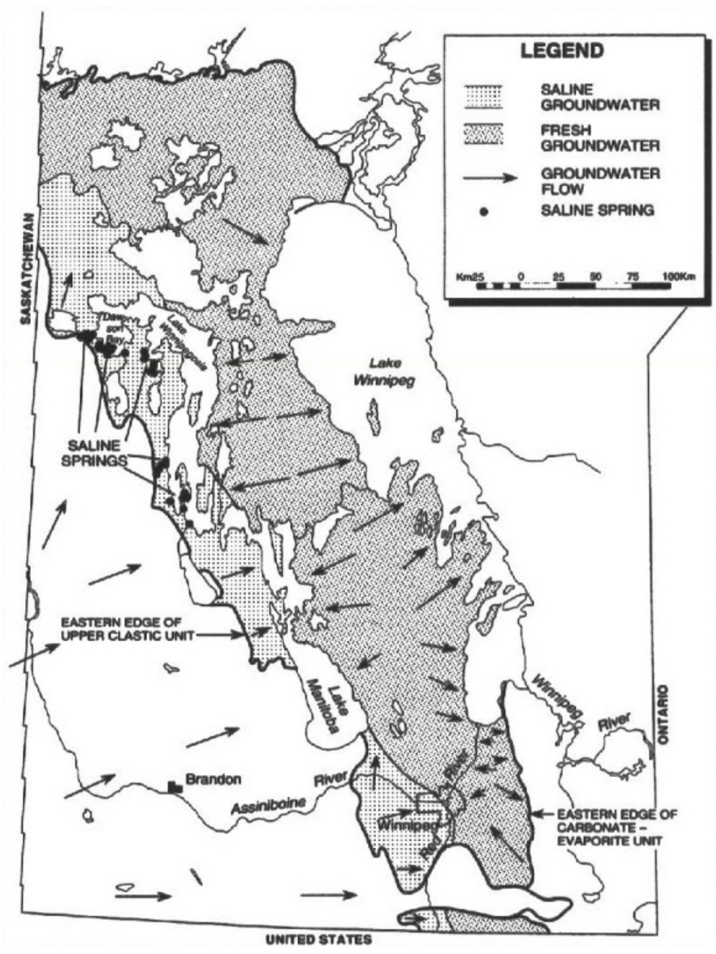

Figure 16 – Carbonate Aquifer System – Manitoba (source – Betcher et. al., 1995)

The Carbonate Aquifer System is predominant in the Selkirk area. Groundwater flow in the Carbonate Aquifer System generally occurs in the fracture and joint sets in the rock. The size, extent, and interconnectivity of the fracture system govern horizontal and vertical groundwater movement through the bedrock. Due to this geologic condition, aquifer transmissivity and storativity can vary significantly over a relatively short distance, resulting in substantial variations in well yield (Render, 1970). The Carbonate Aquifer System is considered to be a significant water supply resource throughout the central portion of Manitoba, being developed for municipal, commercial, and private water supply systems (Betcher et. al, 1995).

General Groundwater Occurrence and Principle Aquifers (cont'd)

Although the aquifer is known locally as a single aquifer, there are numerous fracture sets, joints, bedding planes, and karstic features, which indicate that the aquifer should technically be known as an aquifer system

Groundwater flow in the Winnipeg Formation sandstone is through the weakly cemented, poorly consolidated quartzose sandstone (Betcher, 1986). The thin marine shale sequence acts as an aquitard between the two aquifers. In the Selkirk area, the Winnipeg Formation sandstone is thought to lie at a depth of 300 feet or greater. Following the formational dip of the WCSB, the sandstone gradually gets deeper with depth, moving towards the west.

In some parts of the area, there are some small scale sand and gravel aquifers occurring within the overburden sediments or lying as lenses within the glacial drift. In the Selkirk area, there are a few minor sand and gravel sequences within the till, but these appear to be very sporadic, with no major areas forming a regional aquifer.

Regional Groundwater Flow and Recharge/Discharge Areas

The regional groundwater flow system of the carbonate aquifer in the Selkirk area is interesting, and is significant to the hydrogeological understanding of the area. Selkirk is at the center of a major regional flow system that is affected by groundwater recharge from no less than 8 major locations. At the present time, groundwater flow is directed towards the City of Selkirk drawdown cone near the center of the city. In addition to these recharge areas, due to the extent of drawdown in Selkirk, and the geological conditions that are present, especially in south Selkirk, the Red River also acts as a source of recharge to the aquifer in places. The regional groundwater flow systems and hydraulics are highly complex in the area.

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In 1986, Render mapped all of the major recharge and discharge areas that influence the Selkirk area. These are shown below as Figure 17. Of all these areas, the largest and most important area for the purposes of this study is the Stonewall Upland recharge area.

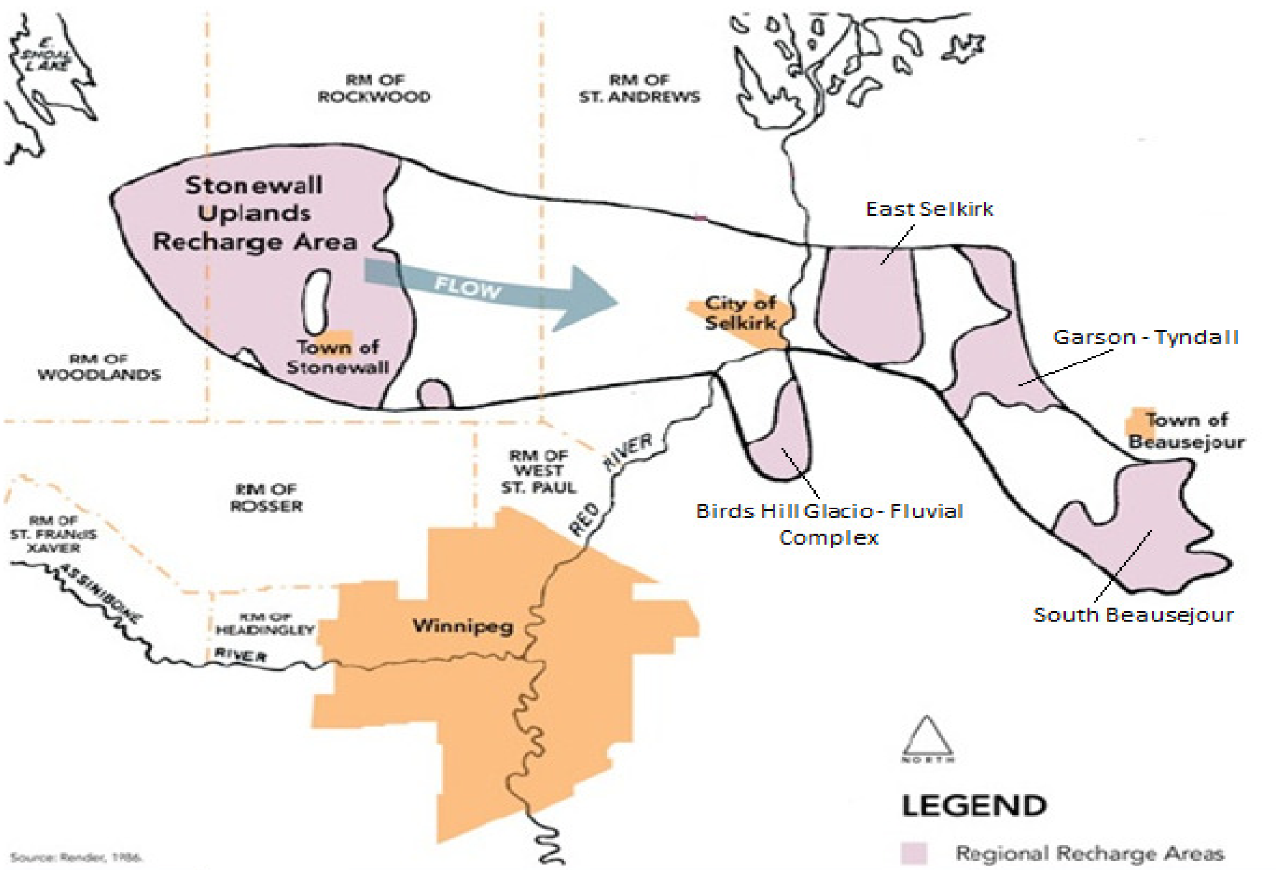

Figure 17 – Recharge areas around the City of Selkirk (source – Render, 1986)

Regional Groundwater Flow and Recharge/Discharge Areas (cont'd)

These regional recharge zones drive the groundwater flow dynamics in the Selkirk area. The Carbonate Aquifer System effectively acts as a transmission system for the various recharge influences on the aquifer.

The driving factor in determining recharge is the total annual precipitation that occurs over an area. Precipitation in the area typically occurs over three seasons in Manitoba. Over the winter months, specifically when the ground is frozen, there is little recharge to the aquifers. During the spring melt, typically recharge begins very rapidly over a short period of time as the frost is melting out of the ground, and the snow pack melt begins to occur. The recharge to the aquifer usually begins very rapidly during this time. Over the summer months, recharge occurs with regularity during major storm events. As such, this can vary from place to place, although the Winnipeg area tends to get a large number of storms due to the presence of the large lakes to the northwest. North-west is also the direction for the prevailing winds.

The total annual precipitation over time is shown below as Figure 18. The total effective mean precipitation is also plotted, which is of great interest in regard to evaluating long term annual aquifer recharge. The available data record from 1972 to present in the Stony Mountain area generally shows a steady upward trend. There are years of below average precipitation, however these appear to be relatively few in number. Precipitation is generally on the rise. In 1970, the total annual precipitation was less than 440 mm/year. When Render reported his research into the area in the 1980's, the precipitation was noted to be slightly less than 490 mm/year. By 2015, the total annual precipitation average was slightly under 610 mm/year. This change will have significant impacts on the recharge estimates made later, on in this report.

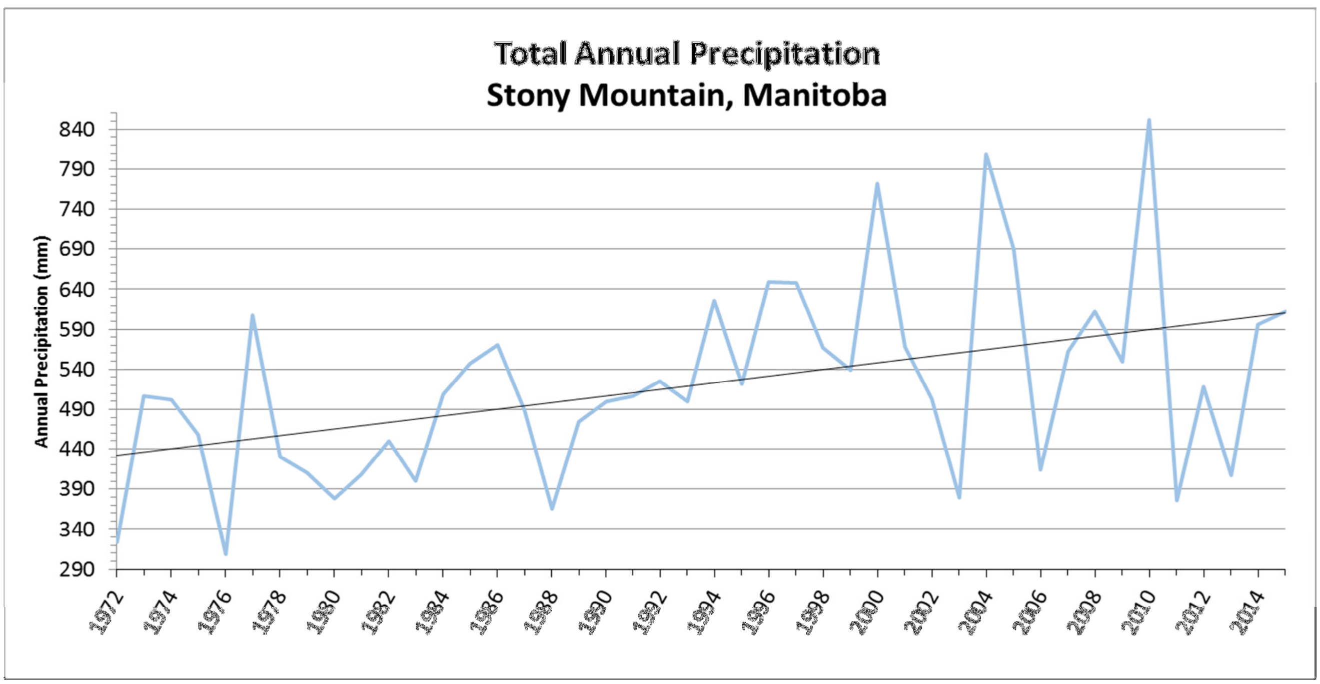

Figure 18 – Total Annual Precipitation – Stony Mountain, Manitoba (source – Environment Canada, 2015)

The following recharge areas will be described in greater detail:

- The Stonewall Upland area comprises the largest single influence on recharge to the Selkirk area. The upland area is where little overburden cover exists on the bedrock surface, and many karstic features and sinkholes are present. These features are readily viewed at surface, and allow for rapid infiltration of water during spring melts and intense rainfall events. Also there are about five square miles of open rock quarries that essentially allow the direct infiltration of precipitation. It is recognized that even in these cases there is some dewatering pumping and of course direct evaporation. The upland area was mapped using borehole stratigraphy, and was determined by Render (1986) to comprise about 136 square miles. Due to the elevated nature of the upland recharge area, the system is able to impose a significant head on the aquifer in the area. In 1986, assuming about 500 mm/year of precipitation, Render assumed about 5% of infiltration, which resulted in about 11 ft^3/s of groundwater flowing towards Selkirk. This equates to a flow rate of over 5,000 U.S.G.P.M. (7.2 million gallons per day). Recent increases in total annual precipitation have greatly increased the 2015 recharge estimates. Render's estimate of 5% is also very conservative, as it is known that additional

Regional Groundwater Flow and Recharge/Discharge Areas (cont'd)

recharge may be occurring in the area due to reduction in the limited overburden cover near the active quarries. Assuming the most recent data, the total recharge annually would increase to nearly 10,000 U.S.G.P.M. or 22 ft^3/s (14 million gallons per day). Adjusting the infiltration rate would also result in significant changes.

- The Birds Hill Glacio-Fluvial Complex is a major sand and gravel feature in the area, where the sand and gravel is lying directly on the carbonate bedrock surface. The surface area was estimated to be approximately 8 square miles in area. Render (1986) assumed similar recharge conditions and postulated a contribution of 0.71 ft^3/s or 320 U.S.G.P.M. Under the current climatic conditions, the contribution would be about 450 U.S.G.P.M., or 1 ft^3/s.

- The East Selkirk area is a location of shallow bedrock exposure, or has relatively thin overburden cover. The glacial tills at surface do provide some protection, with the infiltration rate likely slightly less than the other areas of recharge. Render (1986) estimated the area to be about 27 square miles, with a contribution of 0.25 ft^3/s in 1986. Using the current climatic conditions, this contribution would be about 0.4 ft^3/s.

- The South Beausejour area would likely be recharging the fractures of the lower section of the carbonate aquifer due to the formational geology in the area. The recharge area was calculated to be 27 square miles. Render (1986) estimated the area to be about 27 square miles, with a contribution of 0.25 ft^3/s in 1986. Using the current climatic conditions, this contribution would be about 0.4 ft^3/s.

- The Garson/Tyndall area has a large bedrock outcrop that has been actively quarried for over 100 years. There are large areas of exposure to the aquifer in this area. Some of the area is covered in thin glacial tills and drifts. Render (1986) estimate the total area to be about 23 square miles. In 1986, the recharge was calculates to be 1.3 ft^3/s. Using the current climatic conditions, this contribution would be about 2 ft^3/s.

Overall, assuming the current conditions, the total recharge was estimated to be about 26 ft^3/s, which works out to a flow rate of about 12,000 U.S.G.P.M. (17 million gallons per day) that is coming into the Selkirk & Oak Hummock area from the major recharge areas. Some additional recharge would occur through leakance through the clays and tills overlying the aquifer in places. It is important to note that these estimates rely on an assumed infiltration rate, which could be substantially greater in some cases. The estimates are not based on field evaluations or studies. It is estimated that the infiltration rate in the Stonewall Upland area is considerably greater in recent years due to the amount of bedrock exposure that now is present.

It is very important to note that conditions in the Stonewall Upland area significantly affect the area around the 14-14-4E site, as 80% of the recharge to the Selkirk drawdown cone comes from this area.

Groundwater Flow Directions and Potentiometric Surface Mapping

The recharge areas and topographic/geologic conditions are driving the regional groundwater flow systems in the area (Freeze and Cherry, 1979). Selkirk is at the center of the flow system, with major discharge occurring through the Red River, both north and south of town, and the pumping in the City of Selkirk drawdown cone. The major factor in the groundwater flow in the west Selkirk area is the presence of the Stonewall Upland area.

Using over 90 provincial MCWS hydrograph stations in the Manitoba Interlake area, a regional potentiometric surface map was developed for the Selkirk area (MCWS, 2015). The map is shown in the following page as Figure 19.

Groundwater flows westerly from the Stonewall Upland area towards the Oak Hammock Marsh area, where it is speculated that a fairly major transmissive barrier occurs in the upper part of the bedrock (Render, 1986). Since groundwater is not able to transmit easily through this area, some of the upper fractured bedrock groundwater flows break out at surface west of the marsh. A portion of the discharged groundwater flows into the marsh. The remaining groundwater under the site continues to flow eastwards towards Selkirk. The potentiometric map surface clearly shows a tightening of the gradient on the east side of the Oak Hammock marsh area that is indicative of a transmissive reduction. It was speculated by Render (Render, 1986) that this transmissive reduction likely only occurs in

Groundwater Flow Directions and Potentiometric Surface Mapping (cont'd)

the upper parts of the bedrock. This transmissive reduction may also be related to the formational changes that are occurring in the immediate area near the marsh

After flowing past the Oak Hammock feature, groundwater then continues to flow easterly towards Selkirk. The potentiometric map shows an additional change in the gradient approaching the Selkirk area. A significant tightening of the gradient occurs near PTH 9 heading towards Clandeboye. More significantly, it appears that the transmissive conditions are changing considerably towards the Selkirk area.

Additional details on the aquifer transmissivity will be provided in the following sections.

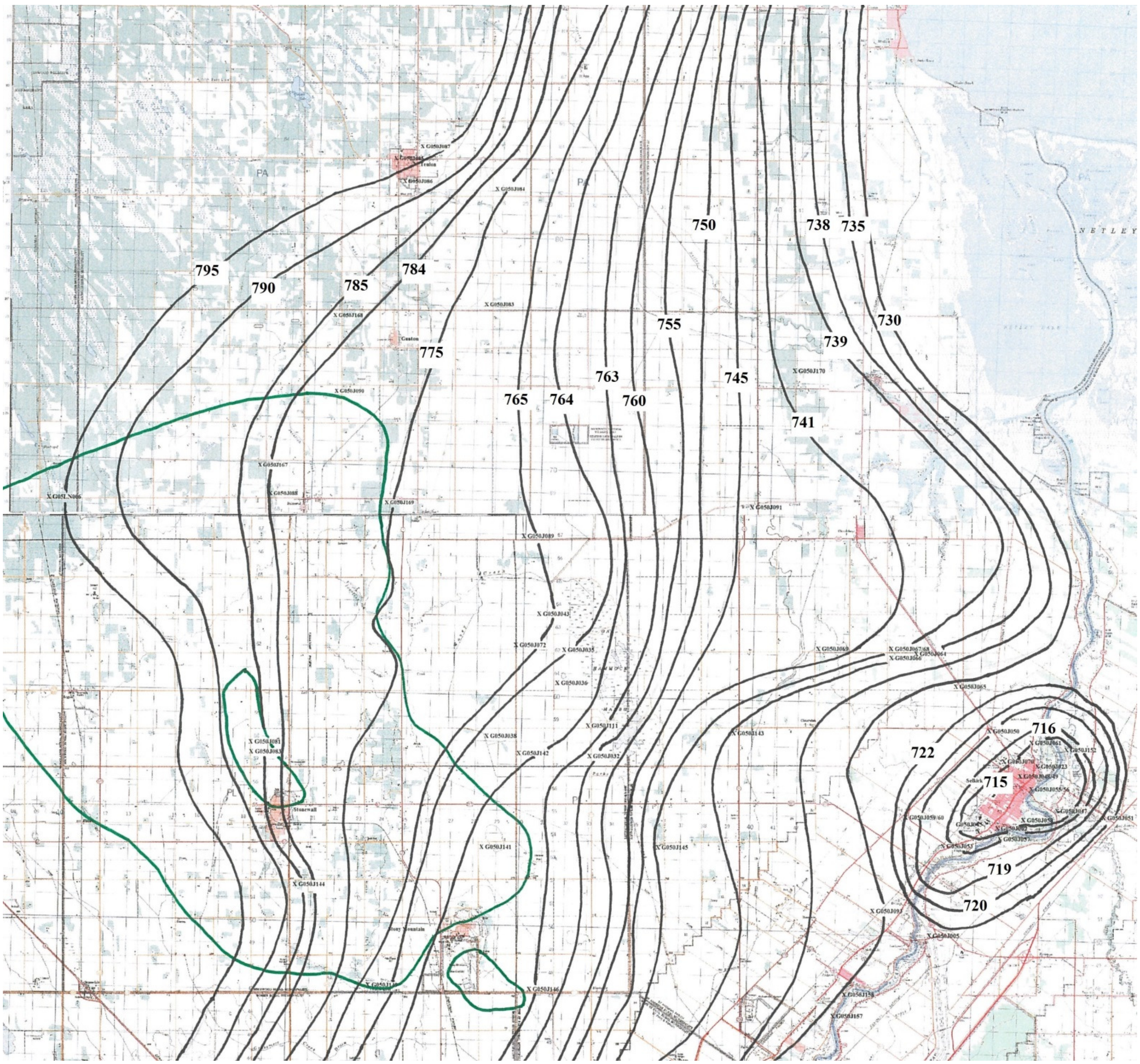

Figure 19 – Regional potentiometric surface map – Selkirk area (data source – MCWS, 2015). Note that the equipotential lines are drawn in feet above sea level. The specific drawdown cone inside the City of Selkirk is shown on the following page as Figure 20. The Stonewall Upland recharge area is also depicted in green on the map.

Groundwater Flow Directions and Potentiometric Surface Mapping (cont'd)

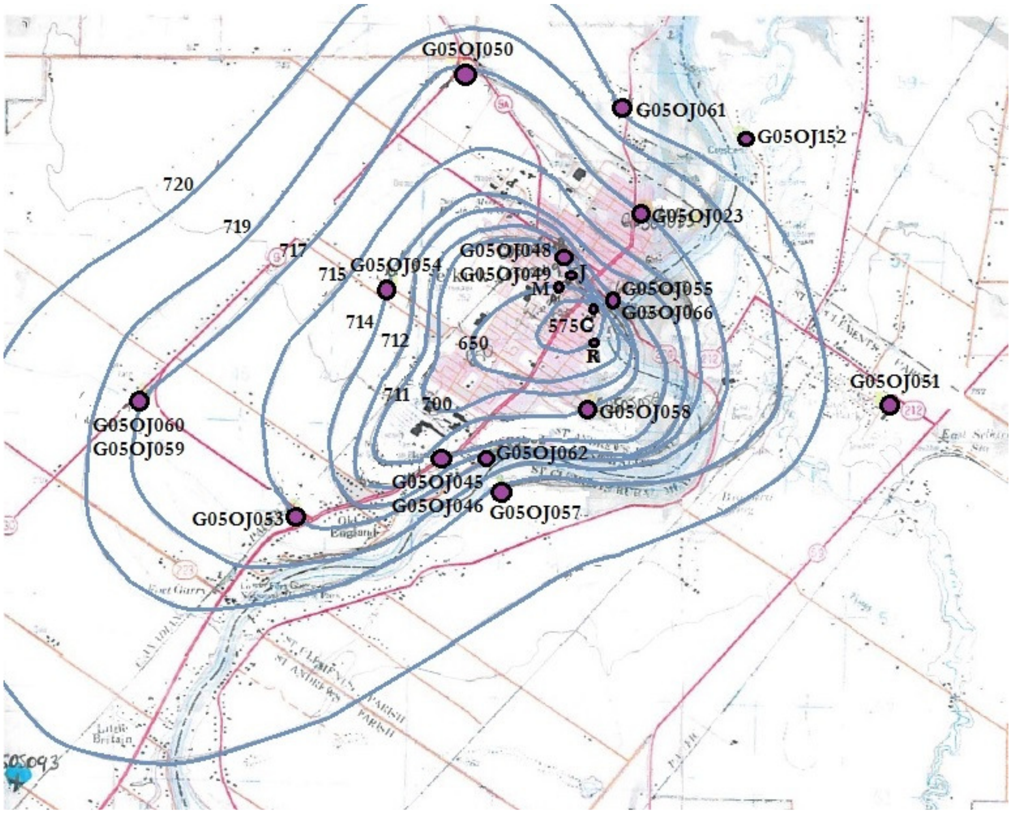

Figure 20 – Potentiometric surface map (feet above sea-level) in the Selkirk area.

A hydrogeological cross section showing the principle dynamics of groundwater flow is shown below as Figure 21.

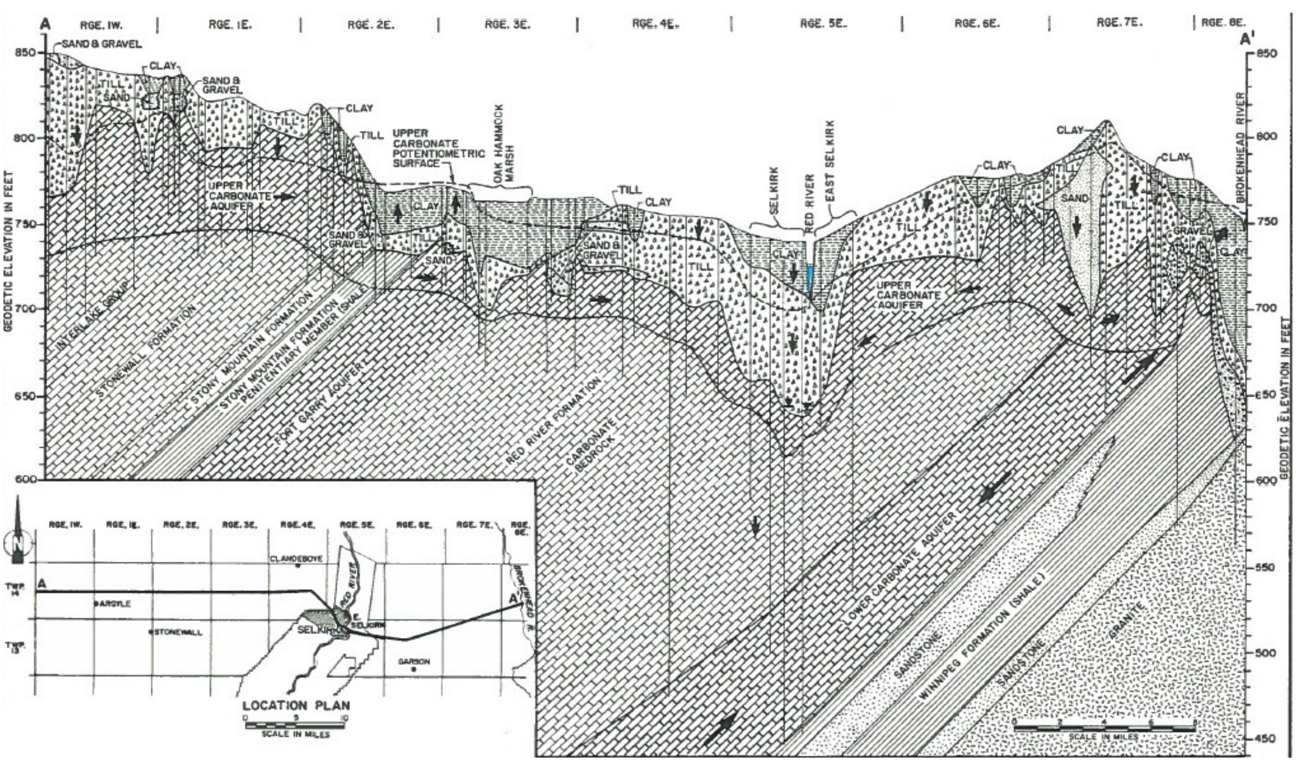

Figure 21 – Hydrogeological cross section (source – Render, 1986)

Aquifer Transmissivity

Transmissivity is the result of the product between the aquifer thickness and the hydraulic conductivity (Freeze and Cherry, 1979). In the Carbonate Aquifer System, which achieves all of its permeability through secondary features like karstic development and fractures, transmissivity is known to vary substantially. This variation occurs both vertically and spatially. The extent and interconnection of fractures in the carbonate aquifer is often very difficult to predict.

In many cases, the carbonate bedrock exposure to surface has created areas of elevated transmissivity. In the western high transmissivity area, the thin overburden cover has likely resulted in additional surface damage to the bedrock, which has likely increased the overall bulk transmissivity in the region. Rutulis (1973) estimated the transmissivity in the western area to be as high as 500,000 U.S.G.P.D./ft. In areas where the upper bedrock has been eroded away or removed, the transmissivity has declined considerably. An example is the Selkirk bedrock depression, where much of the upper bedrock has been removed, and only the lower fractured zone remains. The transmissivity in the downtown Selkirk area declines considerably, and is less than 20,000 U.S.G.P.D./ft. (Render, 1986).

Render (1986) produced a regional transmissivity map of the area showing the substantial variations that exist. This map is shown below as Figure 22.

Figure 22 – Aquifer transmissivity map (source – Render, 1986)

Regional Hydrograph Analysis

In order to review the regional groundwater flow directions and the long term response in the carbonate and sandstone aquifers over the last 50 years across the Selkirk area, the following MCWS chart hydrograph stations were accessed for potentiometric elevations:

G05OJ002	NW 34-16-2E	G05OJ085	NW 21-16-2E
G05OJ005	NE 11-13-4E	G05OJ086	SE 21-16-2E
G05OJ008	SW 16-12-3E	G05OJ087	SW 27-16-2E
G05OJ023	NE 32-13-5E	G05OJ088	SW 12-15-1E
G05OJ032	SE 5-14-3E	G05OJ089	SW 6-15-3E
G05OJ035	SW 20-14-3E	G05OJ090	NE 19-15-2E
G05OJ038	NW 1-14-2E	G05OJ091	NE 1-15-3E
G05OJ043	SE 30-14-3E	G05OJ093	NW 15-13-4E
G05OJ045	SW 30-13-5E	G05OJ108	SW 16-12-3E
G05OJ046	SW 30-13-5E	G05OJ109	SE 17-12-3E
G05OJ047	NW 28-13-5E	G05OJ141	NW 24-13-2E
G05OJ048	NW 31-13-5E	G05OJ142	SW 6-14-3E
G05OJ049	NW 31-13-5E	G05OJ143	NE 1-14-3E
G05OJ050	NW 6-14-5E	G05OJ144	NW 18-13-2E
G05OJ051	NE 27-13-5E	G05OJ145	NE 22-13-3E
G05OJ053	NW 24-13-4E	G05OJ146	SW 6-13-3E
G05OJ054	SE 36-13-4E	G05OJ149	SW 4-13-2E
G05OJ055	SE 32-13-5E	G05OJ150	SW 4-13-2E
G05OJ056	SE 32-13-5E	G05OJ152	SE 4-14-5E
G05OJ057	SE 30-13-5E	G05OJ157	SW 33-12-4E
G05OJ058	SE 29-13-5E	G05OJ158	NE 33-12-4E
G05OJ059	NE 26-13-4E	G05OJ165	SW 20-13-6E
G05OJ061	NE 5-14-5E	G05OJ167	NE 11-15-1E
G05OJ062	SE 30-13-5E	G05OJ168	NE 31-15-2E
G05OJ063	NW 21-13-6E	G05OJ169	NW 4-15-2E
G05OJ064	NE 23-14-4E	G05OJ170	SE 30-15-4E
G05OJ069	SW 21-14-4E	G05SA002	NE 35-15-6E
G05OJ072	SW 19-14-3E	G05SA006	NW 33-14-7E
G05MJ081	NW 1-14-1E	G05SA007	NW 33-14-7E
G05MJ083	SW 1-14-1E	G05LN006	SW 12-15-1W
G05OJ084	SW 24-16-2E		

These hydrograph stations are spread out over a large area, and extend as far away as Gimli, west of Stonewall, Argyle, and near the City of Winnipeg. Many of these hydrographs have records of data approaching 50 years. Copies of the hydrographs are attached as Appendix F (MCWS, 2015).

The hydrographs for the area can be classified into two main areas. The stations lying within the Selkirk drawdown cone show a much different result than those stations lying outside of the cone.

The wells within the City of Selkirk generally reflect seasonal climatic variations, with a generally declining trend. The charts reflect the effects of the spring melt, and the summer drawdown on the pumping wells. From about 1980 to present, water levels are on a very slow trend downwards, despite increases in total annual precipitation. During this time, operating water levels in the deepest part of the City of Selkirk drawdown cone have declined about 65 feet. The charts do not show a dramatic decline or an instantaneous feature of drawdown. Rather, it is gentler progressive drawdown, with small amounts occurring each year. The general trend is downward. All of the main stations within the city reflect this trend.

The key stations within the City of Selkirk are shown on the following page as Figure 23.

An example of a declining trend station is shown on the following page as Figure 24. The chosen station is G05OJ055 and G05OJ056. It should be noted that the G05OJ056 station is located very near to the Christie Well, and reflects very strongly the deepest part of the Selkirk drawdown cone. The G05OJ055 station is monitoring the upper carbonate aquifer, which is very thin in this area.

Regional Hydrograph Analysis (cont'd)

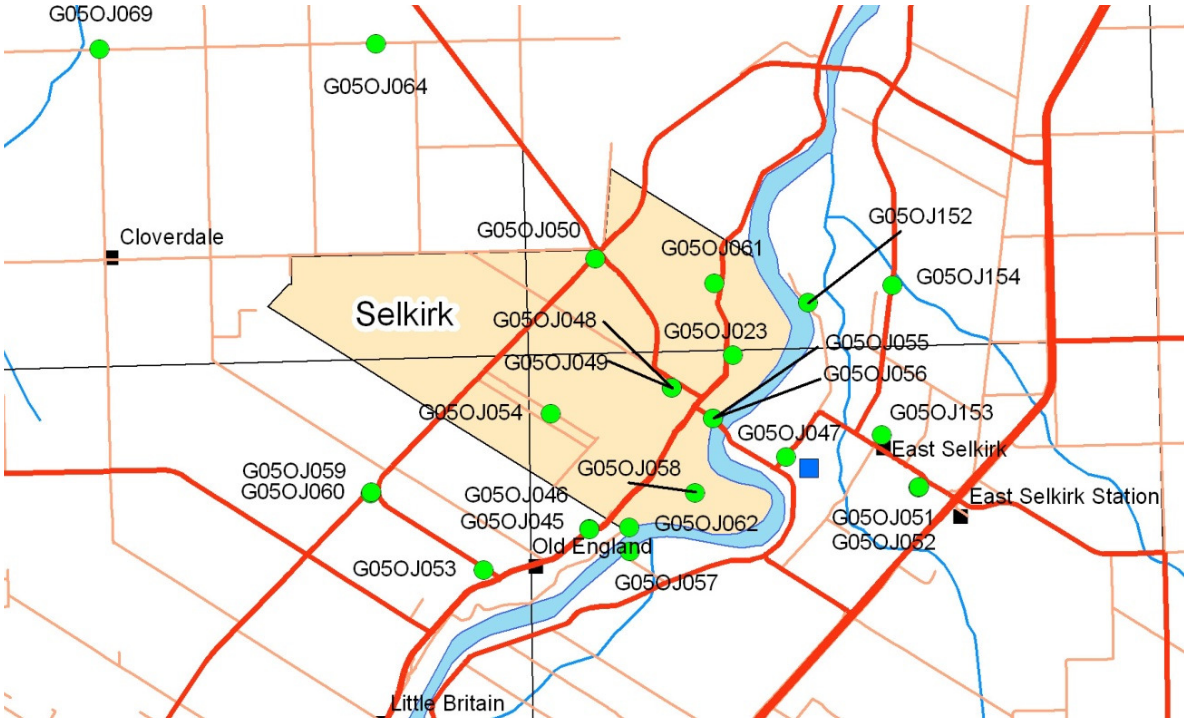

Figure 23 – Key hydrograph stations – City of Selkirk area (source – MCWS, 2014)

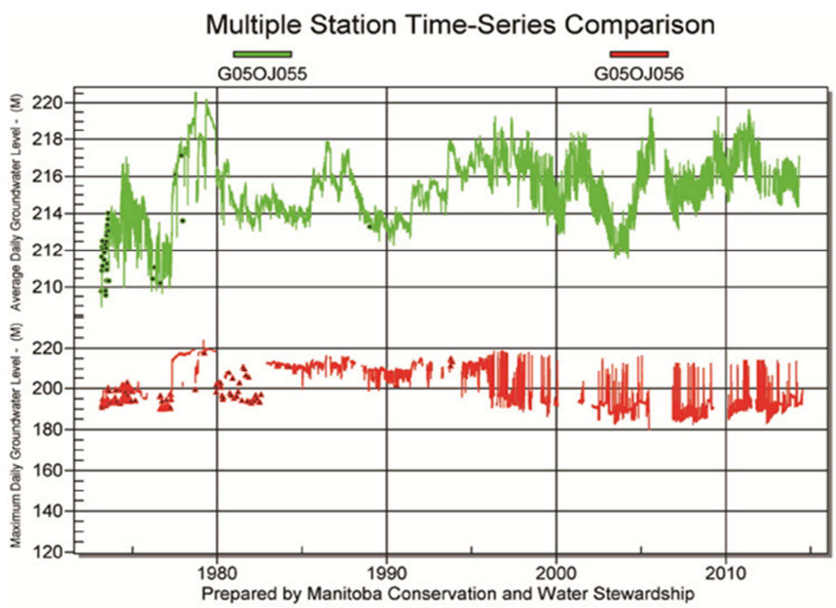

Figure 24 – G05OJ055/G05OJ056 hydrograph stations (source – MCWS, 2014)

The regional stations outside of the City of Selkirk reflect a much different picture. As stated previously, total annual precipitation has increased in Manitoba over the last 40 years, and many of the stations in the area reflect this. Most of the stations outside of the Selkirk drawdown cone reflect increasing water levels, and fluctuations matching the increases in total annual precipitation. Stations near the central part of the Manitoba Interlake area are up 3 to 4 meters on average. Stations nearer to the City of Selkirk are up nearly 1 meter.

Figure 25 on the following page, reflects the regional hydrograph network, and a select number of stations versus total annual precipitation.

.Regional Hydrograph Analysis (cont'd)

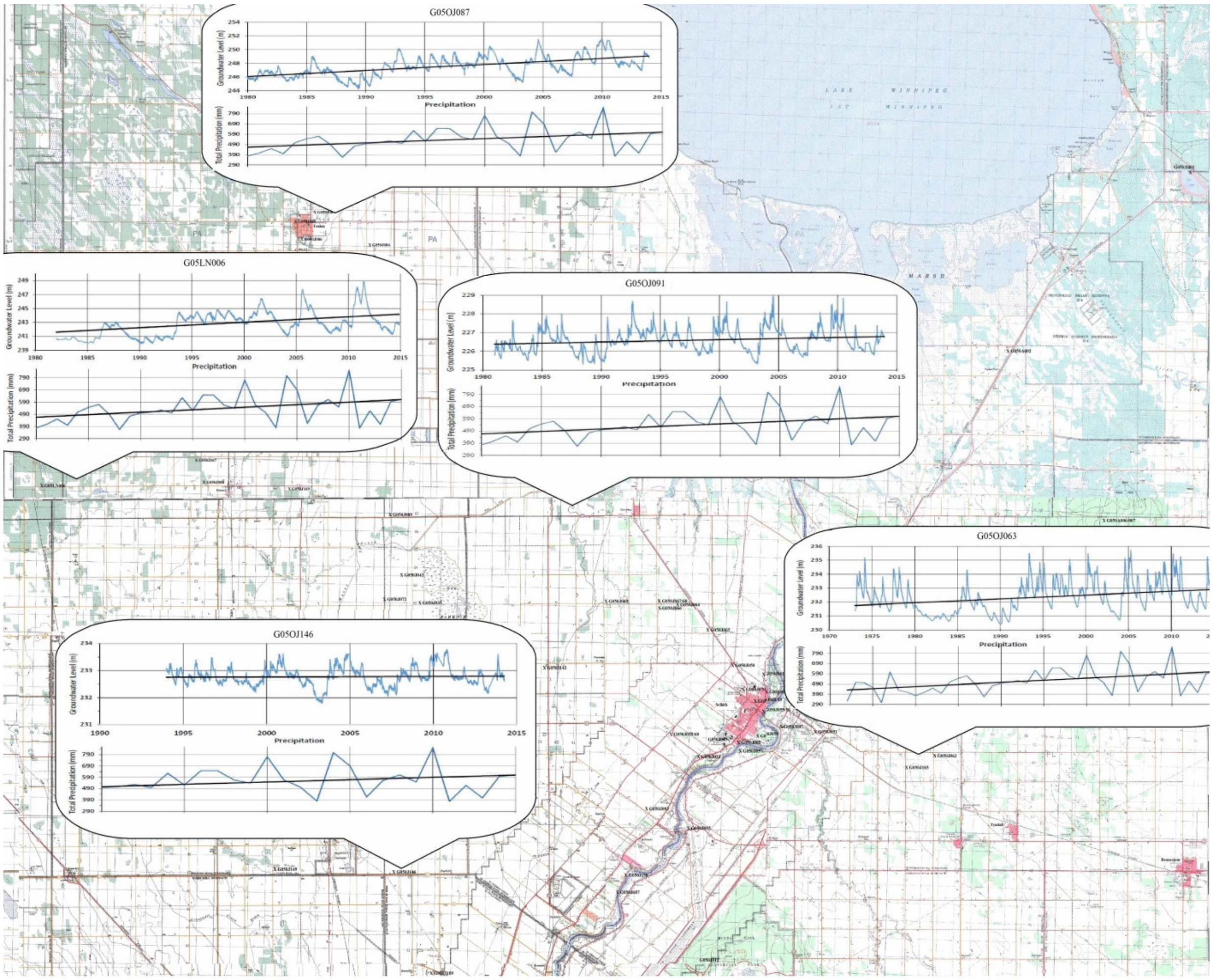

Figure 25 – Regional hydrograph stations – Selkirk area (data source – MCWS, 2015 and Environment Canada, 2015)

The regional hydrograph stations in the area reflect a very positive trend that has been occurring in Manitoba for over 40 years.

Springs and Groundwater Discharge

Groundwater discharge in the Selkirk area consists of many complex factors. The discharge from the aquifer is highly visible in the area, and adds a great deal of insight into the hydrogeology of the Selkirk area.

Within the City of Selkirk, there is known to be major points of groundwater discharge in the Red River both north and south of the city. A major location of known groundwater/surface water interaction is located in the Lister Rapids/St. Andrews Lock area, where the river is running directly on the bedrock surface. Groundwater discharge was known to occur in springs located near the banks of the Red River in these locations. Quantifying the flow discharge from the springs into the Red River would be very technically challenging.

Groundwater discharge through pumping is relatively straightforward in the Selkirk area. Both the City of Selkirk and Gerdau/Manitoba Rolling Mills are licensed to extract groundwater from the aquifer, and the annual quantities are reported to MCWS – WULS often. The amount of un-licensed, unregistered pumping through small residences and farms in the area is also fairly straightforward to estimate. Assuming typical conditions, and average years, the extent of un-natural groundwater discharge in the Selkirk area is estimated to be about 4.8 ft^3/s, or around 2,200 U.S.G.P.M. in any given year. It is important to note that this amount of groundwater discharge has not changed appreciably in many years. Render (1986) estimated unnatural groundwater discharge to be slightly less at 4.6 ft^3/s. The population of the area has not changed appreciably in the last 30 years as shown in the previous sections.

Springs and Groundwater Discharge (cont'd)

The above two methods of groundwater discharge are occurring near the end of the flow system in the Selkirk area. Both types of groundwater are difficult to observe and quantify in the field. The Stonewall Upland area provides an interesting example of natural groundwater discharge through the springs that exist near the Oak Hammock Marsh area. These springs are extremely interesting and allow groundwater to be viewed in the field.

From the preceding sections it is readily evident that the majority of the recharge to the groundwater flow in the Selkirk area is from the Stonewall Upland area. Lesser amounts of groundwater recharge are occurring in the Birds Hill and Garson Tyndall areas, with only a minor component of groundwater recharge coming from the East Selkirk and South Beausejour areas. The presence of a large groundwater flow system that emanates out of the Stonewall Uplands area has been recognized as far back as the late 1800's (Hering, 1897). These springs were visited by the earliest of settlers in the area, and were even investigated at a potential water supply for the City of Winnipeg in the late 1890's. A private water bottling company bottled and sold the groundwater to people in the area for many years in the 1920's. Figure 26, shown below, depicts one of the major springs in the area. A simple schematic of the spring discharge is also shown below as Figure 27.

Figure 26 – Groundwater discharge through springs west of Oak Hammock Marsh.

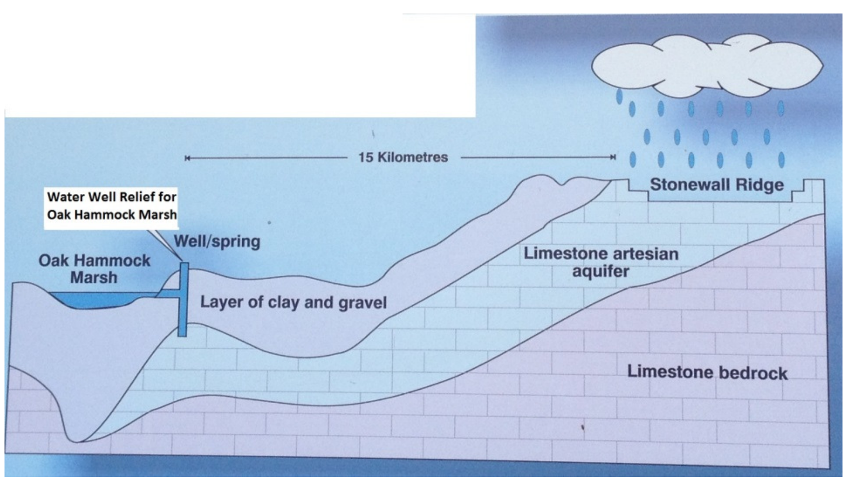

Figure 27 – Typical spring discharge schematic (source – MCWS, 2015)

Springs and Groundwater Discharge (cont'd)

A large area of natural springs and flowing wells exists in the Stonewall Uplands area extending from south of Oak Hammock Marsh to the north to the Ross Creek area (Rutulis, 1985). The source of the water discharging from these springs is groundwater discharging under flowing artesian pressure from the Carbonate Aquifer up to surface. The discharge from these springs has been variably estimated to range from 2,700 to 8,500 U.S.G.P.M. (UMA 1993, Charron, 1974). This discharge to surface is groundwater that would normally flow through the aquifer eastward to the Selkirk area but is partially prevented from flowing due to transmissive restrictions in the aquifer. The result is a buildup that accumulated long in the past, of groundwater pressure which breached the confining ability of the overlying soil. The breaching or "blowout" allowed for groundwater to flow to the surface in the form of springs.

Such a large discharge of groundwater does result in a substantial change in the amount of groundwater available to flow east towards the Selkirk area. Given the magnitude of this groundwater feature, a reconnaissance survey of the springs and surface water discharge pathways was undertaken to develop a better understanding of the hydrogeology of this area and obtain a preliminary quantification of the volume of groundwater being discharged.

The discussion below has been subdivided into the two major surface water features in the area that transmit this groundwater discharge: Wavey Creek and Ross Creek. It is recognized that a portion of the groundwater discharge also drains via Parks Creek however this has been excluded from this study due to access considerations. Many of these spring features are located on private lands, and it is not always possible to view and measure these features due to this condition. The locations of these springs are shown below in Figure 28.

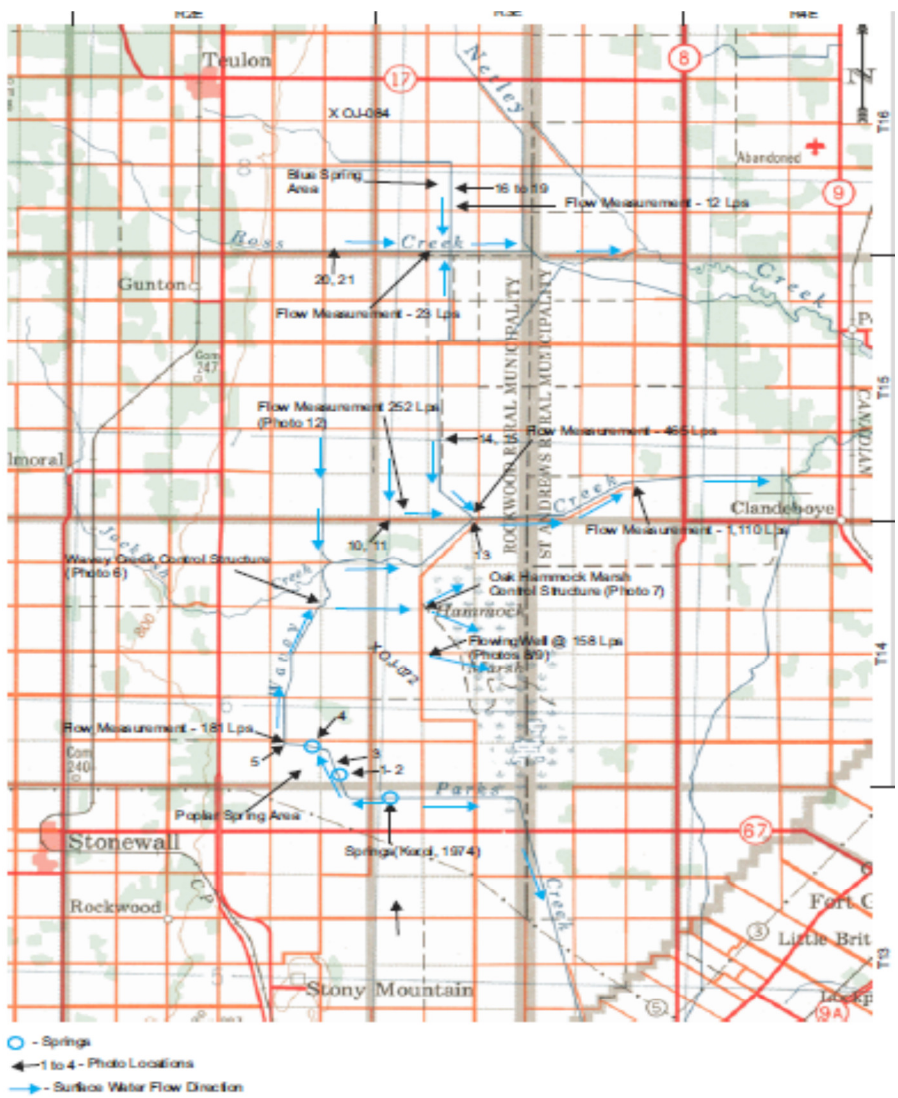

Figure 28 – Spring locations

Springs and Groundwater Discharge (cont'd)

The headwaters of Wavey Creek are located in 31-13-3E. At that location, there are two springs (Korol, 1974) which are discharging to surface. A portion of the flow from these springs flows east along Parks Creek. The remainder flows northwest along Wavey Creek through the Poplar Spring area.

The area generally known as Poplar Spring is located in the general area of 2-14-2E. It consists of a series of five springs that discharge into Wavey Creek. From there the discharge initially flows west to NE2-14-2E and then north via a large culvert. The measured flow at that location was 2,900 U.S.G.P.M. The flow through the culvert on that date was the cumulative flow of groundwater discharging upstream of this location. There was no observed surface water run-on in this portion of Wavey Creek during the time of measurements.

From NE2-14-2E, Wavey Creek flows north to SW25-14-2E. At this location, a control structure is present which allows water from Wavey Creek to be diverted directly into Oak Hammock Marsh on an as required basis. The control system includes two control gates on Wavey Creek which when closed divert water into a drainage ditch flowing east towards Oak Hammock Marsh. At the west edge of Oak Hammock Marsh (SE30-14-3E), there are two sets of control structures. One structure allows the diversion of water into the north part of Oak Hammock Marsh. The second structure allows the diversion of water into the central part of Oak Hammock Marsh.

Also present on the west side of Oak Hammock Marsh is a flowing well (NW17-14-3E). The groundwater discharging from this well is diverted by a ditch directly to the southern part of Oak Hammock Marsh. A Parshall Flume was been constructed at this location to allow the flow to be measured. In 2015, the flow was measured at 2,500 U.S.G.P.M. based both on the Parshall Flume Method and the velocity-area integration method. It is noted that Charron (1974) estimated the flow from this well to be approximately 1,750 U.S.G.P.M. Groundwater levels in the area of this flowing well have been recorded at monitoring station G05OJ072, approximately 1 mile to the west, since the 1970's. As shown below in Figure 29, there has been an overall rising trend in groundwater levels since the 1970's. The increased discharge is assumed to be the result of increasing recharge in the upland area.

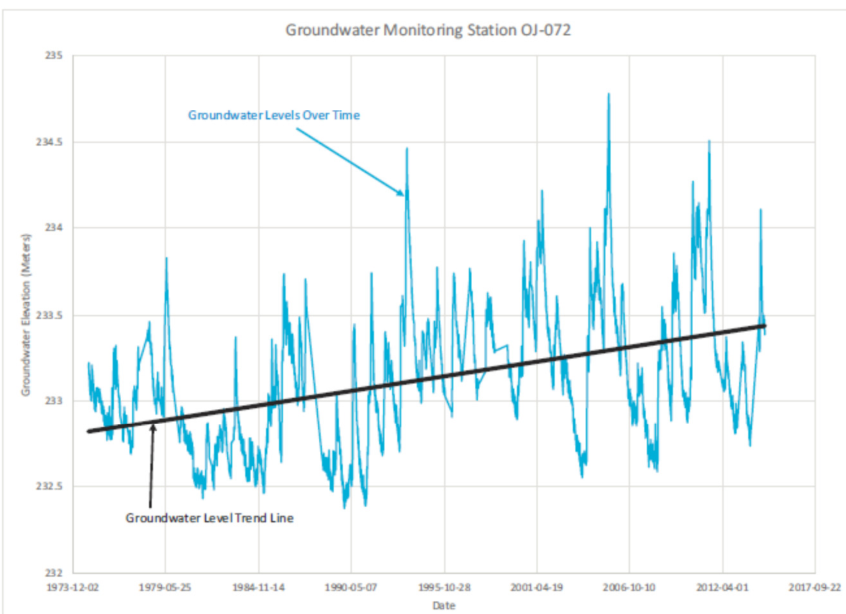

Figure 29 – G05OJ072 (source – MCWS, 2015)

From the Oak Hammock Marsh control structure, Wavey Creek flows north to the juncture with Jackfish Creek and a drainage ditch flowing south. The creek then flows east past the north side of Oak Hammock Marsh, where it merges with two major drainage ditches at SE5-15-3E. One drainage ditch flows east from SW6-15-3E where it captures a significant amount of flow from springs in 6/7-15-3E. The flow in this drainage ditch was measured at a culvert at approximately 4,000 U.S.G.P.M. A second drainage ditch flowing south captures spring discharge in 5/8-15-3E and directs the discharge to Wavey Creek. The combined flow of these two drainage ditches at the point of discharge into Wavey Creek was measured at approximately 7,300 U.S.G.P.M..

Springs and Groundwater Discharge (cont'd)

Wavey Creek then flows eastward to its discharge point in Netley Lake. The flow in the creek was measured at a ford at NE1-15-3E at approximately 17,600 U.S.G.P.M. Based on observations made at the time of the measurements, there was little to no surface water run-off to Wavey Creek and the flow is mostly attributable to groundwater discharge from the numerous springs upstream of this point.

The Ross Creek/Blue Spring area is generally located in T16-R2/3E. In this area, Ross Creek captures surface water run-off and groundwater discharge from southwest part of T16/R3E, the southeast part of T16/R2E, the northeast part of T15/R2E and the northwest part of T15/R3E.

The area contains numerous springs which historically have resulted in significant issues with drainage. In the late 1970's, the province undertook an extensive work program to control the groundwater seepage and modify the drainage network to limit the drainage issues caused by this seepage (McLelwain, 1977, Gray, 1984 and Petsnik, 1987). The work included, amongst other things, the installation of three relief wells in 8-16-3E designed to lower the groundwater pressures in the area by up to 10 feet and divert the discharge to the relief wells from the springs scattered through the area to Ross Creek. These springs are known as the Blue Springs. The work program was successful in diverting groundwater seepage from 10 springs and one "blow-out" to the relief wells. Gray (1984) commented that the rate of discharge from the relief wells was on the order of 1,100 U.S.G.P.M at that time. The flow rate was noted to be approximately 200 U.S.G.P.M. in 2015, which was well below the flow rate in the 1980's of 1,100 U.S.G.P.M. MCWS installed a hydrograph station at G05OJ084, which is approximately 2.5 miles northwest of the Blue Spring. This hydrograph is shown below as Figure 30. The groundwater levels have been rising at this location since the early 1980's. Based on this, it would be reasonable to expect that the discharge rate from the relief wells would be increasing, as was observed at the flowing well on the west side of Oak Hammock Marsh. It was noted that one of the relief wells was not flowing and the other two are in a state of disrepair. It is considered likely that the wells are no longer capable of allowing sufficient flow to maintain artificially low groundwater levels, and the groundwater levels have been rising as a result.

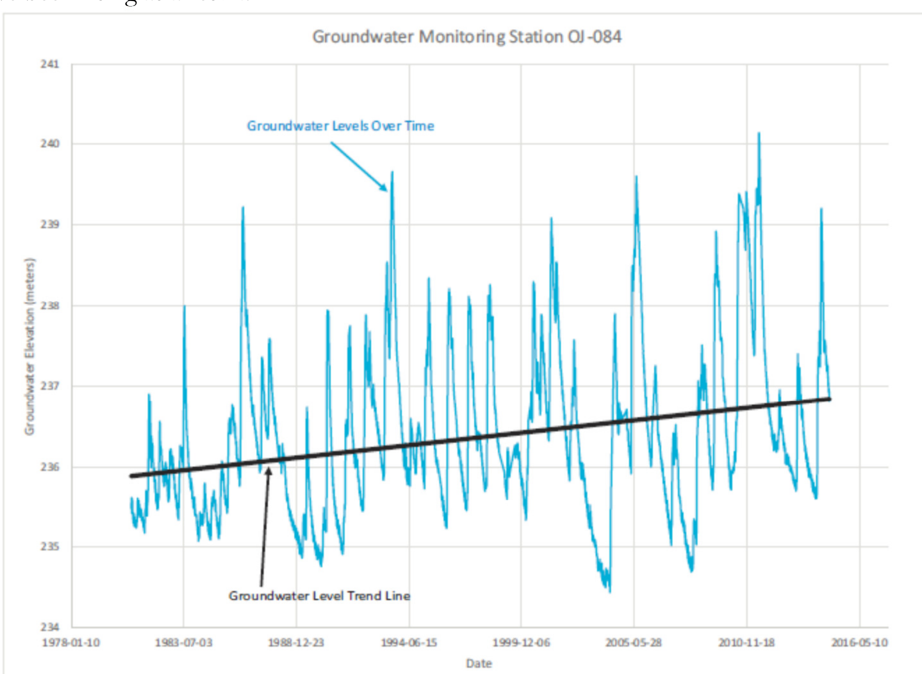

Figure 30 – G05OJ084 (source – MCWS, 2015)

As part of the inspection of the area, a spring was identified at SW1-16-2E. Groundwater from this spring flows through a gated culvert into the Ross Creek Drain. From there, the water flows east in the Ross Creek drain to Netley Creek. The flow in the Ross Creek drain downstream of this discharge culvert was measured at 360 U.S.G.P.M. A suitable location for flow measurements further downstream could not be found. Therefore, an estimate of the combined groundwater discharge flow in Ross Creek could not be made.

Springs and Groundwater Discharge (cont'd)

As noted previously, the total discharge of springs in the area is in the order of thousands of gallons per minute. Some these springs may also fall north of the regional flow from the Stonewall Upland area. It should be noted that it is often difficult to estimate the spring flow rates, as some of the flow in the ditches is likely from runoff. Render (1986) made an estimate of about 6,500 U.S.G.P.M. of total discharge from the spring features; within the Stonewall Upland to Selkirk drawdown cone section of the groundwater flow system. It is evident that the extent of discharge is considerably higher at the present time due to the higher precipitation conditions. It is an interesting fact that spring discharge is considerably higher, along with the rising groundwater levels seen on the local hydrographs.

This result suggests that the current recharge to the area is considerably higher than previously estimated. Elevated total annual precipitation, rising hydrographs, and increasing spring discharge is very strong evidence of this fact. An attempt at the long term average recharge rate for the last 17 years and considering the effects of open quarries in the Stonewall Upland gave an estimate of 10,000 U.S.G.P.M. While this is considerably greater than Render's 1986, of 5000 U.S.G.P.M., it is still in the right range and suggests how sensitive the recharge in the Stonewall area is to increases in precipitation. It should be noted that the system in the Stonewall Uplands is likely to follow a pipe/reservoir approach. In the event that the water level in the reservoir is elevated, the potential in the pipe will be elevated. Therefore, during dry periods, it is highly likely that the water levels will decline fairly quickly.

Regional Groundwater Geochemistry

The geochemistry of the carbonate aquifer of Manitoba is complex. In the geologic past, prior to the start of the Pleistocene glaciations, it is highly likely that both aquifers were saline or brackish. During the Pleistocene large hydraulic heads under the glaciers forced the saline water westerly down into the bedrock units. In recent times due to the subcrop recharge dynamics of the moraines present to the east, and exposed or thinly covered bedrock areas in the Interlake, the aquifers receive a large amount of freshwater recharge annually. This has resulted in a large freshwater presence in both the carbonate and Winnipeg Formation Aquifers. This freshwater has formed a distinctive "wedge" in the southeast of the province. Figures 31 and 32, shown below; depict the freshwater portions of the carbonate and Winnipeg Formation aquifers, respectively.

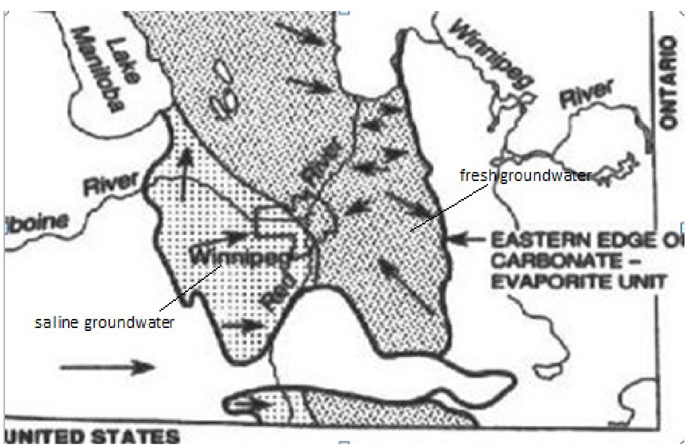

Figure 31 – Carbonate Aquifer freshwater areas (saline areas are shown as to the west of the River) Source – Betcher et. al, 1995.

Figure 32 – Winnipeg Formation total dissolved solids chemistry (> 1 g/L is fresh) Source – Betcher, et. al., 1995.

As noted in the above figures, the groundwater quality in the Selkirk region of the carbonate aquifer is fresh, while the Winnipeg Formation is saline. In the area, the groundwater quality in the carbonate aquifer is noted to change considerably based on the location within the aquifer system. Near the Stonewall Upland area, the groundwater quality is excellent, with total dissolved solids (TDS) less than 500 mg/L. Within the City of Selkirk, groundwater quality is reasonably good, with a TDS of approximately 1,200 mg/L.

The groundwater quality in the area is a function of the regional flow systems that exist. The major recharge system that has considerable influence on the groundwater quality in the area is the Stonewall Upland recharge area. As mentioned previously, in this area, snow melt, surface precipitation and run off infiltrate into the carbonate aquifer; over this broad area.

Regional Groundwater Geochemistry (cont'd)

In order to review the groundwater geochemistry in the area, the long term geochemical data from over 90 provincial hydrograph stations was collected and plotted (MCWS, 2015). The results were plotted in a Tri-Linear diagram, which is shown below as Figure 33. An average quality of the sampling is also presented as Table 2.

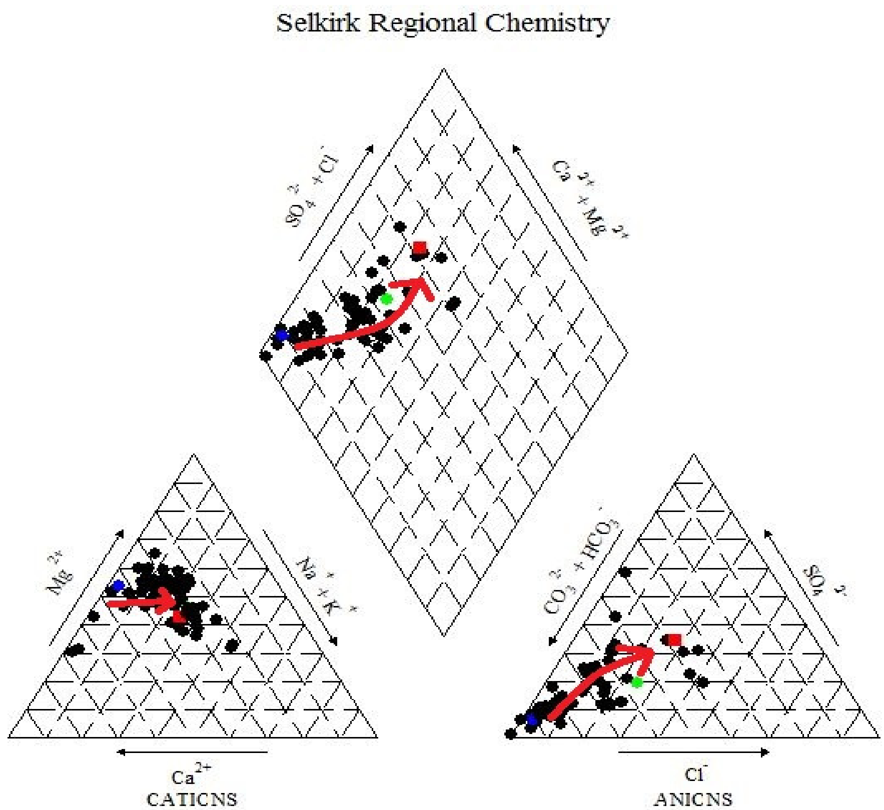

Figure 33 – Selkirk regional geochemistry evolution (source – MCWS, 2015)

Table 2 **MCWS Observation Wells** **Typical Average Groundwater Geochemistry – Selkirk Region**	
Parameter	**Average Results**
Calcium	84.2 mg/L
Magnesium	78.2 mg/L
Sodium	58.5 mg/L
Potassium	6.5 mg/L
Carbonate (CO_3)	1.6 mg/L
Bicarbonate (HCO_3)	515 mg/L
Chloride	76 mg/L
Sulphate	123.5 mg/L
Total Dissolved Solids	690 mg/L
Nitrate	1.5 mg/L

Table 1 – Comparison of carbonate aquifer basic routine geochemistry (data source – MCWS, 2015)

Regional Groundwater Geochemistry (cont'd)

Groundwater flowing through the carbonate aquifer system in the Selkirk region evolves from a Calcium/Magnesium/Bicarbonate to a Calcium/Sodium Bicarbonate chemical classification. Generally speaking, the groundwater quality of the carbonate aquifer in the majority of parameters is generally stable, although the total dissolved solids and magnesium appear to be on a slightly decreasing trend moving towards the City of Selkirk. Although elevated chloride groundwater has been noted in the past within the City of Selkirk, recent sampling of the Christie Well indicates that groundwater quality is improving slightly. It is speculated that the groundwater quality is improving due to the fact that the Christie Well is drawing groundwater from many sources and directions. Figure 34, shown below, depicts the long term geochemistry results from the Christie Well, along with the decreasing parameter trends.

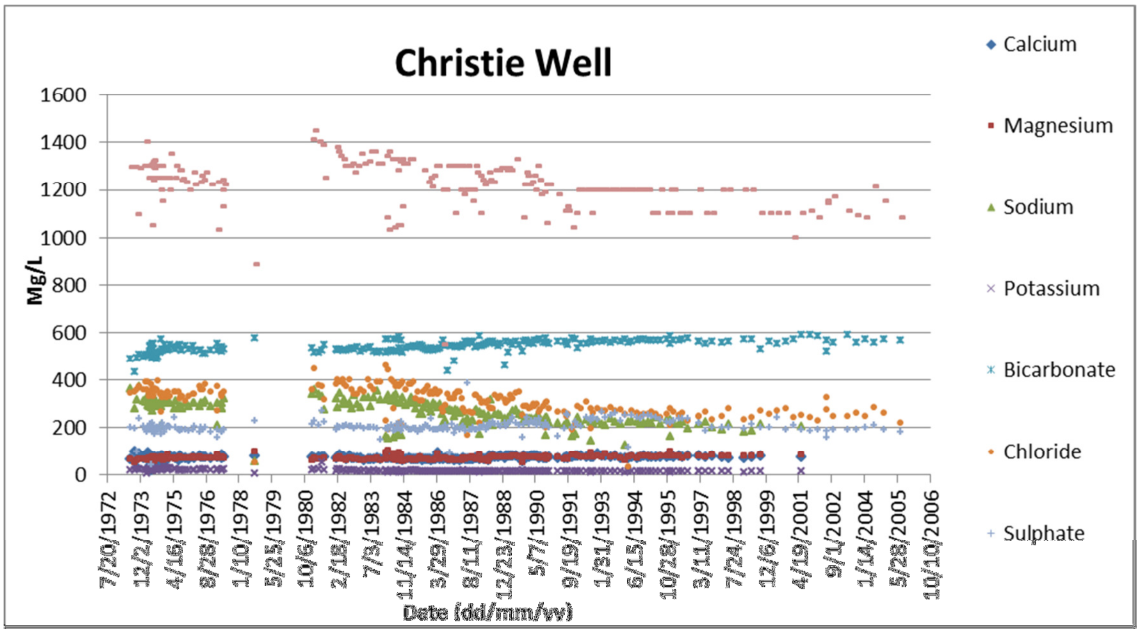

Figure 34 – Groundwater quality in the Christie Well (data source – City of Selkirk, 2015)

Generally speaking, the typical groundwater quality parameters of the carbonate aquifer are very representative across the area, with little overall variation. Figure 35, shown below, depicts typical Stiff diagrams of areal groundwater quality.

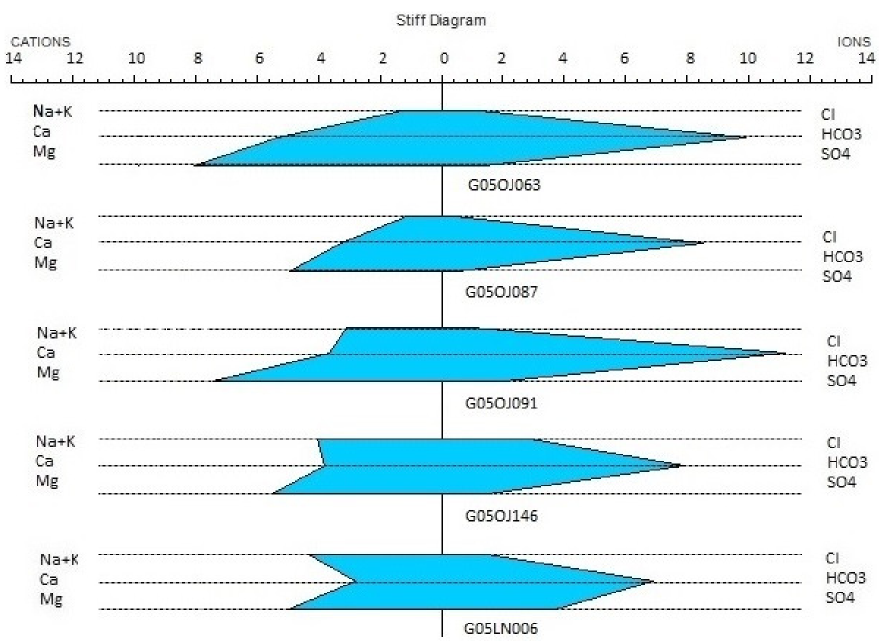

Figure 35 – Stiff diagrams for the Selkirk regional area (data source – MCWS, 2015)

Regional Groundwater Geochemistry (cont'd)

During field investigations in the Selkirk area, samples were collected for the analysis of isotopes of oxygen. The ratios of the main isotopes that comprise the water molecule ($^{18}O/^{16}O$) and $^2H/^1H$ are important for hydrogeological investigations (Freeze and Cherry, 1979). The units are presented in delta (δ) units as parts per thousand or ‰ (Clark, 2015) relative to standard mean oceanic water (SMOW). The two isotopes of water have different freezing and vapour points, which leads to different concentrations as a result of freezing, condensation, melting, and evaporation (Fritz and Clark, 1997). As water is evaporated from the ocean, there is a decline in the ^{18}O concentration by a specific amount. As the vapor condenses, the precipitation has a higher ^{18}O concentration. This process continues as the vapor moves inland, and undergoes many cycles of condensation and evaporation. This fact makes deuterium and ^{18}Oxygen very useful for hydrogeological investigations, as the origin and mixing of different waters can be determined (Clark, 2015). In order to determine the changes from local precipitation, deuterium and ^{18}oxygen results are plotted to determine the local meteoric water line, which would be expected to be the typical concentrations in recent precipitation events in the southeast.

Friesen Drillers has collected about 65, Deuterium and ^{18}Oxygen samples in the Selkirk area over investigations in the past few years. These results were plotted against a local meteoric water line, which was determined to be $\delta^2H = 7.6 \cdot \delta^{18}O + 2.2$, which is the virtually the same as the local meteoric water line for the Gimli area (IAEA, 2006). This plot is shown below as Figure 36.

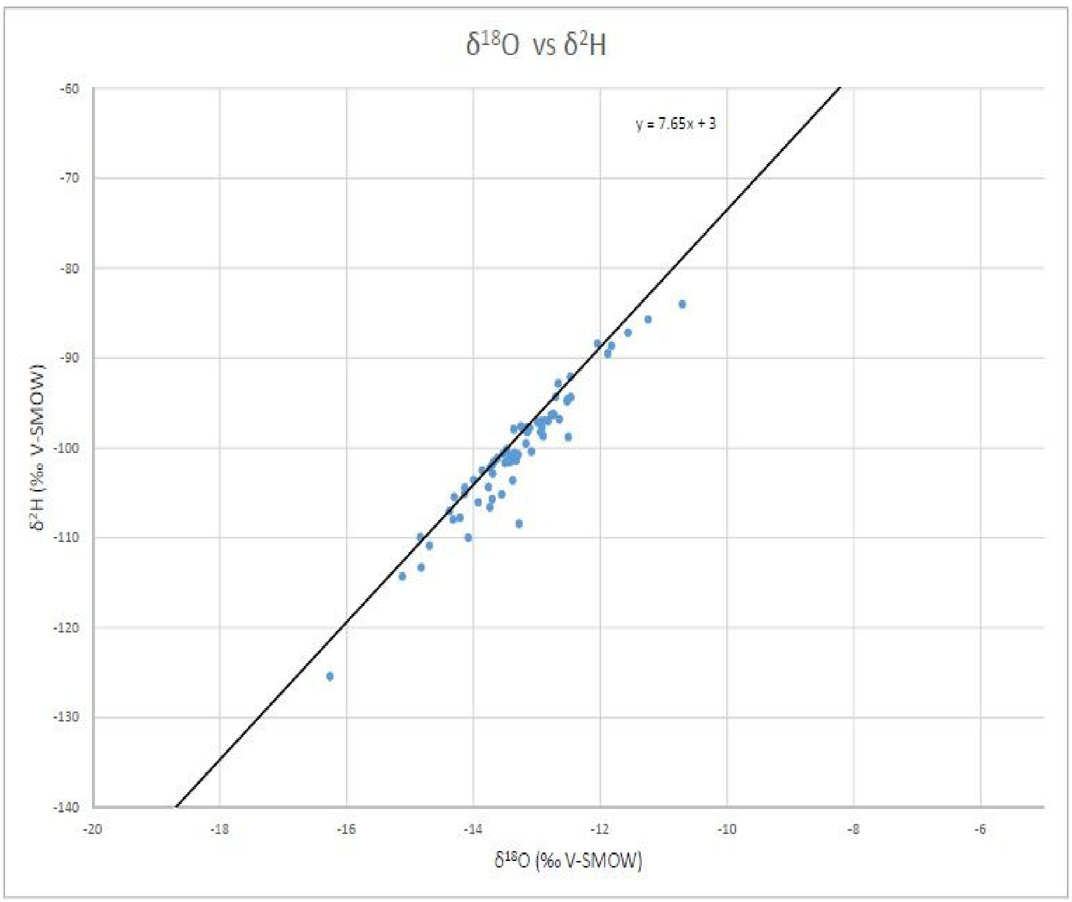

Figure 36 – Local isotopes in the Selkirk area.

The values indicate that the groundwater is modern precipitation, which has undergone little modification since infiltration. The results are typical for fairly recent movement of young recharge water. There is a slight indication of a slope change resulting from snow melt infiltration. Some samples plotted below the line indicating slightly meteoric conditions.

The groundwater isotopes from the two aquifers in the Selkirk area indicate young recharge water; and suggest recent movement of water through the aquifer towards the Selkirk drawdown cone.

Overview of the 1973 Investigation

As stated previously, in 1973 the Manitoba Water Resources Branch (MWRB) Groundwater Section conducted a water supply investigation for the purposes of establishing a water supply for the City of Selkirk. The area was located from some previous investigations conducted by the Geological Survey of Canada in the late 1950's/early 1960's. The study was directed by the MWRB hydrogeological engineering staff, led by Mr. Maris Rutulis.

The test work began in early 1972, and consisted of drilling a number of observation wells in the area, and conducting short term specific capacity yield tests. Two locations initially looked very promising as a result of the drilling. Initial water quality sampling was also conducted; and proved suitable for urban water supply.

The first location was in NE14-14-4E. A number of observation wells were drilled, and 10 inch diameter production well was installed approximately 250 feet off the road into a small wooded area. This production well still exists on private property. G05OJ064 MCWS hydrograph station was left as one of the observation wells from this testing. Some of the other test wells are also thought to still exist in this area from this investigation.

A pumping test was performed on the test well at this location for 30 hours at a rate of 480 U.S.G.P.M. The testing showed good transmissive conditions in the immediate area, with poorer conditions noted to the south and east. Some transmissive changes were noted. It was noted that the static water level at this location dropped off fairly sharply towards the east suggesting a negative hydraulic boundary.

The second test well location was chosen at NW14-14-4E. This location encountered a great deal of broken rock in the upper bedrock section. A 10 inch diameter steel cased production well was installed and a 29 hour pumping test was conducted at 660 U.S.G.P.M. The test revealed stronger aquifer transmissive conditions, and a better overall pumping well specific capacity. The water quality was also noted to be stable. Up until recently, this production well was still present at the site.

As a result of the work, MWRB staff recommended developing a water supply at the second location for the City of Selkirk that would be capable of pumping at the rate of 700 to 1,500 U.S.G.P.M, overall. The groundwater quality was noted to be very good at the time, and very compatible with the existing treatment plant in Selkirk; at the time. Finally, it was noted that about 5 miles of pipeline was required to deliver the groundwater to the Selkirk Water Treatment Plant.

A copy of the 1973 letter report is attached as Appendix G.

Overall Groundwater Regional Physical Analysis

As noted in the previous sections, the regional groundwater hydrogeology is quite complex in the Selkirk area. It is important to note the following points for the area which are critical in moving forward.

Through the analysis of the springs, it is evident that the extent of recharge is considerably higher than previously estimated in the past. The springs are discharging at higher rates, and the regional hydrographs are still rising with the increased total annual precipitation. The presence of additional quarries in the uplands area likely results in additional recharge occurring directly to the aquifer system (with no overburden present). Currently, the total effective discharge from the springs, within the western part of the Selkirk groundwater flow system, is not known. However it is recognized that the spring flow is much greater than the values reported in historical documents.

It is clear that all of the groundwater that is flowing through the system is not able to get out of the system at the spring discharge points.

It is strongly likely that the spring discharge on the west side of the Oak Hammock site is entering into the local drainage system, which is likely imposing additional recharge to the system at lower topographic elevations downgradient.

The Oak Hammock Marsh site is located near a major formational boundary in the bedrock, and this is likely the reason for the springs. Groundwater simply cannot move through the area of reduced permeability fast enough in that area, and therefore begins to appear as blowout discharge at surface. There is considerable evidence that moving east or west of the west side of the Oak Hammock area results in major increases in aquifer transmissivity.

Springs are not located on the east side of Oak Hammock Marsh.

Overall Groundwater Regional Physical Analysis (cont'd)

Over the past million years or so, there has been a considerable amount of bedrock removed, directly under the City of Selkirk in the Selkirk bedrock depression. This has undoubtedly, considerably reduced the overall aquifer transmissivity.

An overall schematic of the regional hydrogeology is shown below as Figure 37.

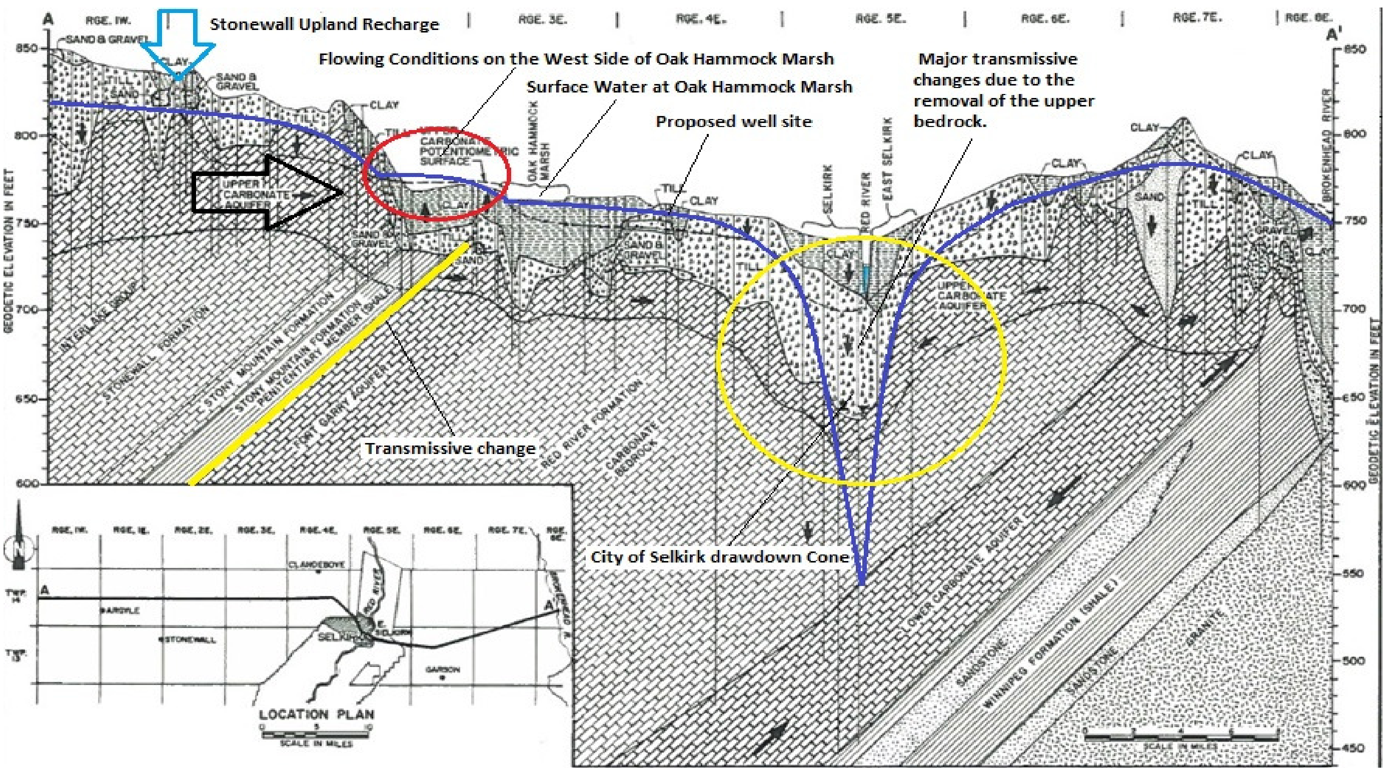

Figure 37 – Overall physical hydrogeology with updated potentiometric surface (2014). (source modified from Render, 1986)

Well Inventory

A well inventory of private and commercial wells located within a 2-mile radius of the proposed well site at NW14-14-4E was conducted to ascertain the condition of water wells and well systems in the area and to assess the potential impacts associated with local pumping at the proposed well site. The well inventory was preceded by meeting with local residents, where a short questionnaire about their wells was completed. The questionnaire included queries about well depth, drilling date, drilling company and water quality. The location of each well was marked with a handheld GPS unit, a picture of the well was taken, notes on well condition and status, and also any questions, comments or concerns from well owners. Additional well data was obtained, where available, from the MCWS –GWDRILL (2012) database. The completed inventory is attached as Appendix H.

The well inventory for township 14, range 4E was completed in May and June of 2015 and documented a total of 78 wells from the sites of 56 residents within sections 9-16**,** 14-4E and 21-28**,** 14-4E. Total well depth was known for 50 wells and ranged from 11 ft. to 300 ft., with approximately 70 % of the wells (34 of 50) drilled to 120 ft. or less. Well logs were not identified or available for 49 of the 78 wells visited. Wells in the region are typical mechanized with submersible type pumps, single line suction pumps, or two line jetmatic pumps, of which submersible pumps are the most common installation. Information on the type of grouting used during the well construction was sparse. It does appear that the majority of wells in the region have bentonite grouting.

The condition of each well was categorized as either poor, fair or good, based on the following criteria:

Good Condition – Modern style pitless unit connection with good drainage from surface and proper capping.

Fair Condition – Older steel cased wells with short casing sections or poor capping.

Poor – Wells completed in pits with poor drainage and capping.

Well Inventory (cont'd)

Of the wells inventoried, approximately 40% (30 wells) were classified as good, 30% as fair, 20% as poor and 10% undetermined.

The GWDRILL (2012) database includes records for 140 production and observation wells in the study area. The historic nature of the GWDRILL database results in documentation of wells that are not relevant to this project. This may include wells that have been sealed and abandoned, wells that are no longer in use (though still actively hooked up) and/or wells that were buried (intentionally or unintentionally) and forgotten. Additionally, the names of well owners in the record are not updated if the property changes hands and do not reflect the dynamic nature of land ownership, a characteristic that makes well log correlation ambiguous in some cases. Overall, it is fair to assume that the 78 wells visited during the present well inventory represent a substantial portion of active wells in the region.

Field Investigations and Testing

Monitoring Well Installation and Production Well Construction

Friesen Drillers Limited mobilized to the area in the summer of 2015. The location of the two production well sites was established by the 1973 investigation. As such, test drilling to define the production well locations was not needed, as MCWS undertook test drilling at the specific sites at that time. In addition, the previous test well drilling in the area by W.L. Gibbons was also made available (Wiecek, 2011). The three wells constructed by W.L. Gibbons were still present in their locations.

During the well inventory, a total of 8 private residents allowed their domestic use water wells to have a pressure transducer installation during the project. Once these locations were determined and mapped, data gaps in the monitoring record were revealed. In order to allow for monitoring in all directions, 6 additional observation wells were drilled in the area to provide better monitoring coverage.

Prior to drilling any test wells at the proposed observation well sites, the sites were reviewed with the staff from the RM of St. Andrews. All underground and overhead services were cleared and marked by their respective utilities prior to conducting any drilling. Aspects of water clean-up and drainage was also reviewed at each location.

Each monitoring well was drilled within the provincial right of ways along the various municipal roads. The wells were very similar in construction, and each involved setting solid PVC casing into the upper bedrock, and then drilling the bedrock open hole. The PVC casing was then cemented into place. Following the drilling, each well was developed with compressed air for several hours until the discharge was visibly clean. After completion, each well was equipped with an above grade steel surface protector, and locking cap. In some cases where applicable, the observation wells were cut down to grade to allow for access with farm equipment during the harvest period.

In July of 2015, the City of Selkirk retained a legal land surveyor from Selkirk to undertake a property line trace at the proposed production well sites at NW14-14-4E. In order to confirm that the well locations were set within the 99 foot wide right of way, the land surveyor traced the property line both north and south of the two proposed sites. The property lines were staked and marked and the well locations were set. It appears that the previous observation and monitoring wells installed at the site in 1973 fell off the right of way and were actually located within private lands, although the exact location of the 1973 well could not be confirmed.

Prior to conducting any drilling at the proposed sites, underground and overhead utilities were cleared and marked by the utility companies. Within the well field area, a Manitoba Telecom Services (MTS) line was noted to be present well within the field to the east of the proposed sites. The MTS line was clearly marked and clearances were provided. In order to provide access to the well sites, Cox Construction of Winnipeg was retained to build two temporary approaches to the sites. Reclaimed concrete was used to build up a small approach to each well field. A temporary culvert was also installed on each approach.

The south well site was drilled in August 2015. A 16 inch diameter surface casing was set, and a small diameter test borehole was drilled into the bedrock. The overburden stratigraphy at the site typically consisted of about 10 feet of clay, underlain by glacial till to a depth of approximately 28 feet below grade. Broken and damaged carbonate bedrock was encountered down to 35 feet. It was noted that the bedrock fractures did not have any major infilling and was deposited very loosely. Casing was seated in the south well at 35 feet below grade. The annulus space between the 16 inch and the 12 inch casing was then grouted in place with cement, and the 16 inch casing was extracted.

Once the casing was seated in the south well, the bedrock was drilled open hole using an 11 inch diameter bit, to a depth of 98 feet below grade. Large fracturing was noted at a depth of approximately 40 feet below grade. After a significant developing effort, relatively sand free water was produced. The fractures in the boreholes appeared to have very little infilling and were generally very clean. The yield was noted to be significant during the development of the well.

Monitoring Well Installation and Production Well Construction (cont'd)

The north well site was drilled in late August 2015. A 16 inch diameter surface casing was set, and a small diameter test borehole was drilled into the bedrock. The overburden stratigraphy at the site typically consisted of about 10 feet of clay, underlain by glacial till to a depth of approximately 27 feet below grade. Broken and damaged carbonate bedrock was encountered down to 34 feet. It was noted that the bedrock fractures did not have any major infilling and was deposited very loosely. Immediately below the broken bedrock was 10 feet of highly fractured and loose carbonate bedrock. The bedrock was very poorly compacted and that it quickly collapsed during removal of the drill rod/bit.

The 16 inch diameter surface casing with then extended to a depth of 45 feet below grade. A 10 foot length section of 12 inch diameter, stainless steel, wire wound well screen was installed at 35 feet, below the 12 inch diameter black steel casing. The screen was gravel packed into place with 3/8 inch washed granular stone. The annulus between the 12 inch and 16 inch diameter casing was then pulled to 35 feet below grade, and the granular was then topped up. A layer of bentonite was placed, and then the 16 inch casing was slowly extracted as the annulus was grouted with cement to within 10 feet of surface. It should be noted that the screen section was set into a three tier step down socket in the bedrock.

The service design of the well screen at the manufacturer's guidelines was noted to be 677 U.S.G.P.M. overall, assuming an intake velocity of 0.1 ft/s. Pumping beyond 0.1 ft/s would likely result in sand pumping.

Once the casing/screen was seated in the south well, the bedrock was drilled open hole using an 11 inch diameter bit, to a depth of 98 feet below grade. Large fracturing was noted at a depth of approximately 47 to 60 feet below grade. After a significant developing effort, relatively sand free water was produced. The fractures in the boreholes appeared to have very little infilling and were generally very clean. The yield was noted to be significant during the development of the well.

Both wells were sealed with temporary well seals. The water level in the north well was noted to be at grade, while the southern well was 3 to 4 feet above surface, and right at the top of casing level.

Complete geologic and borehole construction logs for the production wells are attached as Appendix I. The specific well details are presented below in Table 2. Schematic diagrams of the well constructions are also attached in Appendix I with the well logs.

Table 3 Production Well Specific Details City of Selkirk Proposed Water Supply 14-14-4E – RM of St. Andrews, Manitoba							
Well	**Latitude**	**Longitude**	**Casing Diameter**	**Casing Depth**	**Total Depth**	**Grout Type**	**Grout**
North	N 49.19607º	W 96.95608º	12 inch Steel	35 feet	98 feet	Cement	10-35 feet
South	N 49.19088º	W 96.95593º	12 inch Steel	35 feet	98 feet	Cement	10-35 feet

Table 3 – Well specific details - Proposed new Municipal Supply Well Field - City of Selkirk – Manitoba

Aquifer Monitoring, Climatic Monitoring and Geodetic Surveying

In order to determine how the aquifer will respond to pumping, an extensive network of observation wells was planned for testing during this investigation.

The monitoring plan for this project consisted of 22 observation wells (plus the pumping well). These wells were all located within the carbonate aquifer system within a three mile radius of the proposed pumping well. In addition to the nearby monitoring wells, an additional 16 monitoring wells consisting mainly of provincial hydrograph stations were checked in the area. The springs flowing on the west side of the Oak Hammock Marsh were also part of the monitoring network for the project.

Solinst M30/F100 automatic, data recording pressure transducers were installed in the selected observation wells. Other stations employed both manual and Stevens™ Type F paper hydrograph recorders and Telelog™ data recording transducers, although these were only recorded manually so as to not disturb the instrumentation of the MCWS hydrograph station. The transducers used were the non-vented type, which require barometric pressure correction. A barometric pressure logger was deployed to the site for use in data correction. The transducers were set to record data on ten minute intervals, and were installed about three weeks before the 7 day pumping/recovery test. The majority of the instruments were removed about three weeks after the test, with several longer term stations being left in place for an additional month.

Aquifer Monitoring, Climatic Monitoring, and Geodetic Surveying (cont'd)

The far distance locations are shown below as Figure 38. The near well observation wells are shown below as Figure 39.

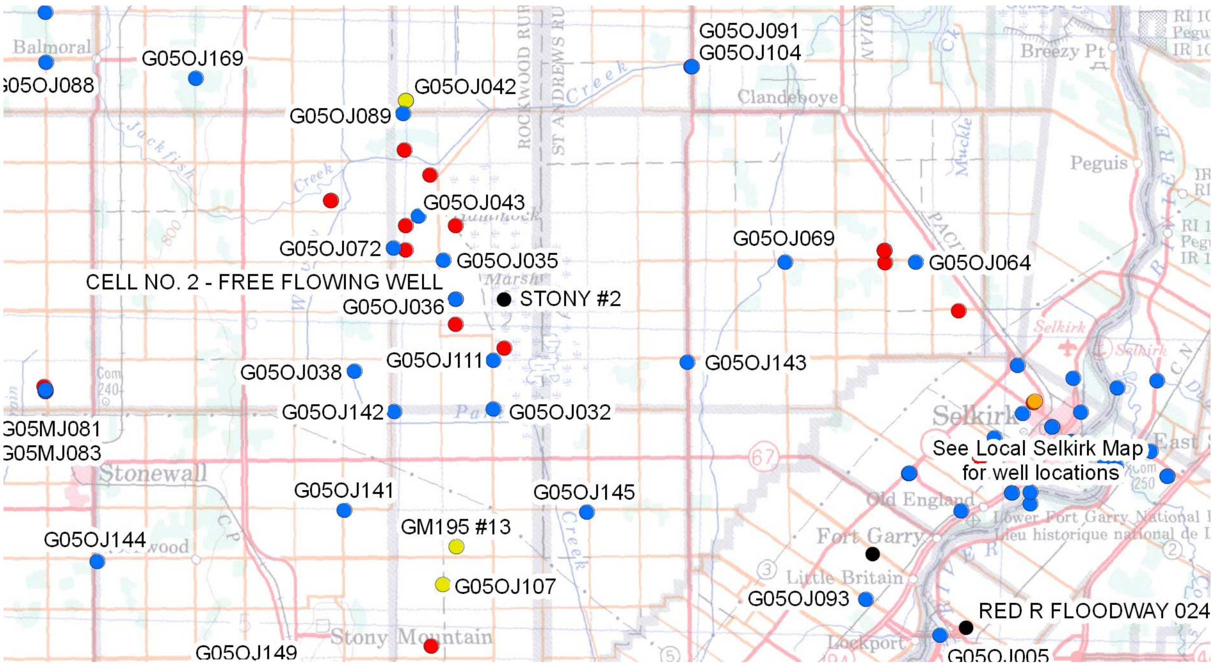

Figure 38 – Long distance monitoring well locations - Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba. Note that the proposed production well locations are shown as the lower red dots near the MCWS G05OJ064 monitoring well. (source – MCWS, 2015)

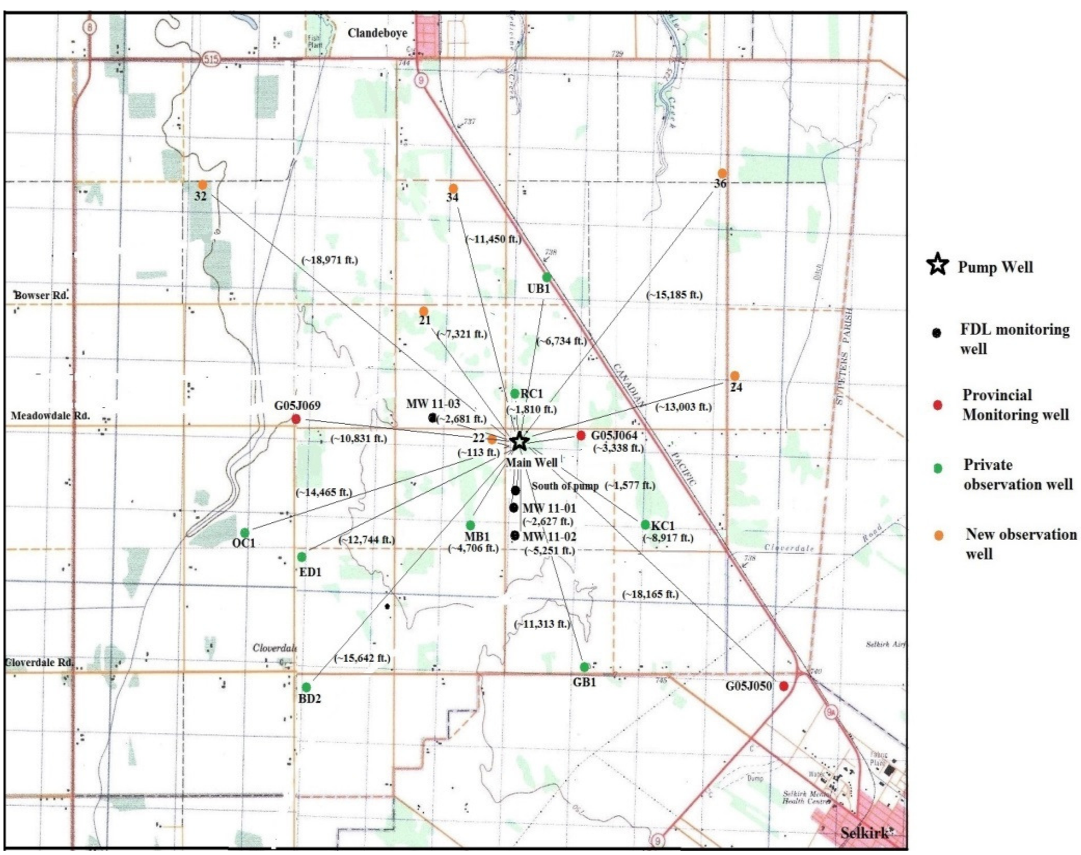

Figure 39 – Near monitoring well locations - Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba

Aquifer Monitoring, Climatic Monitoring, and Geodetic Surveying (cont'd)

The following stations were utilized, as shown below in Table 4.

Table 4 Monitoring Well Specific Details City of Selkirk Proposed Water Supply 14-14-4E – RM of St. Andrews, Manitoba			
Monitoring Well Name	**Radial Distance**	**Monitoring Well Name**	**Radial Distance**
North Supply Well	~ 0 feet	OB-021	~ 7,321 feet
OB-022	~ 113 feet	OB-024	~ 13,003 feet
South Supply Well	~ 1,577 feet	G05OJ069	~ 10,831 feet
OBS-RC1 (Private)	~ 1,810 feet	OBS-GB1(Private)	~ 11,313 feet
MW11-01	~ 2,627 feet	OB-034	~ 11,450 feet
G05OJ064	~ 3,338 feet	OBS-ED1(Private)	~ 12,744 feet
MW11-03	~ 2,681 feet	OBS-OC1(Private)	~ 14,465 feet
MW-11-02	~ 5,251 feet	OB-032	~ 18,971 feet
OBS-MB1(Private)	~ 4,706 feet	OB-036	~ 15,185 feet
OBS-MC1(Private)	~ 8,917 feet	OBS-BD1(Private)	~ 15,642 feet
OBS-UB1(Private)	~ 6,734 feet	G05OJ050	~ 18,165 feet

Table 4 – Monitoring well specific details – North Production Well - Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba

The corrected transducer plots and water levels measured in each observation well are attached as Appendix J.

In addition to the monitoring of water levels in wells in the area, the installed observation wells were sampled for routine geochemistry prior to conducting any pumping. The private residential water samples were not sampled for routine geochemistry due to the unknown treatment systems and set up of each well.

In order to determine the exact location and elevation of the observation well network in the monitoring plan, the City of Selkirk arranged for a geodetic surveying crew to undertake a level survey. Isaac and Denchuck Land Surveyors used a GPS total station to undertake the work. The ground level and top of casing elevation of each monitoring level was surveyed to a common geodetic benchmark. The nearest Canadian Government geodetic benchmark was located less than 100 feet from the north production well site at McRae and Meadowdale Road. The private observation wells were also surveyed to the same geodetic benchmark.

The survey data is also contained in Appendix K .

Pumping/Recovery Test, Geochemical, and Environmental Isotope Sampling

In order to obtain aquifer parameters and to determine how the proposed well field responds to pumping, a 7 day (10,080 minute) pumping test was planned for the site. The testing duration was stated in the scope of work and approved by MCWS – Groundwater Licensing Section. The 7 day pumping test was chosen to firmly establish the drawdown around the well within the 10,000 minute log cycle in the analysis. This would further allow the drawdown cone to expand to at least 2.5 miles from the site, and would aide in locating any potential boundary conditions or transmissive changes in the area. Recovery was to be monitored to at least 90% of the static water level.

A 25 hp Berkeley submersible pump and motor was installed in the North Well at a depth of 40 feet below grade. Power was supplied by an on-site portable generator. During the installation and set-up, the pump and motor were tested briefly for one hour to determine the well yield. This allowed the discharge valve to be set. This was undertaken approximately two weeks before the actual 7 days testing began. The pumping test commenced on September 21, 2015, and was completed on September 28, 2015.

Drainage was a major consideration in the planning of the proposed pumping test. In order to allow the water to drain away, the City of Selkirk and the RM of St. Andrews staff worked collaboratively to improve the drainage and several ditches. The bull rushes were cut out of the ditch extending north from the site for a distance of two miles. Water then flowed to a natural creek that is present in the area. The drainage plan is shown on the following page as Figure 40. It should be noted that all the drainage occurred in ditches

Pumping/Recovery Test, Geochemical, and Environmental Isotope Sampling (cont'd)

controlled and maintained by the RM of St. Andrews. During the course of the pumping test, there were no drainage concerns or complaints received.

The flow rate was maintained by using a 4 inch by 6 inch orifice meter. The flow meter was checked every half hour. Water levels were monitored using a Powers M-scope well sounder in the pumping well. The pumping test set up at the site is shown on the following page as Figure 41.

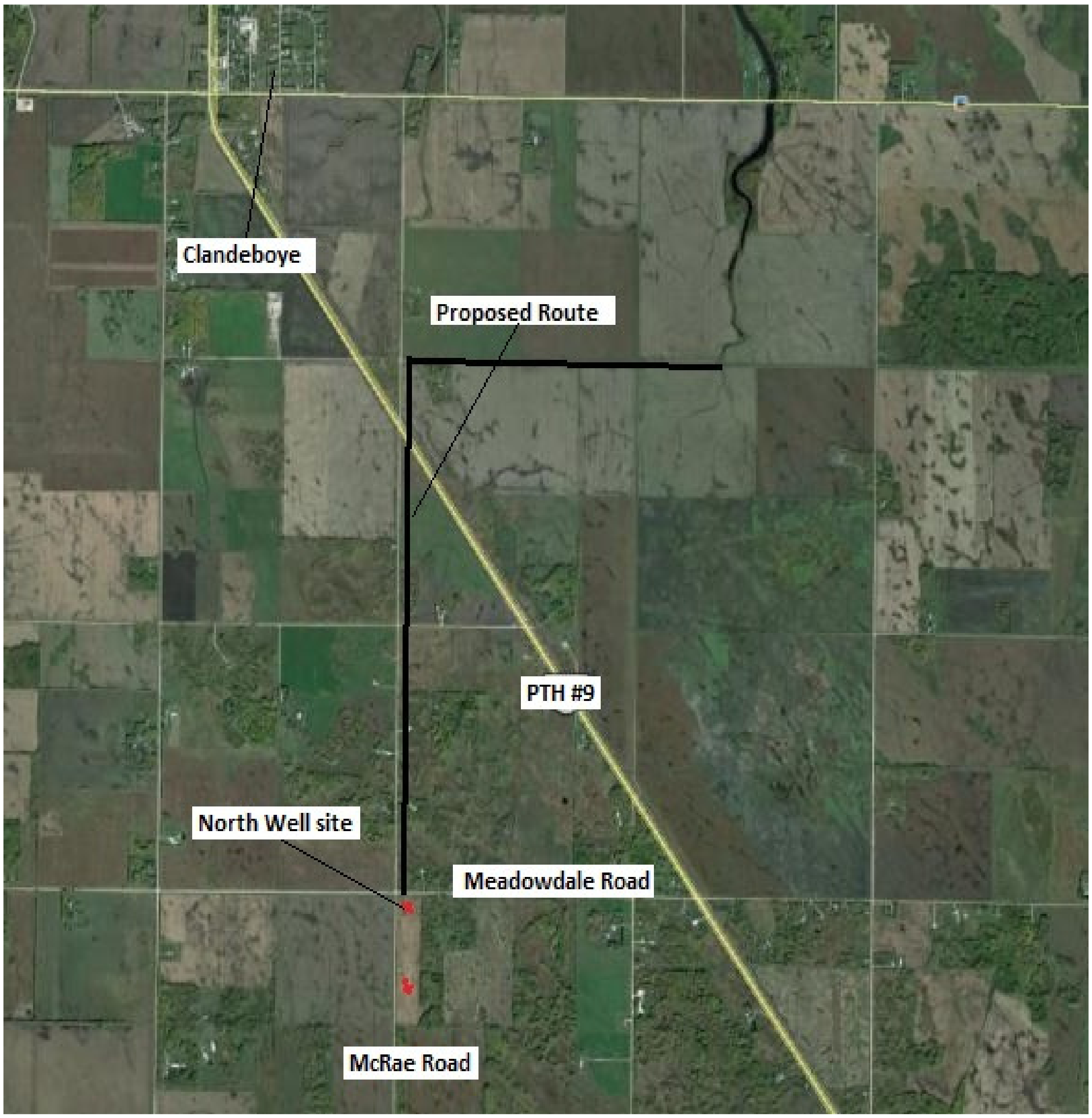

Figure 40 – Drainage routing during the pumping test.

During the 7 day pumping test on the north well, field measurements of basic water quality parameters were collected. The field instruments were calibrated prior to the test. Field measurements were taken to show the water quality results prior to the release of CO_2 from the sample, which can affect the results over short periods of time. The summary of water quality testing results is shown on Table 5. In addition, groundwater samples were collected from the pumping discharge in laboratory supplied analytical sample bottles every 24 hours. The samples were submitted to ALS Laboratories for routine water quality parameters and metals scan analysis. The results will be discussed in the data analysis section. In addition to the routine geochemical analysis, two environmental isotope samples were collected for the analysis of $Oxygen^{18}$ and Deuterium isotopes.

Pumping/Recovery Test, Geochemical, and Environmental Isotope Sampling (cont'd)

Figure 41 – The North Production well and discharge set up at the well head during the 7 day pumping test.

Table 5 **Field Water Quality Measurements – 7 Day Pumping Test** **City of Selkirk Proposed Water Supply** **14-14-4E – RM of St. Andrews, Manitoba**			
Pumping Time	**Electrical Conductivity**	**Field Turbidity**	**pH**
Day 1	1,200 umhos/cm	0.77 NTU	8.0
Day 2	1,150 umhos/cm	0.72 NTU	8.0
Day 3	1,150 umhos/cm	0.65 NTU	8.0
Day 4	1,200 umhos/cm	0.42 NTU	7.8
Day 5	1,150 umhos/cm	0.39 NTU	7.7
Day 6	1,200 umhos/cm	0.29 NTU	7.9
Day 7	1,200 umhos/cm	0.28 NTU	7.7

Table 5 – Field parameters – Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba

The following water levels and pumping rates, shown in Table 6, were recorded during the pumping test from the North Production supply well.

Table 6 **Pumping Test Specific Details– 7 Day Pumping Test** **City of Selkirk Proposed Water Supply** **14-14-4E – RM of St. Andrews, Manitoba**						
Well	**Pumping Time**	**Casing Depth**	**Total Depth**	**Static Water Level**	**Pumping Water Level**	**Pumping Rate**
North Well	10,080 minutes	35 ft.	98 ft.	2.30 ft. above	9.25 ft.	795 U.S.G.P.M.

Table 6 – Pumping test details – North Production Well – Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba

The responses at the various observation wells and the regional geochemistry will be discussed in the following sections.

The pumping test and recovery data is presented in Appendix L.

Data Analysis

Aquifer Testing Analysis

Through a review of the geological/hydrogeological conditions with the large scale regional flow system, and the major changes in transmissive conditions, it can easily be surmised that the aquifer analysis would be complex for the 14-14-4E site. The number of observation wells used for the pumping test added considerable insight to the analysis.

The Theis (1935) method is the most common approach for analyzing the results from aquifer pumping tests for confined aquifers. Critical assumptions integral to the method are detailed as follows:

- Darcy's law is valid
- The aquifer is horizontal and constant thickness
- The aquifer is infinite in areal extent
- The aquifer is bounded by impermeable strata above and below
- Uniform hydraulic conductivity
- Isotropic hydraulic conductivity
- Head always remains above the top of the pumped aquifer
- There are no water level changes that are not due to the pumping.
- Infinitesimal diameter of well
- Fully penetrating the aquifer formation
- Perfectly efficient well
- Single pumping well
- Constant pumping rate
- Constant storage properties through time
- The head is known everywhere prior to pumping.

Through a review of the assumptions, it can be seen that some of the assumptions for the analysis of the pumping tests conducted at the on the 14-14-4E well field site are not fully satisfied for the Theis (1935) approach. The aquifer is not of uniform hydraulic conductivity, and conditions are far from isotropic.

The Theis (1935) approach is highly idealized to the assessment of the aquifer, and represents the state of the art for the determination of aquifer parameters. The method has been found to be reasonably workable for aquifer engineering evaluation, all over the world, for nearly 80 years. The conditions for the Selkirk analysis are complex, challenging and are clearly not satisfying some of the assumptions of the Theis (1935) approach. In this case, however, the Theis (1935) approach is not being severely violated, and the methodology provides for good comparisons for the other regional work conducted in the area.

The data was entered into Waterloo Hydrogeologic's AquiferTest Professional v4.20, for analysis of aquifer parameters. The data was analyzed using the Cooper-Jacob (1946) (both time and distance drawdown), and Theis (1935) methods, although similar results should be expected, as the Cooper -Jacob (1946) method is a semi-log plot approximation of the Theis (1935) method. The Theis (1935) recovery method was also used. In order to determine the acceptability of the results, a derivative analysis was used, which is also shown on the attached plot (Bourdet, et. al., 1989). The hydraulic parameters that were determined are shown below as Table 7.

Table 7
Aquifer Parameters – 7 Day Pumping Test
City of Selkirk Proposed Water Supply
14-14-4E – RM of St. Andrews, Manitoba

	North Production Well	
Drawdown	6.95 ft @ 795 U.S.GPM – 10,800 minutes (7 days)	
Static Water Level	2.30 ft. from top of casing (below top of casing)	
Available Drawdown	35 ft. (at the time of testing)	
Specific Capacity	114.38 U.S.GPM/ft.	
Method	**Transmissivity**	**Storativity**
Theis Method[1]	168,000 U.S.G./day/ft.	3.75×10^{-3}
Cooper - Jacob Method[2] (time)	168,000 U.S.G./day/ft.	3.75×10^{-3}
Cooper - Jacob Method[2] (distance)	176,000 U.S.G./day/ft.	3.75×10^{-3}
Theis Recovery Method[3]	172,000 U.S.G./day/ft.	N.A.

Notes [1] Theis (1935) method using Waterloo Hydrogeologic Limited – Aquifer Test Professional v4.20
[2] Cooper - Jacob (1946) method using Waterloo Hydrogeologic Limited – Aquifer Test Professional v4.20
[3] Theis Recovery (1935) method using Waterloo Hydrogeologic Limited – Aquifer Test Professional v4.20

Table 7 – Aquifer Parameters – North Production Well – Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba

Aquifer Testing Analysis (cont'd)

In general, the aquifer was determined to have an approximate transmissivity of about 168,000 to 176,000 U.S.G./day/ft., based on the results of the 7 day single pumping well test, and the data from the majority of the observation wells. Nearly all of the observation wells responded to the pumping during the testing, and the drawdown was readily detectable, although the responses were fairly small, which would be expected in such a high transmissive environment. The transmissivity is consistent with the results obtained by Rutulis (1973). The Storage Coefficient was determined to be 3.75 x 10^{-3}.

The drawdown versus time for the pumping test is shown below as Figure 42.

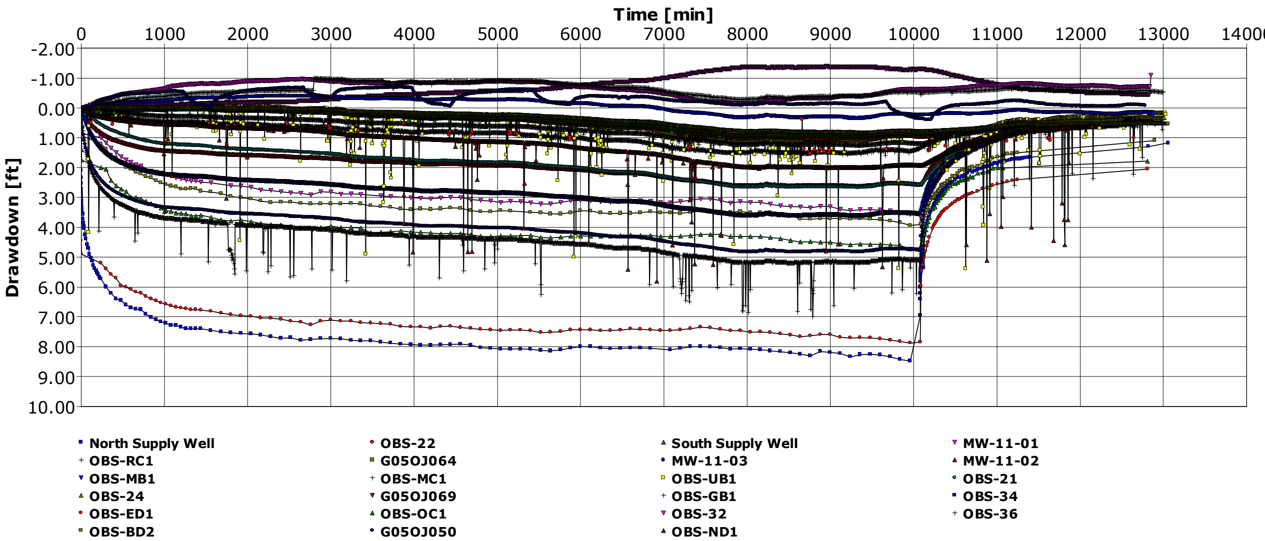

Figure 42 – Drawdown vs. Time for the North Production Well - Proposed Selkirk Municipal Supply Well Field - City of Selkirk – Manitoba. It should be noted that the pumping rate for the 7 day test was 795 U.S.G.P.M.

The drawdown response at day 7 was also plotted for review, with the results shown below as Figure 43

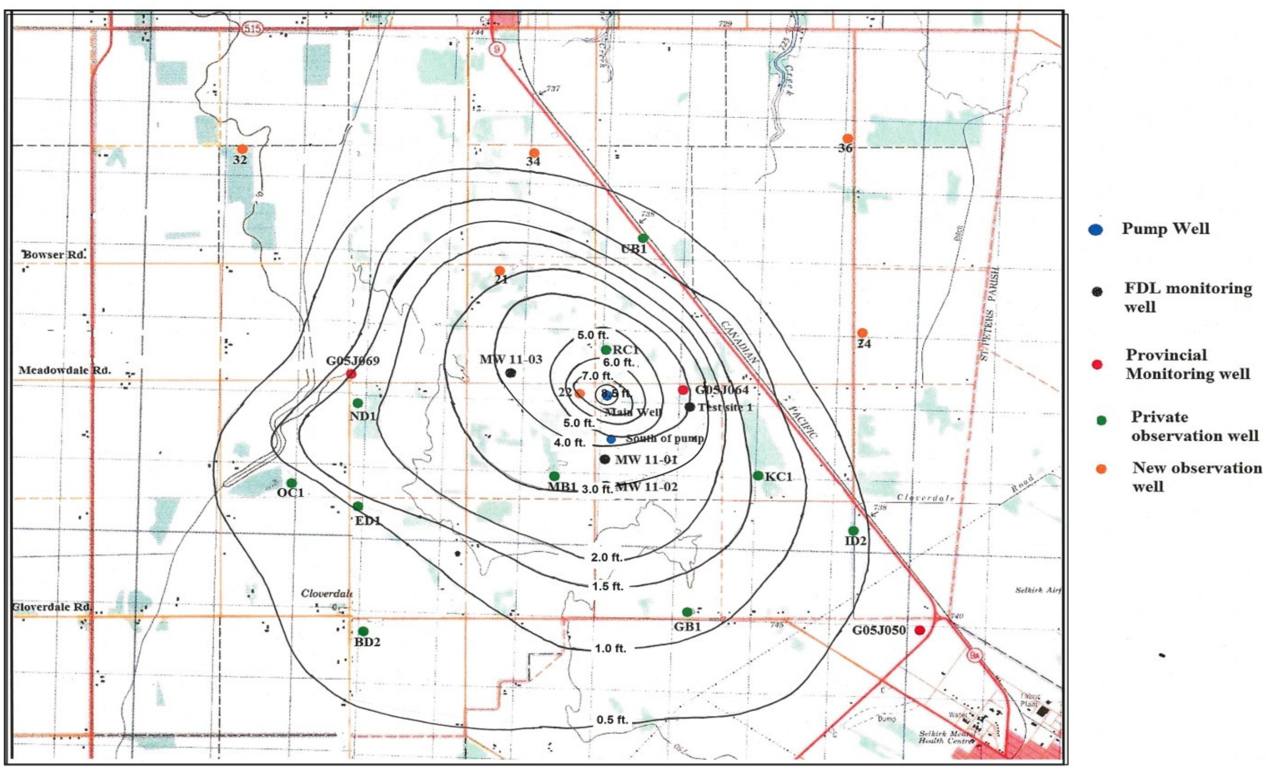

Figure 43 – Drawdown on day 7 – North Production Well.

Aquifer Testing Analysis (cont'd)

Through a review of the above noted two figures, the following critical points can be raised:

- The drawdown cone is developing stronger to the southwest, with over twice the distance for a given drawdown contour. It is clear that the drawdown cone is pulling more water in from the west, as the lines of equal drawdown are closer to the east. This is likely representative of the negative transmissive conditions along the axis of the PTH#9 highway.

- It appears a further slight transmissive condition change is present to the southeast.

- The drawdown at G05OJ050 was not detected, although this station does appear to respond to the pumping from the City of Selkirk's production well field.

- A further transmissive change is evident to the north.

- There is definitely a low transmissivity zone along the west side of the Oak Hummock Marsh. As discussed, this permeability feature has limited the amount of water that can get past. Blowouts or ruptures that occurred in the past formed the present day springs. It is believed that this boundary showed up, as a dip in the semi-log plot drawdown towards the end of the pumping test.

- The drawdown in the observation wells at distance is very hard to detect due to the small water level changes.

During the analysis, the $t_{critical}$ was assumed to be less than approximately 30 minutes for casing storage; therefore, the data previous to 30 minutes was not used in the analysis. There were also many fluctuations in the water levels that will be explained below.

The Cooper-Jacob (1946) method was used primarily, since emphasis is not placed on early time measurements. The pumping well configuration was fully penetrating. Based on the test holes drilled in the area and the background data/reports, the aquifer is not isotropic, and displays a strong spatial variability. Following standard practise, the aquifer was assumed to be Theissian. This may or may not be totally correct in this instance; however this methodology is used following the standard practise for aquifer analysis of this nature. It was assumed that skin effects for the supply well would be minimal after the developing and jetting procedures.

The Theis (1935), Cooper – Jacob (1946) time versus drawdown, Cooper-Jacob (1946) distance drawdown, and Theis Recovery (1935) methods are shown below and on the following pages as Figure 44, 45, 46 and 47.

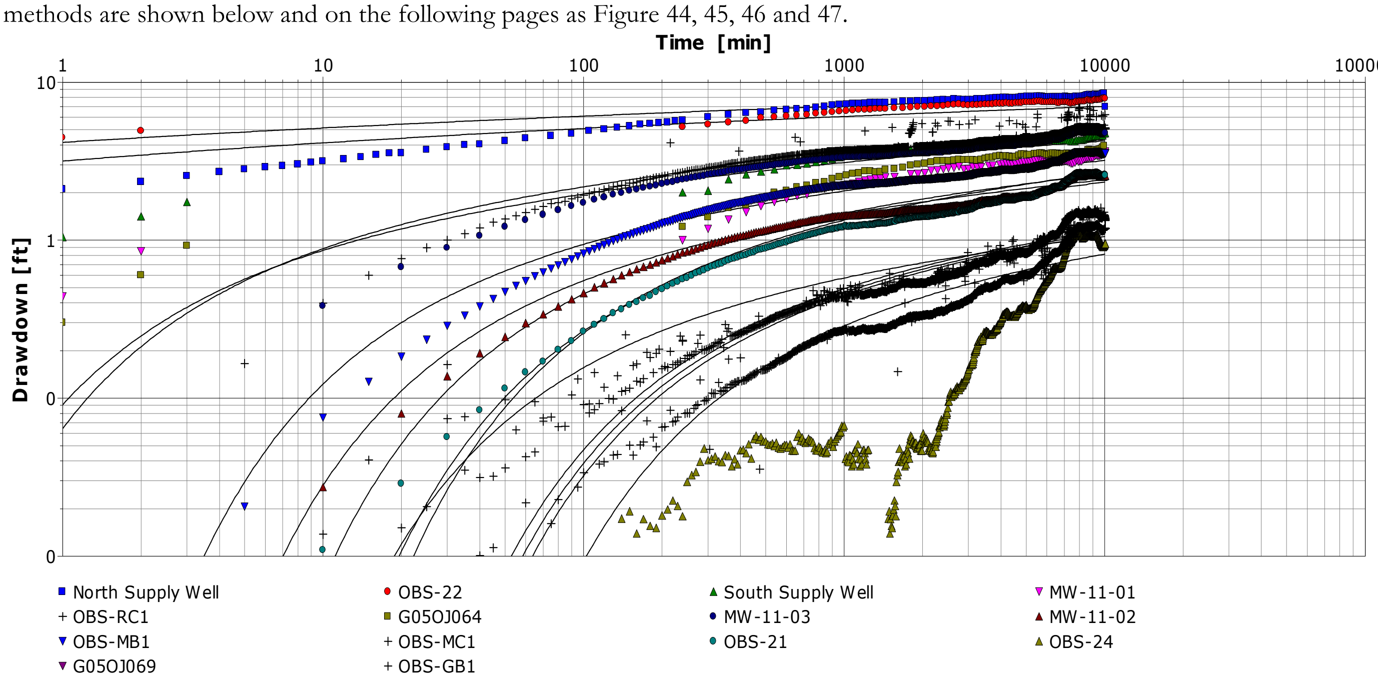

Figure 44 - The Theis (1935) plot for the North Production Well. The constant pumping rate is 795 U.S.G.P.M. It should be noted that the derivative was used in the analysis, although was not plotted for clarity due to the number of observation wells used.

Aquifer Testing Analysis (cont'd)

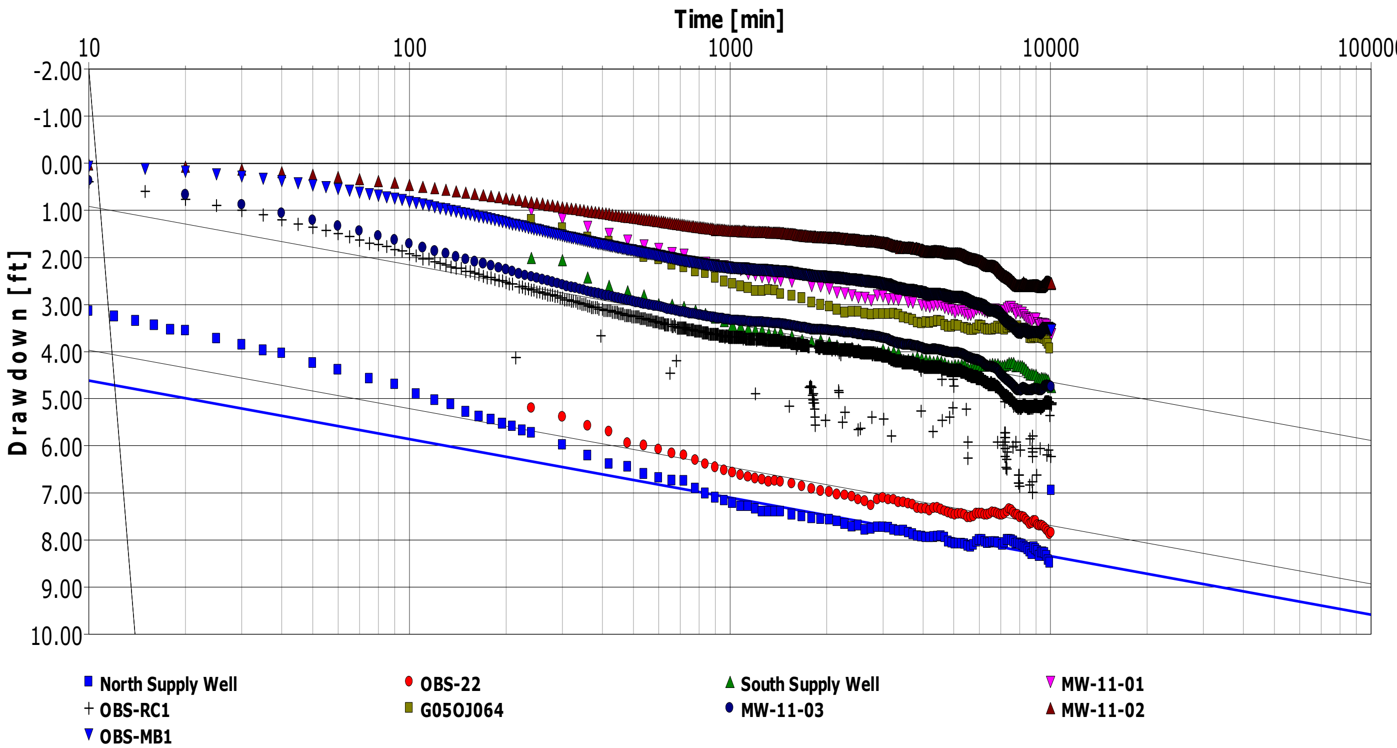

Figure 45 – The Cooper – Jacob (1946) time versus drawdown plot for the North Production Well. The constant pumping rate is 795 U.S.G.P.M.

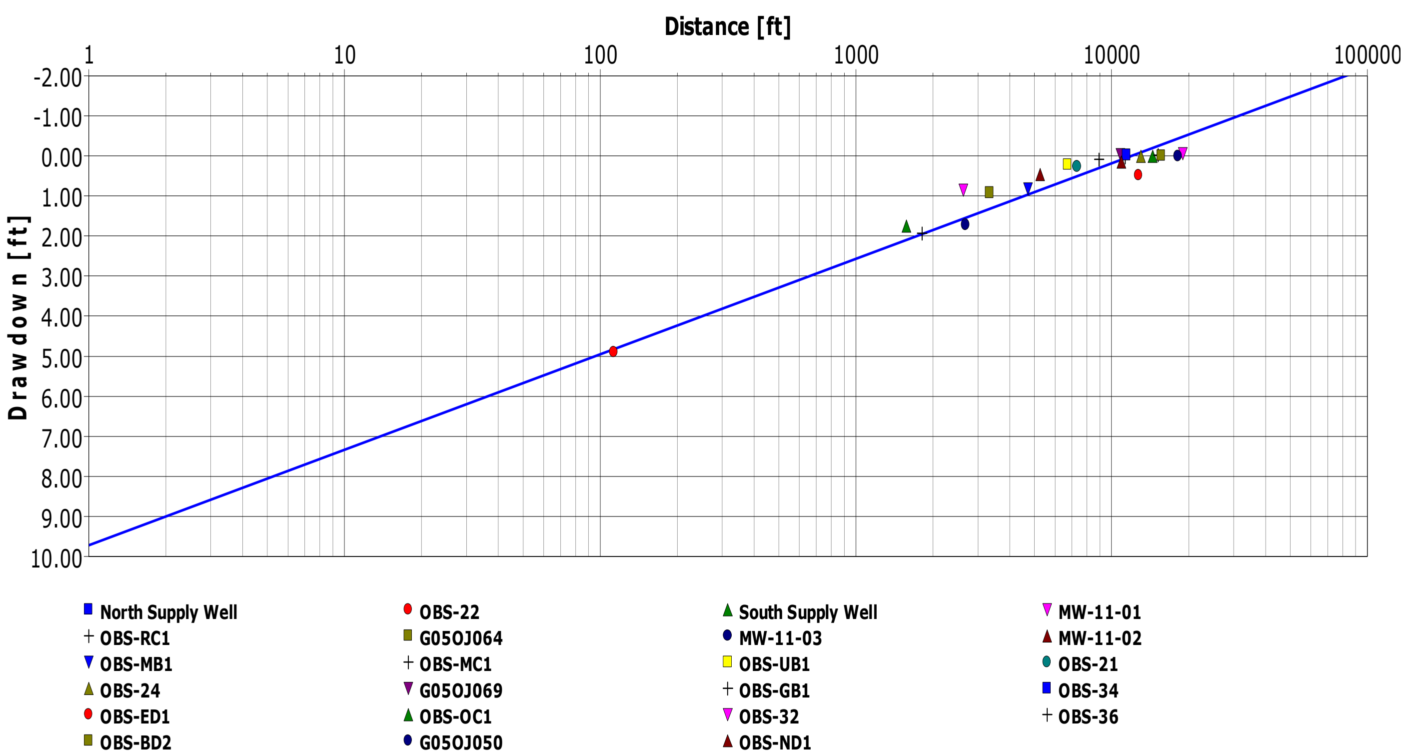

Figure 46 – The Cooper – Jacob (1946) time versus distance drawdown plot for the North Production Well. The constant pumping rate is 795 U.S.G.P.M.

Aquifer Testing Analysis (cont'd)

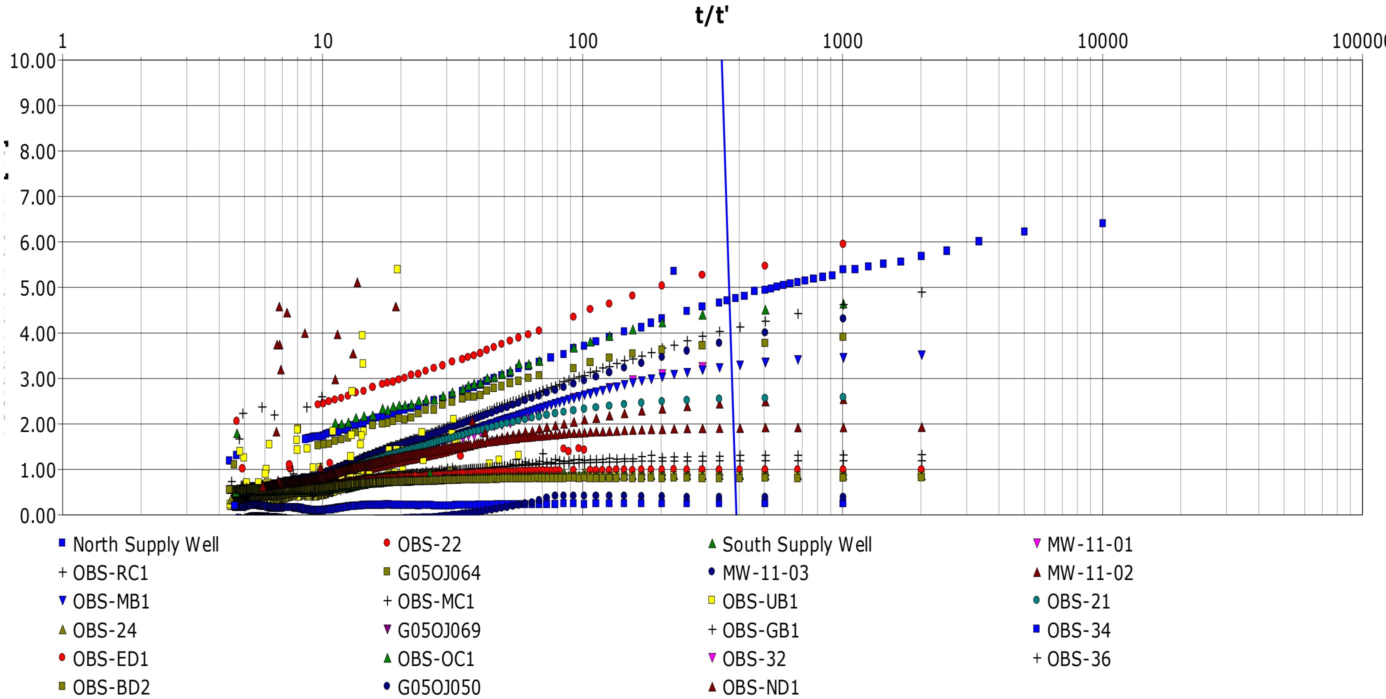

Figure 47 - The Theis Recovery (1935) plot for the North Production Well.

The results from the analysis indicate that there are several positive and negative boundaries in the Cooper-Jacob (1946) analysis, which appear as slope changes. At about 1000 minutes there is a definite upward trend in the semi-log plot for nearly all observation wells. This suggests that a zone with a large increase in Transmissivity was intercepted or vertical leakage effects began to influence the drawdown cone. A negative boundary is indicated in most observation wells at about 7000 minutes. This has been interpreted as being the known boundary on the west side of the Oak Hummock Marsh. It is also interesting to note the late time responses of the individual observation wells in the area. The majority of the stations to the west appear to almost level off at about 8,000 minutes, while other stations appear to show a slight decline. The stations that level off predominantly are located to the west, while the stations that showed slight continuing drawdown at 8,000 minutes are located in the central to eastern parts of the observation well network. Of course these effects are not unnatural as to the west is up the groundwater gradient and generally into higher transmissivity areas; whereas towards the east is down gradient and unfortunately into low transmissivity areas northwest of Selkirk. The results and responses at the individual wells clearly demonstrate that there are major transmissive variations in the area, and that the drawdown cone is pulling more water from the west of the area.

In order to determine the cause of the slope changes, the slopes were noted to occur at the following time steps:

- Slope #1 – Time 0 to ~ 80 minutes – Normal Cooper –Jacob (1946) slope

- Slope #2 – ~ 80 minutes to ~ 1,000 minutes – slight decline in slope probably negative boundary effects; likely impact of very low transmissivity zone located east of the test site adjacent to Highway No. 9

- Slope #3- ~ 1,000 minutes to ~ 6,000 minutes small upward deflection of drawdown curve indicating positive boundary conditions.

- Slope #4- ~ 6,000 minutes to ~8,000 minutes – downward drawdown curve in nearly all wells – indicative of negative boundary at a considerable distance from the pumping well.

- Slope #5 - ~ 8,000 minutes to ~ 10,000 minutes – most observation wells leveling off; indicating aquifer transmission is in equilibrium with the pumping rate. However the North Supply Well and OBS 22 still show a small amount of drawdown over this interval.

The distinct slopes are shown on the following page as Figure 48.

Aquifer Testing Analysis (cont'd)

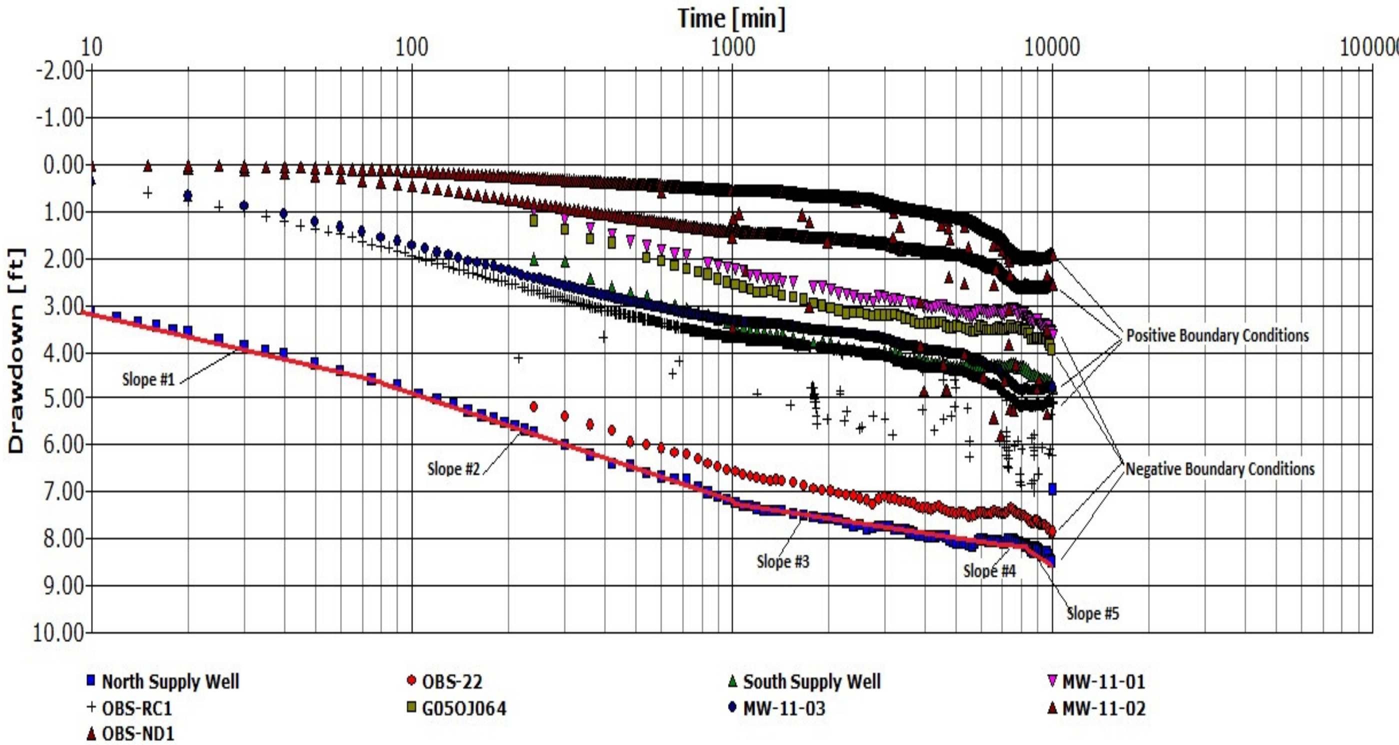

Figure 48 – Distinct Cooper-Jacob (1946) slopes

The observation well response indicates that transmissive conditions are changing significantly over area, with the most transmissive area to the southwest of the site. Generally speaking, transmissive conditions are improving to the west. Near the well, conditions are predicted to be nearly 100,000 U.S.G.P.D./ft.. Moving further westerly, it is evident that conditions are improving to nearly 200,000 U.S.G.P.D./ft. During the pumping, it is also evident that conditions are starting to flatten out as the drawdown cone expands. Several of the stations to the west and southwest are beginning to show signs of stabilization during the last 2,000 minutes of the test.

As discussed above, the stations to the east are starting to show some signs of a negative boundary condition, or declining transmissive condition. During the last 4000 minutes of the test, boundary change is evident. This is likely just the presence of poorer transmissive conditions on three sides of the pumping well. It is speculated that during the development of the drawdown cone around the pumping wells, the cone will expand to the south/southwest more rapidly, as better transmissive conditions appear to be able to provide more of the pumped water supply.

Generally speaking, the recovery was fairly uniform in all of the observation wells. The hydraulic response matches the results of the Rutulis test conducted in 1973, although with a longer term test, additional details occurred. The previous 1973 test was only for 29 hours, while the current test is nearly 6 times longer in duration.

Geochemical Sampling and Results

Prior to conducting any pumping in the area, the regional observation wells installed during this investigation were sampled for routine geochemical analysis. The wells were purged and sampled with compressed air approximately 3 weeks prior to the pumping test analysis. All samples were analyzed by ALS Laboratories in Winnipeg (L1673305). The results are contained in Appendix M.

During the pumping and recovery test on the North Production Well, a total of 14 groundwater samples were collected, with 5 ultimately selected for analytical analysis. The groundwater samples were collected in laboratory supplied sample bottles. Upon collection, the sample was kept cool for delivery to the analytical laboratory. All samples were analyzed by ALS Laboratories in Winnipeg (L1677769 and L1680909). The stable environmental isotopic analysis was conducted by EIL Laboratory at the University of Waterloo, Ontario. A formal copy of the laboratory analytical results is attached as Appendix M.

Geochemical Sampling and Results (cont'd)

The major results are shown below as Table 8. Figure 49, shown on the following page, depicts the Tri-Linear plot comparing the on-site results with the regional MCWS observation wells. A Stiff diagram, which is also shown on the following page as Figure 50, compares the regional MCWS hydrograph stations with the results from the pumping test on 14-14-4E site (data source – MCWS, 2014).

The regional sampling of the monitoring well sites within the area also gave a unique opportunity to review the localized groundwater geochemistry. The chlorides and nitrates were plotted in the area. These figures are also shown the subsequent pages as Figure 51 and 52. Regional histograms of the chlorides are nitrates are also presented on Figure 53.

Table 8
Groundwater Analytical Results – 7 Day Pumping Test
City of Selkirk Proposed Water Supply
14-14-4E – RM of St. Andrews, Manitoba

Time	Total Dissolved Solids	Chloride	Turbidity	Conductivity	Nitrate	Deuterium Dδ (‰ V- SMOW)	Oxygen [18] $0^{18}\delta$ (‰ V- SMOW)
24 hours	739 mg/L	58.7 mg/L	0.71 N.T.U.	1,180 umhos/cm	0.08 mg/L	-100.75	-13.29
48 hours	742 mg/L	60.5 mg/L	0.36 N.T.U.	1,160 umhos/cm	0.10 mg/L	-100.41	-13.08
120 hours	725 mg/L	57.5 mg/L	0.29 N.T.U.	1,160 umhos/cm	0.11 mg/L	-100.67	-13.12
144 hours	726 mg/L	57.9 mg/L	0.24 N.T.U.	1,160 umhos/cm	0.11 mg/L	-100.87	-13.09
168 hours	741 mg/L	62.3 mg/L	0.30 N.T.U.	1,170 umhos/cm	0.12 mg/L	-100.54	-13.18

Table 8 – Groundwater analytical results (source - ALS L1677769 and L1680909)

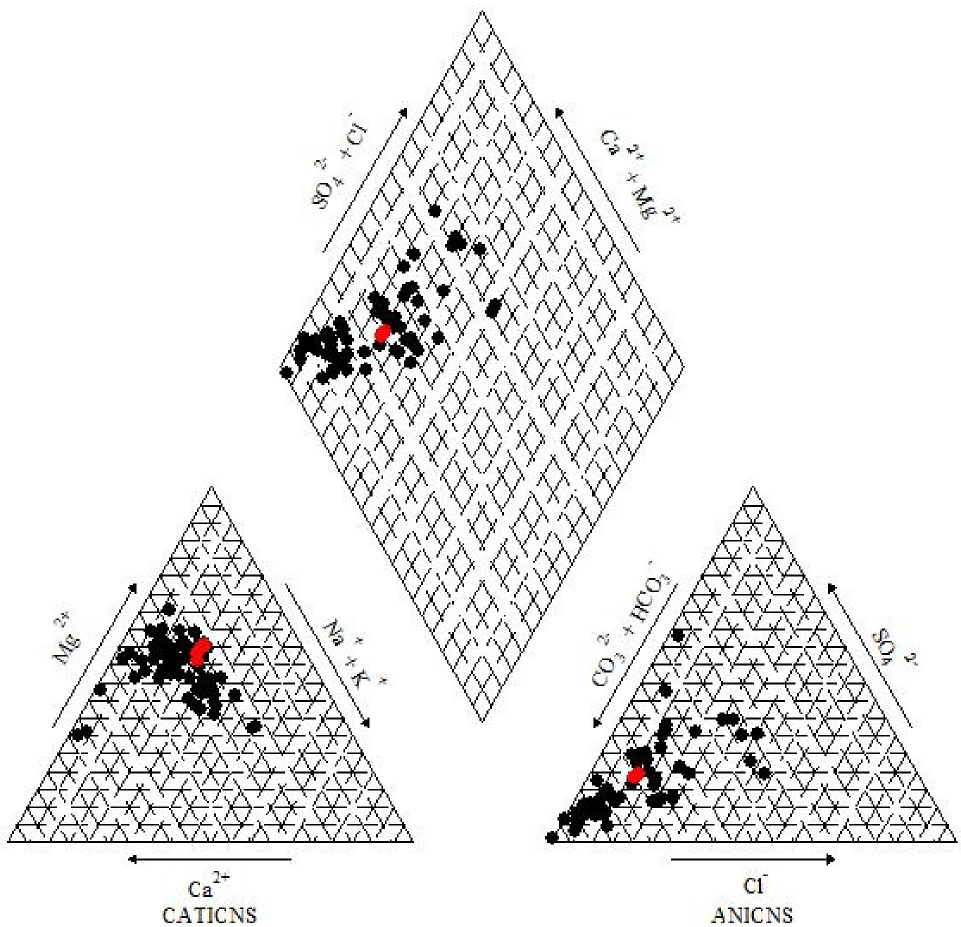

Figure 49 – Tri-Linear plot comparing the regional MCWS hydrograph stations and the North Production Well analytical results. (source – ALS L1677769 and L1680909)

Geochemical Sampling and Results (cont'd)

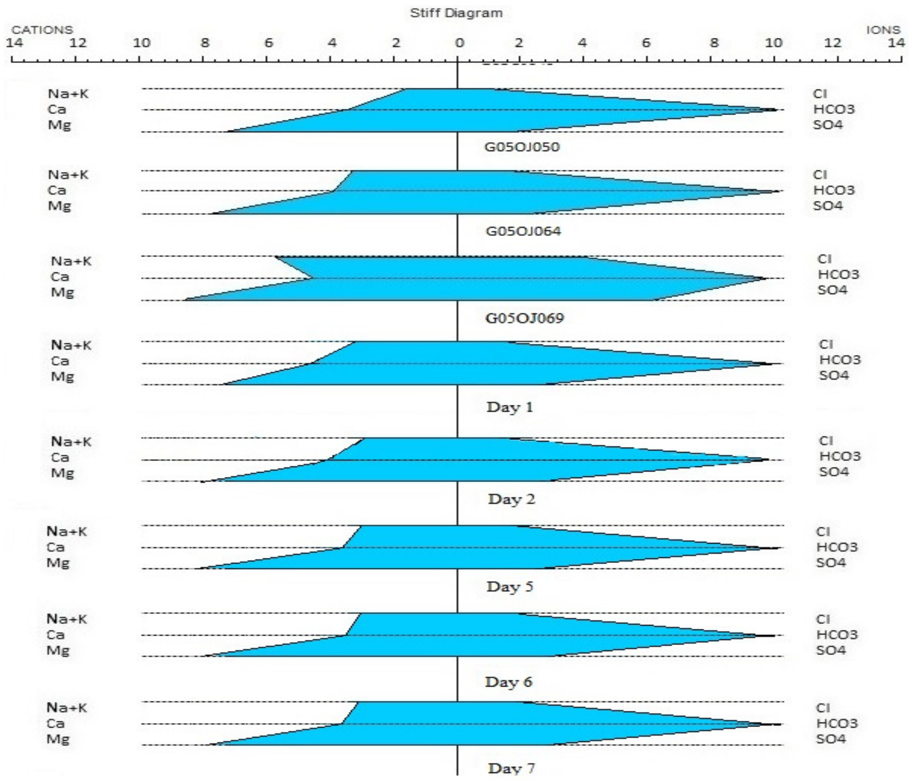

Figure 50 – Stiff plot comparing the regional MCWS hydrograph stations and the North Production Well analytical results. (source – ALS L1677769 and L1680909)

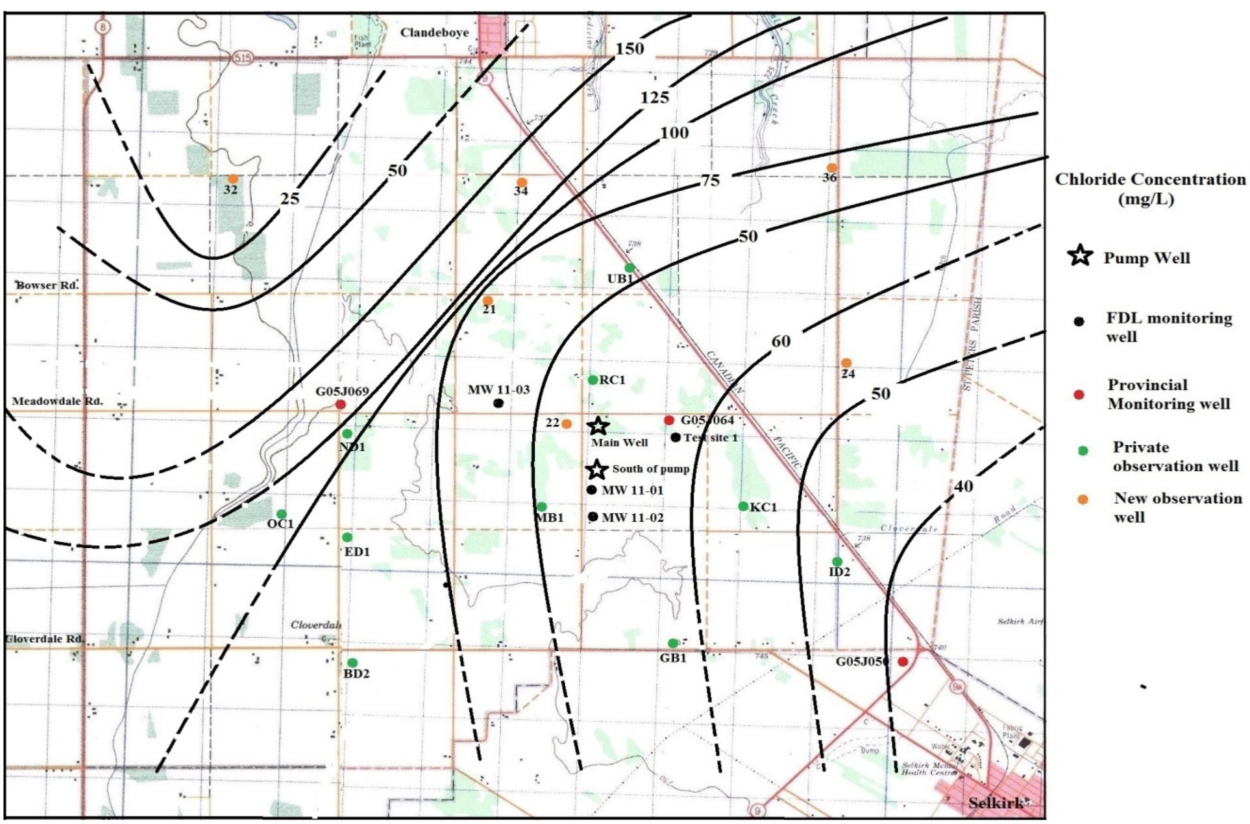

Figure 51 – Regional Isochlor plotting of the analytical results. (source – ALS L1673305)

Geochemical Sampling and Results (cont'd)

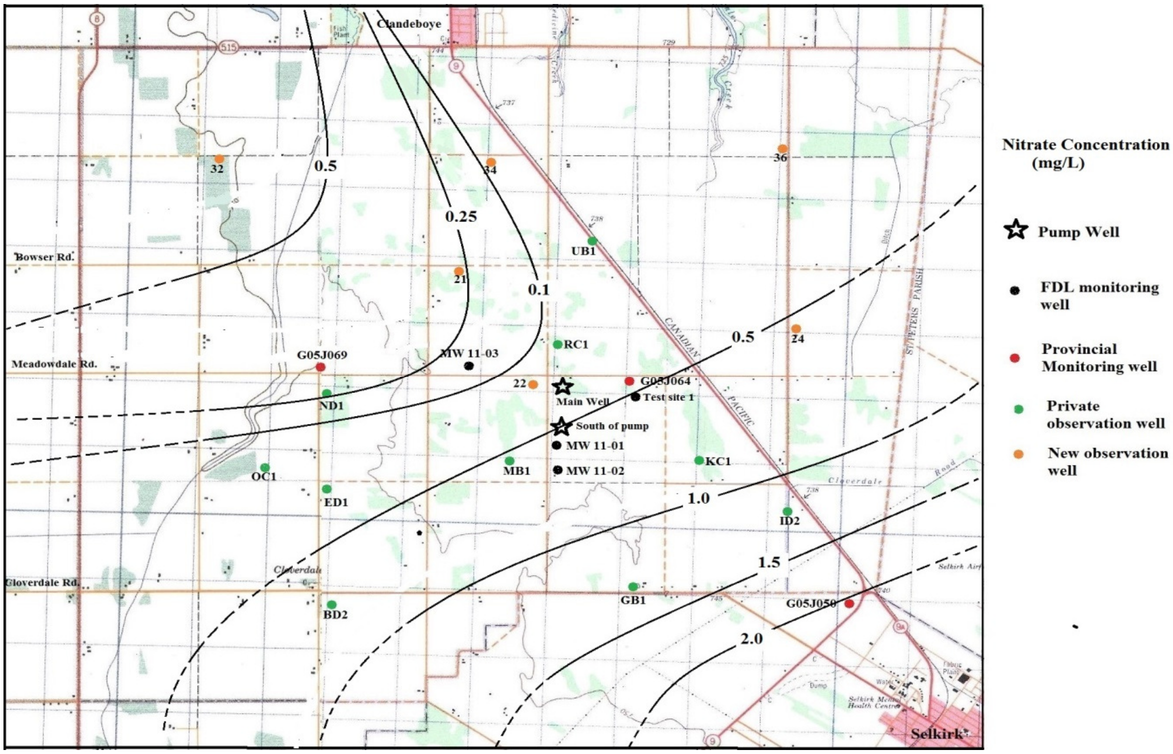

Figure 52 – Regional plotting of the nitrate analytical results. (source – ALS L1673305)

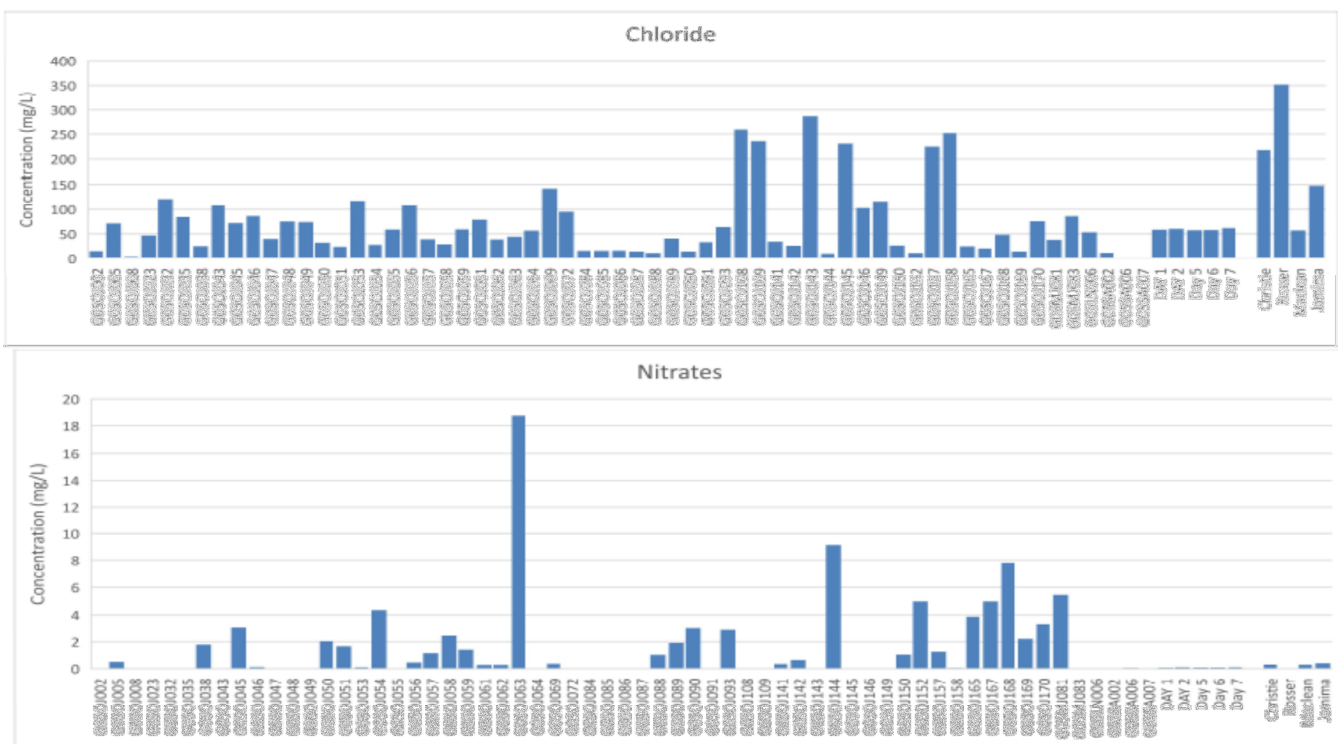

Figure 51 – Regional histogram for chloride and nitrate sampling results. (source – MCWS, 2015 and ALS, 2015)

The groundwater at the site is defined as a Calcium/Sodium/Bicarbonate with very little change throughout the course of the pumping test. The results plotted in the middle of the regional cluster on the Tri-Liner plot, and showed very little variation or change.

Geochemical Sampling and Results (cont'd)

Nitrates were detected in both the pumping well and the monitoring wells in the area with concentrations ranging from 0.1 to 0.2 mg/L. While the nitrates concentrations are below the Canadian Drinking Water Guideline limit of 10 mg/L, the presence of nitrates indicate infiltration of surface water into the aquifer. Surface water infiltration can occur either via natural infiltration through the confining clays and tills or through improperly maintained wells in the area. Common sources of nitrates in groundwater are agricultural and rural land use practices (Driscoll, 1987).

While nitrates levels are not of significant concern at present, ongoing monitoring of the water quality in the area is recommended to detect any rising trends with the nitrate levels and take pre-emptive measures, such as public education and awareness, and recommending the sealing of abandoned water wells.

The Stiff diagrams for the area show a fairly characteristic response for the pumping test result, with very little variation. There was noted to be some slight increases in sodium and potassium in the G05OJ069 results, although this could not be determined with the available data.

Overall, there was little detectable change across the site, with the results agreeing fairly well with the sampling conducted by Rutulis in 1973. Instrumentation errors and sampling would have likely been much more difficult at that time, give the equipment that would have been available.

Figure 52, shown below depicts the isotopic results presented against the standard mean oceanic water line for the area (IAEA, 2012).

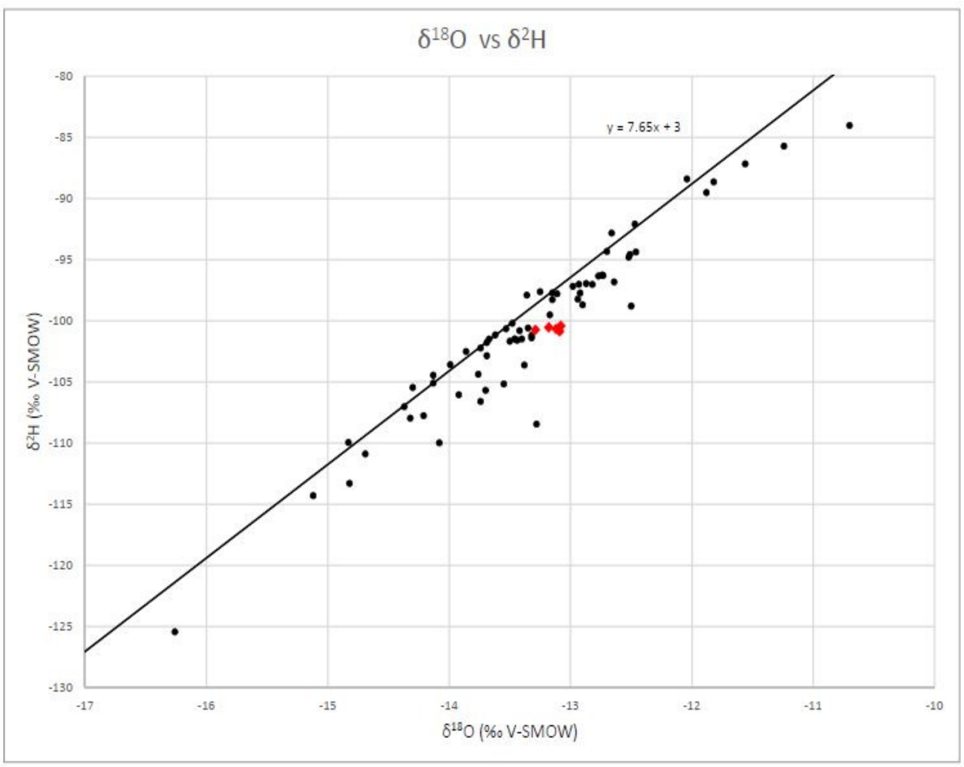

Figure 52 – North Production well results plotted against the local Meteoric Water Line and regional data (IAEA, 2012)

The groundwater samples collected from the North Production Well match well with the regional results for the SMOW in the area. The Deuterium level is approximately -103.00 ‰, with an ^{18}O level of about -13.05 ‰. This, as expected, indicates recent meteoric groundwater with very little modification. The results from the pumping test do plot slightly below the meteoric water line, indicating that some of the groundwater in the upper part of the bedrock may be derived from leakance through the tills. This is logical, as there is generally very little overburden at the well sites.

Generally speaking, the results suggest that the groundwater at the site has not undergone significant alteration since it fell as precipitation. This may change somewhat over pumping throughout time, although it is not expected to change significantly due to the regional flow system that is present.

Discussions

Long Term Hydrograph Response

The 14-14-4E area is located in a highly transmissive area of the carbonate bedrock aquifer that was named the Western High Transmissivity Area by Render (1986). Through reviewing all of the regional hydrograph data, the following comments can be made:

- There is a significant amount of groundwater discharge in the area, and regional hydrographs are rising.

- Through a review of all the major hydrograph stations in the Stonewall Upland area, it is evident that climatic conditions are changing, and increased precipitation is occurring. Generally speaking, all the hydrographs are increasing due to this condition. The spring discharge in the area is also substantially increased from previous measurements in the area..

- The aquifer is susceptible to seasonal and climatic variations. Water levels in the carbonate aquifer appear to decline very rapidly during prolonged dry periods. The aquifer appears to be very similar to an open reservoir and pipe analogy. When the water level in the reservoir falls, the potential in the pipe declines very rapidly. This means that during prolonged dry periods, static water levels in the area will respond very rapidly, and decline accordingly.

- During periods of recharge, the aquifer also responds very quickly.

- The hydrograph record generally reflects the effects of seasonal and climatic change, with a general increasing trend. The two local hydrographs (G05OJ064 and G05OJ069) were plotted together and compared against the total annual precipitation for the Stonewall area. This is shown below as Figure 53. Both hydrographs generally show an increasing trend following seasonal and climatic conditions. The hydrograph has shown a maximum change of about 4.0 m, depending on the seasonal influence. The average trend of the hydrograph is fairly stable around elevation 228 m geodetic. The typical seasonal change is in the order of 2.0 m.

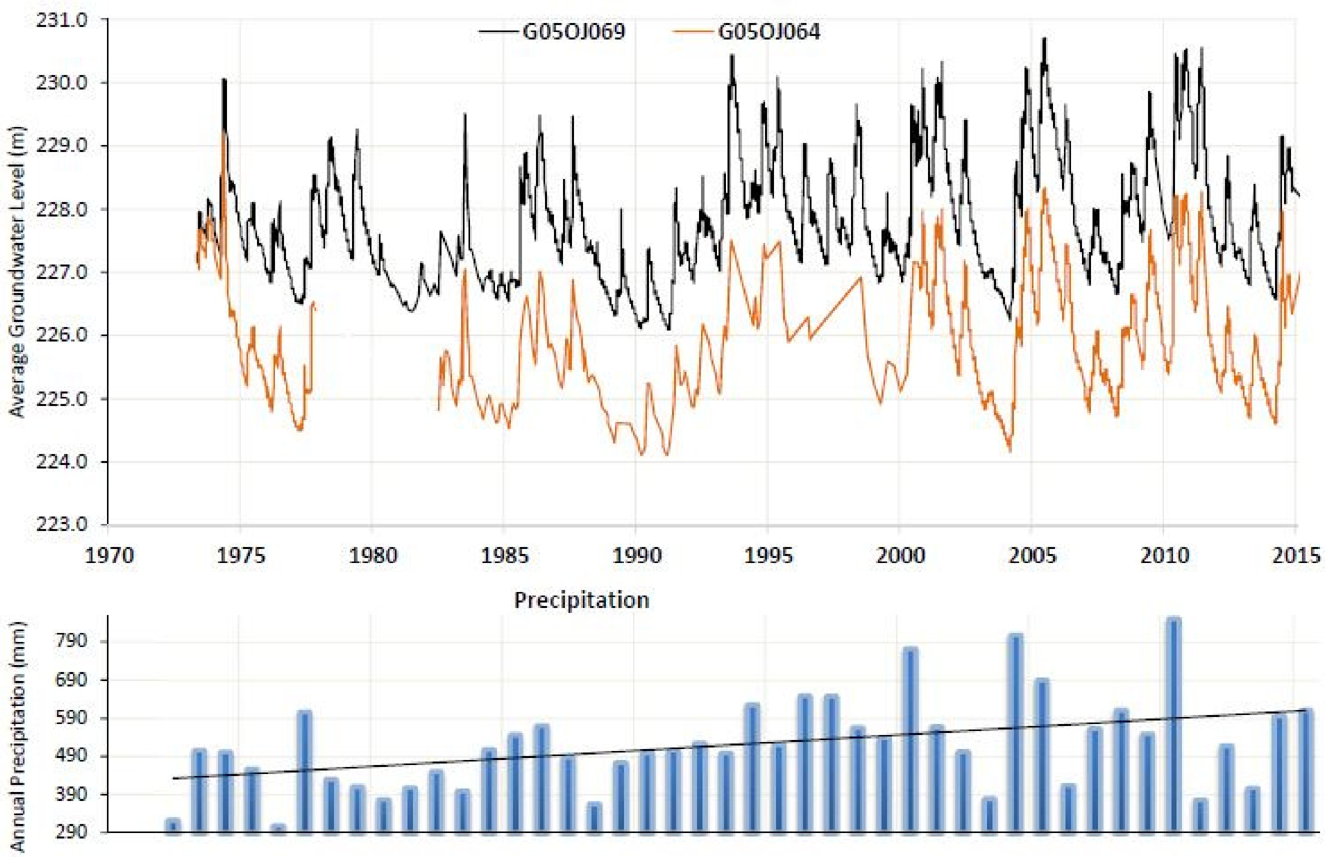

Figure 53 – G05OJ064/OJ069 vs. Total Annual Precipitation (1973 – present) – (source – MCWS, 2014 and Environment Canada, 2015)

Long Term Hydrograph Response (cont'd)

- Through a review of the hydrograph, it can be noted that any water supply in the area that has been functional for the last number of years would have to be capable of managing at least 4.0 m of water level change in individual wells, as this condition is already occurring naturally in the area.

- The general rising trend of static water levels is extremely evident.

- The effects of the pumping of the City of Selkirk supply wells appear to be strongly muted in this area.

- During the course of monitoring of the aquifer prior to the major pumping test on this project, the transducers were left in private wells for several weeks ahead of the testing. The area received two major rainfall events during this period. Both of these events recorded almost 2 inches of rainfall in a very short duration. These rainfall events recorded almost instantly on the hydrograph record of all of the stations monitored during the testing. The lag duration on the hydrograph was little more than a few hours from the rainfall event. It is clear that the aquifer responds extremely quickly to the rising total annual precipitation events that are occurring in the Selkirk/Stonewall area. An example of the hydrograph response, plotted against the daily precipitation totals is shown below as Figure 54.

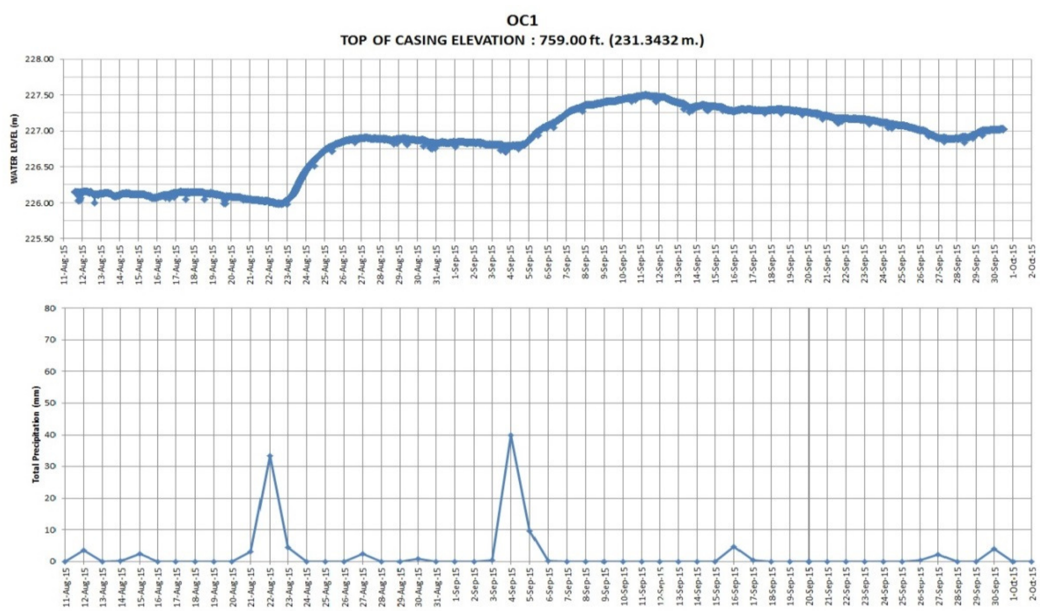

Figure 54 – Hydrograph OC1 vs. Total daily Precipitation (August, 2015) – (source –Environment Canada, 2015)

Prediction of Long Term Regional Effects

The current City of Selkirk license allows for the pumping of the existing wells at a rate of 68 L/s (1,751 acre feet/year), which is about 1,085 U.S.G.P.M. throughout the year. Currently, Selkirk is using about 65% of this total. The WSP (2014) report suggested a water supply of 57 L/s (903 U.S.G.P.M./1,456.5 acre feet/year/1,796.65 dam^3/year) for the new water supply location.

In order to conservatively determine the effects of operating the 14-14-4 E well field at the proposed rate of 903 U.S.G.P.M, the drawdown was calculated at a distance using the Theis equation, after one year of operation for the site. This allows for about 1.30 million U.S. Gallons per day to be produced from the well field. These drawdowns follow all the assumptions of the Theis method.

For the purposes of the calculations, the following aquifer parameters were assumed:

- Transmissivity ~ 160,000 U.S.G.P.D./ft. with a storage coefficient of 3.75 x 10^{-3}.

- Pumping duration – 365 days/year.

Prediction of Long Term Regional Effects (cont'd)

Under a conservative regional transmissivity of 160,000 U.S.G.P.D./ft., the drawdown at a radial distance of one mile from the production well field was calculated to be approximately 4.18 feet after pumping one year continuously at a rate of 903 U.S.G.P.M. (Walton, 1979/1983). This analysis is considered to be very conservative; it assumes that no recharge occurs and that the wells are pumped continuously the entire year. As shown by hydrograph records, recharge occurs rapidly during the spring and rainfall events. It should also be noted that municipal wells do not operate continuously, but rather operate on cycles based on water supply demands. Therefore, the actual amount of water supply pumped should be less than the amount assumed in the analysis. As noted from the regional hydrograph network, water supplies in the area have to be capable of managing over 10 feet of water level changes from natural fluctuations. The results are shown below as Table 9.

The area is well populated, and to a large extent, the aquifer is well utilized by private residences. To the author's knowledge, a sustainable yield for the aquifer in this area has not been determined. The most significant user in the immediate area is the City of Selkirk production wells. This new well field would propose to significantly reduce the pumping of the existing well field for several years to allow for recovery.

It should be noted that the estimated drawdown is without taking into account natural gradients and the effects of other unknown pumping wells that may be present.

Table 9
Drawdown Estimation at Distance after One Year of Pumping at 903 U.S.G.P.M./1,456.5 acre feet/year/1,796.65 dam³/year
City of Selkirk Proposed Water Supply
14-14-4E – RM of St. Andrews, Manitoba
All calculations following the Theis (1935) equation and assumptions

	Distance							
Well	**½ mile**	**1 miles**	**1 ½ miles**	**2 miles**	**2 ½ miles**	**3 miles**	**3 ½ miles**	**4 miles**
15.29 feet	5.08 feet	4.18 feet	3.65 feet	3.28 feet	2.99 feet	2.76 feet	2.56 feet	2.39 feet

Table 9 – Expected drawdown resulting from 903 U.S.G.P.M. after one year of operation at the proposed 14-14-4E site.
* Transmissivity (regionally) ~ 160,000 U.S.G.P.D./ft.

The mapped drawdown cone is shown below as Figure 55.

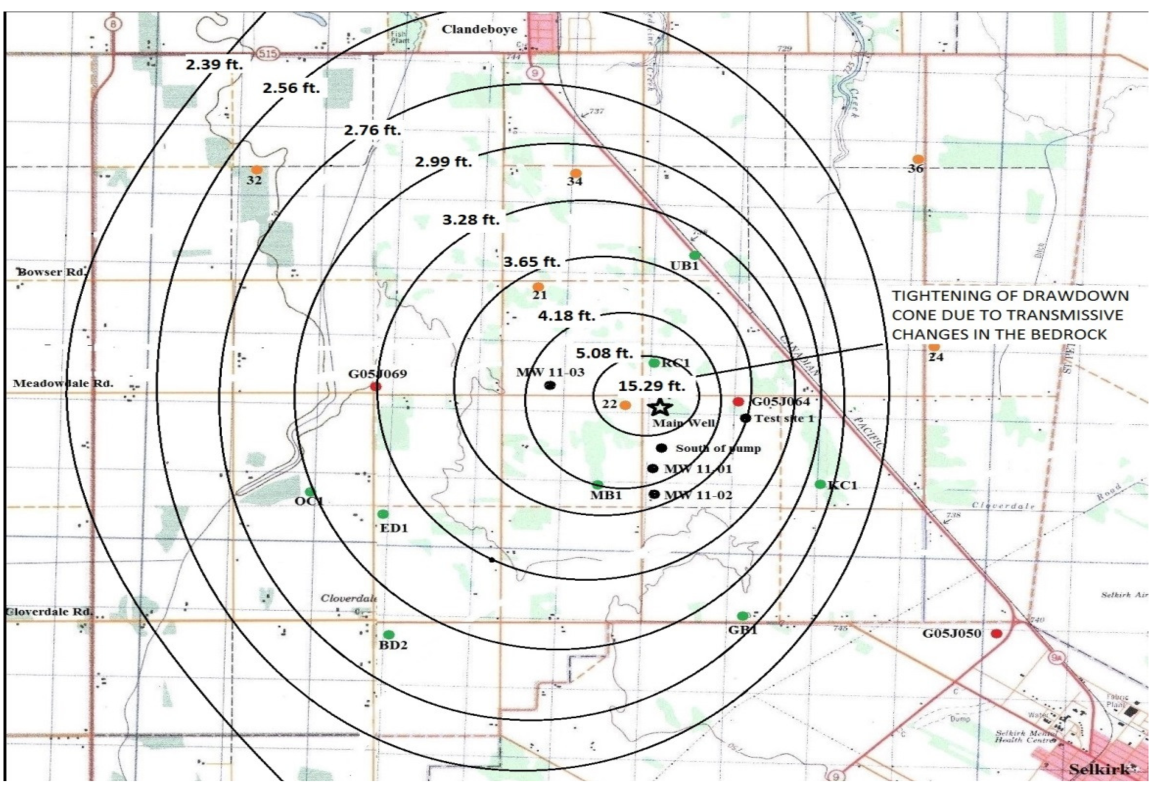

Figure 55 – Proposed drawdown cone at 903 U.S.G.P.M.

Prediction of Long Term Regional Effects (cont'd)

The drawdown cone is expected to develop to the westerly towards the Stonewall Uplands area. The overall extent of fluctuation due to pumping is far less than the total annual static water level change in the area over the last 45 years.

As the flow is developing westerly, it is not expected that the issues in the Rockwood sensitive area will become an issue. In reviewing the potentiometric surface maps for the area, it can be seen that the flow from the Stonewall Uplands in the Stony Mountain area would be directed towards the Red River, and not towards the Selkirk area

Well Field Development Plan

The existing well field simply cannot continue at the current flow rates past 2018/2020; especially if below normal or below normal precipitation conditions occur..

The following development plan is suggested for the proposed NW14-14-4E municipal well field:

- First five years of development – New well field limited to requested yield of 1,092.54 acre feet/year (1,347.48 dam^3/year or 677 U.S.G.P.M.). The existing well field withdrawal would be reduced to supply the remaining water supply requirement. This would be conducted with an extensive monitoring plan to ensure that the drawdown cone development is occurring in the manner expected. This represents approximately 75% of the requested allocation, and was suggested by members of the public in the local area around the well field.

- Five years and beyond – The existing well field use would be determined scientifically after suitable monitoring of the recovery within the City of Selkirk drawdown cone.

Additional monitoring is needed in the 14-14-4E area to monitor how the drawdown cone develops in this area. There is a lack of MCWS wells in the area to accurately map the drawdown cone. These wells should be located in conjunction with the RM of St. Andrews.

Geochemical Considerations

The area is not expected to show any geochemical changes as a result of the proposed pumping. The aquifer is of reasonably wide extent at the location, and the pumping test results showed very stable conditions.

Conclusions and Recommendations

Based on our study of the proposed NW14-14-4E municipal water supply for the City of Selkirk, we offer the following conclusions and recommendations:

- The City of Selkirk should proceed with an application for a water rights license; for the required amount of municipal water supply from NW14-14-4E.

- The hydraulic conditions on the site are challenging, with vastly different transmissive conditions present; especially immediately east and on the west side of the Oak Hummock Marsh. This will result in a more extensive but shallower drawdown cone developing to the west/southwest through the higher transmissive areas.

- Overall, the new well field is located in a highly transmissive area, with very good well specific capacities up over 100 U.S.G.P.M./ft.

- It is evident that the aquifer in the 14-14-4E area has detectable concentrations of nitrates that are likely due to existing agricultural, rural and residential land uses. We strongly suggest that an ongoing water quality monitoring be undertaken in the area to detect any anomalous rising trends and take proactive actions.

Conclusions and Recommendations (cont'd)

- The city should develop an aquifer/well head protection program for all the municipal wells, and develop a contingency plan should the aquifer become impacted or unusable in some manner.

- According to our data collection and analysis, the proposed NW14-14-4E municipal well field is capable of providing the requested additional allocation of 1,456.5 acre feet/year (1,796.65 dam^3/year), under normal seasonal and climatic conditions. There should be an annual monitoring program with public reporting of the annual use results.

- The analysis shows that the existing wells are more than capable of managing over 4.0 m of static water level changes under natural conditions.

- The City of Selkirk should develop a groundwater interference program for the residents in the area as part of this development. This would establish a procedure for dealing with potential complaints and issues in a fair and complete manner.

- The groundwater quality in the well(s) should be closely monitored. This should be done monthly during the first year of operation and 4 times annually during operation of the well field. This work should be conducted by a hydrogeologist/hydrogeological engineer. In the event of lower static water levels in the carbonate aquifer, water levels in the pumping wells should be closely monitored

- The City of Selkirk should develop or actively participate in an aquifer management and public education program for the area. This would serve to add further protection of groundwater resources in the area.

- Each well should be closely monitored for well performance. The city should arrange a regular servicing/maintenance program for the well(s).

- The city should undertake an annual review of the carbonate aquifer in the area. This work should be conducted by a hydrogeological engineer/hydrogeologist. The monitoring network should be reviewed, along with the water quality sampling program and municipal pumping records. An annual report should also be prepared with recommendations regarding ongoing operations and monitoring plans.

- The City of Selkirk has a tradition of naming their water wells after the road locations where the wells are located. Since both wells are located on McRae Road, an alternate plan is suggested for the naming. This work represents the culmination of nearly 60 years of hydrogeological research in the Selkirk area. It is suggested that the north well be named the "Render Well" for F.W. Render's significant contributions to the regional hydrogeology of the area. The south well is suggested to be named for M. Rutulis, for his contributions to securing a future water supply for the city.

References

Alberta Geological Survey, 2009. *Western Canadian Sedimentary Basin mapping.*

Bell, J.J. 2006. *Well Rehabilitation and Downhole Camera Inspection– Christie Street Well - City of Selkirk – Manitoba.* Unpublished report.

Betcher, R.N., Grove, G. and Pupp, C., 1995. *Groundwater in Manitoba Hydrogeology, Quality Concerns, Management.* National Hydrology Research Institute Contribution No. CS-93017.

Betcher, R.N. 1986. *Regional Hydrogeology of the Winnipeg Formation in Manitoba.* IAH conference – Saskatoon.

Boggs, S. 1995. *Principles of Sedimentology and Stratigraphy - Second Edition.* Prentice Hall, Englewood Cliffs, New Jersey, U.S.A.

Bourdet, D. Ayoub, J., and Pirard, Y. 1989, *Use of Pressure Derivative in well test interpretation.* SPE Formation Evaluation, pp 293-302.

Charron, J.E., 1974 – *A Hydrogeological Study of the Selkirk Area, Manitoba.* Inlands Water Directorate, Water Resources Branch, Scientific Paper No. 8.

City of Selkirk, 2014/2015. *Areal Map Sheets and Water Supply data.* Unpublished report/map.

References (cont'd)

Clark, I. 2015. *Groundwater Geochemistry and Isotopes.* CRC Press, U.S.A.

Cochrane Engineering, 2005. *Proposed Water Supply Options – City of Selkirk*. Unpublished report.

Cochrane Engineering, 2006. *City of Selkirk – Water and Wastewater Master Plan*. Unpublished report.

Cooper H.H., Jr. and Jacob, C.E. 1946, *A generalized graphical method for evaluating formation constants and summarizing well field history*. Transactions, American Geophysical Union, Vol. 27., No. 4.

Driscoll, G.F. 1987. *Groundwater and Wells – Second Edition*. Johnson Division – St. Paul, Minnesota, USA

EGE, 2014. *Groundwater Sampling Report – City of Selkirk/East Selkirk*. Unpublished report.

Environment Canada, 1982. *Canadian Climate Regional Climatic Average Data*. Unpublished report.

Environment Canada, 2015. *Regional Climatic Average data*. Unpublished report.

Freeze, R.A. and Cherry, J.A. (1979). *Groundwater.* Prentice Hall, Englewood Cliffs, New Jersey, U.S.A.

Fritz, P. and Clark I. 1997. *Environmental Isotopes in Hydrogeology*. CRC Press, U.S.A

www.googleearth.com, 2015

Gray, L., 1984 – *The Modification of Artesian Aquifers to Enhance Agricultural Drainage Systems*. MB Water Resources Branch.

Hering, R., 1897 – *Report on a Future Water Supply for the City of Winnipeg, Manitoba*.

IAEA.2006. *Isotope Hydrology Information Systems*. The ISOHIS Database. http://isohis.iaea.org

IAEA, 2012. *Local Mean Oceanic Water Line*.

Johnston, W.A. 1934, *Surface Deposits and Groundwater Supply of the Winnipeg Map Area – Memoir 174*, Canada Department of Mines – Geological Survey.

Korol, J., 1974 – *Groundwater Supply For The Oak Hammock Marsh And Groundwater Discharge Control In The Wavey Creek*. MB Water Resources Branch.

Landmark Planning and Design Limited, 2015. *City of Selkirk Water Supply Open House Presentation Boards*. Unpublished data.

Manitoba Conservation and Water Stewardship, 2009. *Hydrograph Charts and Hydata Chemistry Database*. Unpublished data.

Manitoba Conservation and Water Stewardship, 2012. *GWDRILL Database*. Unpublished data.

Manitoba Conservation and Water Stewardship, 2011/2012/2013/2014/2015. *Hydrograph Charts, area maps and Hydata Chemistry Database*. Unpublished data.

Manitoba Geological Survey, 2009 – *Geological Cross Sections of Manitoba*. Unpublished map.

Manitoba Geological Survey, 2015. *Online Geological Map Server*. Unpublished data.

Matile, G.L.D and G.R. Keller. 2007. *Surficial Geology of Manitoba*. Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Surficial Geology Compilation Map Series, SG-MB, scale 1:1,000,000.

McIelwain, T., 1977 – *Proposed Reconstruction of the Ross Creek Drain*. MB Water Resources Branch.

References (cont'd)

Petsnik, J., 1987 – *Aquifer Modification Associated With the Ross Creek Drain Reconstruction*. MB Water Resources Branch.

Render, F.W., 1986 – *Carbonate Aquifer Capacity As Related to the Town of Selkirk Water Supply*. Unpublished Draft Report – Manitoba Water Resources Branch.

Rutulis, M. 1973 – *Groundwater Investigation for Water Supply for the Town of Selkirk*. Unpublished Draft Report – Manitoba Water Resources Branch.

Statistics Canada, 2011. *Canadian Census Data.*

Theis, C.V., 1935. The *Lowering of the Piezometer Surface and the rate and discharge of a well using ground-water storage*. Transactions, American Geophysical Union 16:519-24.

UMA Engineering, 1986. *Town of Selkirk – Proposed Water Supply Upgrades*. Unpublished report.

UMA Engineering, 1993. *Town of Selkirk Groundwater Study*. Unpublished report.

UMA Engineering, 1994. *Town of Selkirk – Test Drilling Report*. Unpublished report.

UMA Engineering, 1997. *Town of Selkirk – Hydrogeological Report – Lily Street Well*. Unpublished report.

UMA Engineering, 1998. *Town of Selkirk – Well Upgrading Report*. Unpublished report.

Walton, W.C., 1979. *Progress in analytical groundwater modelling*. J Hydro 43:149-159.

Walton, W.C., 1983. *35 Basic Groundwater Model Programs for Desktop Microcomputers.* International Groundwater Modelling Center – Butler University, Indianapolis, Ind. USA.

Wiecek, S. 2011. *City of Selkirk – Water Source Development – Genivar Project Report – 111-12751-00 – Test Hole Drilling Results*. Unpubished report.

WSP 2014. The City of Selkirk - Drinking Water and Waste Water Master Plan. Unpublished report for the City of Selkirk.

Limitations

The scope of this report is limited to the matters expressly covered and is intended solely for the client to whom it is addressed. Friesen Drillers Limited makes no warranties, expressed or implied, including without limitation, as to the marketability of the site, or fitness to a particular use. The assessment was conducted using standard engineering and scientific judgment, principles, and practices, within a practical scope and budget. It is based partially on the observations of the assessor during the site visit in conjunction with archival information obtained from a number of sources, which is assumed to be correct. Except as provided, Friesen Drillers Limited has made no independent investigations to verify the accuracy or completeness of the information obtained from secondary sources or personal interviews. Generally, the findings, conclusions, and recommendations are based on a limited amount of data (e.g. number of boreholes drilled or water quality samples submitted for laboratory analysis) interpolated between sampling points and the actual conditions on the site may vary from that described above. Any findings regarding the site conditions different from those described above upon which this report was based will consequently change Friesen Drillers Limited's conclusions and recommendations.

Disclaimer

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Friesen Drillers Ltd.

since 1892

Supplemental Municipal Groundwater Supply Investigation for the City of Selkirk

Environment Act Proposal

water... the lifeblood of the land

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Report to:

Manitoba

The Manitoba Water Services Board
and

CITY OF SELKIRK

The City of Selkirk

Supplemental Municipal Groundwater Supply Investigation for the City of Selkirk

Environment Act Proposal

PROVINCE OF MANITOBA
J. J. BELL
Member
22621
Nov. 30/2015
REGISTERED PROFESSIONAL ENGINEER

APEGM
Certificate of Authorization
Friesen Drillers Limited
No. 4016 Date: Nov. 30/2015

November 30, 2015

Prepared by: Justin Neufeld, B.Sc.(G.Sc.) Date: Nov. 30/2015

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  - Mr. Duane Nicol – Chief Administrative Officer
  - Mr. Dan McDermid – Director of Operations
  - Mr. Dale Scott – Director of Water Works
- The Manitoba Water Services Board
  - Mr. David Shwaluk, P.Eng.
  - Mr. Travis Parsons, P.Eng.
- Manitoba Conservation and Water Stewardship.
  - Mr. Rob Matthews, P.Geo.
  - Ms. Kylene Wiseman, P.Geo.
  - Mr. Bruce Webb, P.Eng.

Study Team

The study team consisted of the following individuals:

- Friesen Drillers Limited
  - Mr. Jeff Bell, B.Sc.(G.E.), P.Eng. – Hydrogeological Engineer
  - Ms. Paulynn Estrella, B.Sc.(Mn.E.) – Hydrogeological Engineer in Training
  - Mr. Justin Neufeld, B.Sc. (G.Sc.) – Technical Assistant
  - Ms. Rebeca Griffith – Technical Assistant
  - Mr. Peter Friesen – Lead Driller
  - Mr. Paul Sharples – Field Supervisor
  - Ms. Ashley Friesen – Pumping test crew
  - Mr. Jason Friesen – Operations Manager

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- Landmark Planning and Design Limited – Public consultation
  - Mr. Donovan Toews, B.Sc. MCP. – Planner and Public Consultation Specialist
  - Mr. Curwood Ateah, B.A. MCP - Planner and Public Consultation Specialist
- W.L. Gibbons and Associates Limited
  - Mr. Steve Wiecek, B.Sc. (G.E.), P.Geo. P.Eng. – Hydrogeologist
- ALS Laboratory Services and EIL (Environmental Isotope Laboratory) at the University of Waterloo.

Notes

This study will utilize imperial measures, with the exception of water quality data and some velocity information, which will use metric measures. The use of the study will follow the limitations and disclaimer in the report. Some of the data collected during this study was obtained from Manitoba Conservation and Water Stewardship. Friesen Drillers has made no attempts to verify the information. It is assumed to be correct. The reports collected for background research on this aquifer have been obtained from public sources.

Introduction

Friesen Drillers Limited is pleased to submit this environment act proposal for the proposed additional municipal groundwater supply for the City of Selkirk. This environment act proposal will focus on the hydrogeological aspects of the proposed new well field located outside the city limits, within the Rural Municipality (RM) of St. Andrews, and the construction of pipelines connecting the new well field and the water treatment plant located within the City of Selkirk.

The City of Selkirk, with a recorded population of 9,934 individuals in 2011 (WSP, 2014) has been having chronic issues with groundwater/water supplies for many years. These are detailed in the attached technical report.

In 2014, it became apparent that the municipal groundwater supply for the City of Selkirk is in a very tenuous position and that it requires an immediate solution. A review of the water and wastewater system in the City of Selkirk conducted by WSP Engineering (WSP, 2014) determined that the water supply well capacities have continued to diminish. The study identified the need for the construction of redundant pumping capacity within the city limits as well as the necessity to establish a supplementary water supply outside the city limits to address the long term issue of the system's inability to meet peak water supply demands. A detailed review of the hydrograph network in the City of Selkirk area and hydraulic analysis of the four existing wells was conducted in 2014. This study has confirmed that the combined pumping effect of the four supply wells were over pumping the transmissive conditions of the bedrock aquifer, as had been suggested by F. W. Render in 1986 (Render, 1986).

A proposed groundwater supply location was developed by Manitoba Conservation and Water Stewardship (MCWS) Groundwater Management Section in 1973 in the R.M. of St. Andrews (Rutilus, 1973). The City of Selkirk approached the Manitoba Water Services Board (MWSB) in the spring of 2014 in order to address the long term water supply issues for the city. The MWSB and the City of Selkirk retained Friesen Drillers to conduct the extensive hydrogeological assessment of the proposed municipal groundwater supply well field located RM of St. Andrews, which was identified in 1973. The City of Selkirk attempted this project in 2011 and was faced with opposition from the residents of the RM of St. Andrews, Friesen Drillers developed a team approach to the project and worked with Landmark Planning and Design for the public consultation aspects and with W.L. Gibbons and Associates for the project background and development.

The hydrogeological assessment determined that the proposed additional well field is located in a highly transmissive area with well specific capacities capable of supplying well over 100 U.S.G.P.M./ft of drawdown. Under normal seasonal and climatic conditions, the well field is capable of providing the requested allocation of 1,456.5 acre feet/ year. A copy of the hydrogeological technical report is attached.

Since the attached hydrogeological report is written with a new environmental act proposal for the City of Selkirk in consideration, this report will provide additional details regarding the environmental act proposal and highlight the areas in the existing report where required information may be located.

Project Overview

The project historical background and description of the proposed additional well field are discussed in detail in the hydrogeological technical assessment.

The current population trends in the City of Selkirk are discussed on the attached hydrogeological report.

Details on land ownership and mineral rights on the proposed well field site are contained in the attached hydrogeological report. The locations of the proposed new well field is also shown in the hydrogeological report.

A pipeline system connecting the wells from the proposed new well field in the RM of St. Andrews to the City of Selkirk Water Treatment Plant is proposed to be constructed. The proposed pipeline construction will be primarily within the municipal right of ways or road allowances. There are currently three proposed routes being considered, these are shown in the following page as Figure 1 (MWSB, 2015).

The pipeline construction will consider the use of PVC and HDPE pipes and the pipeline design will be finalized at the engineering design stage. The proposed pipeline construction will include conventional backhoe trenching and excavation, chain trencher and/ or directional drilling. Sensitive areas like creeks and stream crossings, railway and highway crossings, natural gas and underground utility crossings will require directional drilling. Pipeline crossing highways, railways and gas transmission lines will be installed in liners. Little environmental effects are expected from this water supply pipeline, and agricultural production is not expected to be affected. The construction site would be restored to be-development conditions.

Project Overview (cont'd)

Land use adjacent to the pipelines is primarily agricultural with some residential and light commercial within the City of Selkirk. Adjacent land use to the proposed new well field is discussed in the attached hydrogeological report.

Granted all project requirements and approvals are in place, the proposed construction and development of the well field and connecting pipelines are expected to commence and be completed in 2016.

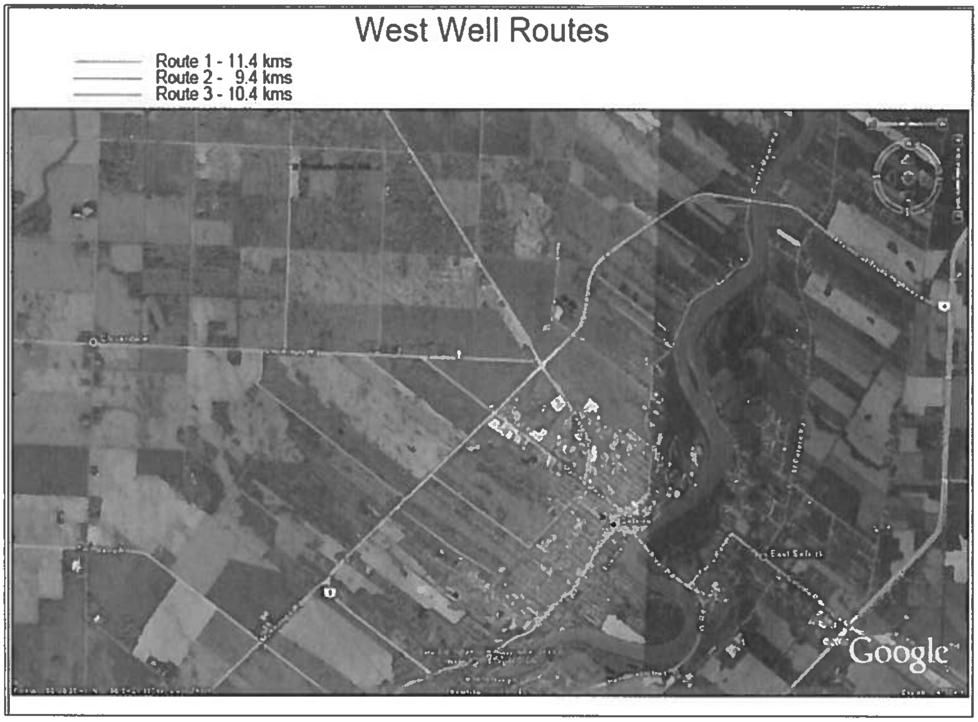

Figure 1 – Proposed Pipeline Routes (source – MWSB, 2015)

The funding of this project is jointly provided by the City of Selkirk and the Province of Manitoba through the MWSB.

The current water rights licence, permit applications, and the requirements for an environment act licence are discussed in the attached technical document. Past and current water rights licences for the City of Selkirk are attached as Appendix C of the overall groundwater report attached to this document.

Public consultations for the project were facilitated by Landmark Planning and Design. The results of the public consultations are found in Appendix B of the attached hydrogeological report.

Description of the Existing Environment in the Project Area

A comprehensive description of the existing environment is contained in the attached hydrogeological report pages 18 through 43.

Climatic effects are shown on Figures 18 and 25 of the attached hydrogeological assessment.

There are no First Nations located within the immediate RM of St. Andrews area. The nearest First Nation is the Broken Head First Nation (I.R.#4), which is located about 30 km to the northeast. There are no major known heritage resources in the immediate area of the proposed new well field. This project is not expected to cause any issues for aboriginal treaty rights, or affect traditional hunting/trapping/farming and heritage areas. The project is not expected to have a negative socio-economic impact in the RM of St. Andrews.

The predominant land use around the RM of St. Andrews is primarily agricultural.

Mitigation Measures and Residual Environmental Effects

The predicted impacts on the carbonate aquifer and the long term aquifer response are discussed on pages 59 to 63 of the attached hydrogeology report.

The final well locations will likely consist of a small fenced compound with the well pitless unit, and a small electrical control panel. The wells in operating condition typically do not make any noise or provide vibrations at the well head. It is expected that water levels, flows, and pressures will be monitored by the City of Selkirk staff remotely, with only occasional trips to check equipment integrity and security.

Minor, short term, localized impacts are expected from the construction phase of the pipelines. Standard construction practices will be followed (MWSB, 2000). Predicted environmental impacts and proposed mitigation measures are listed below:

- Dust and gaseous and particulate emissions from the construction equipment that could affect the air quality. Potential dust issues will be alleviated by water spraying to prevent dust particles from being air borne. Gas emissions will be minimized by regular equipment checks and maintenance.

- Potential risk of fuel or lubricant spills in the soil from heavy equipment or vehicle operation. Any potential spills are expected to be minimal. Standard construction spill cleaning procedures will be practiced in the event of a spill, including the removal of impacted soil.

- Potential short term surface water impacts along road allowance ditches during run-off events are very minimal and are not predicted to require mitigation measures. These may include introduction of sediments eroded from excavations and minor fuel and engine oil leaks into the surface water. Horizontal directional drilling would be used to install pipelines across any drains containing water to prevent activities in the riparian zone and minimize ground disturbance (MWSB, 2013). Open cut trenches will be limited to 30 meters ahead or behind pipe installation. Surface water will be re-directed away from any excavation, and erosion control practices will be implemented. Impacts to fisheries and fish habitat are considered minor due to the directional drilling technique used.

- Noise and ground vibrations caused by construction equipment are considered minor. Noise disturbance can be reduced by using mufflers on vehicles, restricting equipment idling times and limiting the construction area. The impacts can be further minimized by scheduling and limiting construction activities to day- time shifts. This will avoid the disruption of evening domestic activities within the construction area.

- Excavation sites and disturbed soils will be backfilled and revegetated as soon as possible to prevent erosion due to wind and or water.

- A groundwater interference plan is proposed for the area surrounding the wells. This interference plan will include the details for private well owners to follow in the event of water level impacts on their wells.

The water supply pipelines are not expected to cause any major environmental impacts during operational phase.

Follow-up Plans, Monitoring, and Reporting

The follow-up plans, long term monitoring and reporting are discussed in the attached hydrogeology report, on page 63. Conclusions and recommendations are shown on page 64.

It is anticipated that some of the recommendations detailed in the hydrogeology report will be reviewed by the staff of the Water Use Licensing Section.

Additional Water Supply Details

Existing System Use and System Conservation

The existing system use and system conservation are discussed on page 11 of the attached hydrogeological report. Additional details are provided in Appendix E of the attached hydrogeological report.

Private Water Well Inventory

In order to assess the current conditions of water wells constructed within two miles of the proposed new well field, a well inventory of private and commercial wells was conducted. Details of the inventory are discussed on pages 43 and 44 of the attached hydrogeological report. The specific details of the well inventory are contained in Appendix H of the report.

References

Manitoba Water Services Board, 2000. *Standard Construction Specifications and Listing of Approved Products.* Unpublished report.

Manitoba Water Services Board, 2013. *Watercourse Crossing Mitigation Measures.* Unpublished report.

Manitoba Water Services Board, *2015. Pipeline Routes and Mitigation Measures.* Unpublished report.

Render, F.W., 1986 – *Carbonate Aquifer Capacity As Related to the Town of Selkirk Water Supply*. Unpublished Draft Report – Manitoba Water Resources Branch.

Rutilus, M. 1973 – *Groundwater Investigation for Water Supply for the Town of Selkirk.* Unpublished Draft Report – Manitoba Water Resources Branch.

WSP 2014. *The City of Selkirk - Drinking Water and Waste Water Master Plan.* Unpublished report for the City of Selkirk.

Limitations

The scope of this report is limited to the matters expressly covered and is intended solely for the client to whom it is addressed. Friesen Drillers Limited makes no warranties, expressed or implied, including without limitation, as to the marketability of the site, or fitness to a particular use. The assessment was conducted using standard engineering and scientific judgment, principles, and practices, within a practical scope and budget. It is based partially on the observations of the assessor during the site visit in conjunction with archival information obtained from a number of sources, which is assumed to be correct; except as provided, Friesen Drillers Limited has made no independent investigations to verify the accuracy or completeness of the information obtained from secondary sources or personal interviews. Generally, the findings, conclusions, and recommendations are based on a limited amount of data (e.g. number of boreholes drilled or water quality samples submitted for laboratory analysis) interpolated between sampling points and the actual conditions on the site may vary from that described above. Any findings regarding the site conditions different from those described above upon which this report was based will consequently change Friesen Drillers Limited's conclusions and recommendations.

Disclaimer

This Friesen Drillers Limited report has been prepared in response to the specific requests for services from the client to whom it is addressed. The content of this document is not intended to be relied upon by any person, firm, or corporation, other than the client of Friesen Drillers Limited, to who it is addressed. Friesen Drillers Limited denies any liability whatsoever to other parties who may obtain access to this document by them, without express prior written authority of Friesen Drillers Limited and the client who has commissioned this document.

Appendix A

New Christie Well – Well Log and Groundwater Exploration Permit

FriesenDrillers Ltd.
307 PTH 12 N Steinbach, MB. R5G 1T8 Phone 204-326-2485 Fax 204-326-2483 Toll Free-1-888-794-9355

May 8, 2014

Director of Operations
City of Selkirk
200 Eaton Avenue
Selkirk, MB R1A 0W6

Dear Sir/Ma'am,

Subject **Application for the Replacement of an Existing Water Well – Application under By-Law # 4827**
City of Selkirk Christie Supply Well – City of Selkirk, Manitoba

Friesen Drillers has been retained by the City of Selkirk to undertake test drilling for the possible replacement of the Christie Supply Well, located behind 200 Eaton Street, in the City of Selkirk. The existing well was constructed in 1968, and is in need of replacement. It is proposed that a 6 inch diameter steel cased test well will be drilled within 20 feet of the existing well.

The City of Selkirk water supply system is currently licensed with Manitoba Conservation and Water Stewardship.

Permits

Friesen Drillers has advised the City of Selkirk staff of the permit requirements of both the City of Selkirk and Manitoba Conservation and Water Stewardship (MCWS). Friesen Drillers will make the application to MCWS for a modification to the existing license. This will require a letter requesting the existing license be amended with the new well details/hydraulics.

Field Investigations

Friesen Drillers has been retained to drill a 5 inch test well at the site of the new well. The test well would be drilled and tested to determine the aquifer yield at that location. If the yield is suitable to provide the 350 U.S.G.P.M. that is required, an 8 inch diameter steel cased well would be over drilled on the test well location. A new pitless unit would be installed, and the pipeline would be extended to the new well location. Electrical service would also be brought to the new well. The pump and drop piping would then be transferred to the new well, and the old well would be sealed.

Engineering Analysis

Following the completion of the field testing, Friesen Drillers will prepare an investigation report following the installation of the new well. The report will address the following issues:

- Background geology and hydrogeology
- Local groundwater flow directions and gradients
- Analysis of the aquifer transmissivity and storage coefficient from the pumping tests performed on the well.
- Estimate the maximum available drawdown, along with theoretical yields and possible flow rates from the new well.
- Discuss water quality and local conditions.
- The final report would be provided to the City of Selkirk and Manitoba Conservation and Water Stewardship for the amendment of the license.

We would be pleased to meet with you to discuss this application.

A copy of the existing license for the water supply of the City of Selkirk is available. The project is being coordinated by the staff from the City of Selkirk. Therefore, it is assumed that the lands that the test well will be drilled on are in the control of the City of Selkirk.

Should you require anything further, please call me at (204) 326-2485.

Sincerely

Friesen Drillers Limited

PROVINCE OF MANITOBA
J. J.
BELL
Member
22621
May 8/2014
REGISTERED PROFESSIONAL ENGINEER

APEGM
Certificate of Authorization
Friesen Drillers Limited
No. 4018 Date: May 8/2014.

J.(Jeff) Bell, B.Sc.(G.E.), P.Eng.
Hydrogeological Engineer

Attachments Application Fee - $ 50.00

Copy Ms. Kristina Anderson, P. Geo. – Manitoba Conservation and Water Stewardship – Groundwater licensing Section

Limitations

The scope of this report is limited to the matters expressly covered and is intended solely for the client to whom it is addressed. Friesen Drillers Limited makes no warranties, expressed or implied, including without limitation, as to the marketability of the site, or fitness to a particular use. The assessment was conducted using standard engineering and scientific judgment, principles, and practices, within a practical scope and budget. It is based partially on the observations of the assessor during the site visit in conjunction with archival information obtained from a number of sources, which is assumed to be correct. Except as provided, Friesen Drillers Limited has made no independent investigations to verify the accuracy or completeness of the information obtained from secondary sources or personal interviews. Generally, the findings, conclusions, and recommendations are based on a limited amount of data (e.g. number of boreholes drilled or water quality samples submitted for laboratory analysis) interpolated between sampling points and the actual conditions on the site may vary from that described above. Any findings regarding the site conditions different from those described above upon which this report was based will consequently change Friesen Drillers Limited's conclusions and recommendations.

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CITY OF SELKIRK
OPERATIONS DEPARTMENT

WELL DRILLING PERMIT

This permit is issued to

The City of Selkirk
of

200 Eaton Avenue
address

Selkirk, Manitoba R1A 0W6

To drill, bore and/or construct a well into the bedrock within the limits of the City of Selkirk at the property known as:

204 Christie Avenue
address

Selkirk, Manitoba R1A 0W6

Permission is hereby granted to the above named to drill a well on the described property subject to all requirements of By-Law No. 4827 and Manitoba Conservation. The Applicant is also hereby required to enter into a separate agreement with the City of Selkirk. The Applicant has 14 days from the date of completion of the well to submit all pertinent information, including driller's reports confirming the design, pumping tests confirming yield and potential third party drawdown affects. Additional information showing operating pressure of both well water system and building mechanical system is required.

*Note: a site inspection will be required at some stage of the approval process and additional information on the system may be required.

Well water will be used for : Municipal System

Signed this 9th day of May, 20 14.

I agree to the above ____________
Signature of Applicant

Permit granted for above ____________
Director of Operations

Permit Fee $ 50.00.

Note: This permit is void unless accompanied by City receipt for amount of fee.

Friesen Drillers Ltd.

307 PTH 12 N Steinbach, MB. R5G 1T8 Phone 204-326-2485 Fax 204-326-2483 Toll Free-1-888-794-9355

May 13, 2014

Mrs. Kylene Wiseman, P.Geo.
Groundwater Licensing Section
Manitoba Water Stewardship
200 Saulteaux Crescent
Winnipeg, MB R3J 3W2

Dear Kylene,

Subject **Proposed Replacement of the Christie Supply Well**
City of Selkirk – 200 Eaton Street – City of Selkirk, Manitoba – RL 52 – Parish of St. Clements

Friesen Drillers Ltd. has been retained by the City of Selkirk to undertake the testing for the proposed reconstruction of the Christie Street Supply Well.

The Christie Street Supply Well was constructed in 1968 by Pruden Drilling. A borehole and construction log is attached. The well provides a substantial amount of the total municipal water supply for the City. During a recent regular service inspection of the casing, substantial corrosion was noted with the casing joints. Due to the importance of the well, the City elected to begin the process of replacing the well.

We propose to drill a test well within 15 feet of the existing supply well. The test well would be advanced with 6 inch diameter steel to the upper bedrock surface. The City of Selkirk will mark the well location and arrange for the clearance of underground services prior to the drilling. The casing will be socketed into the upper bedrock, and then the existing supply well will be shut down to allow for the drilling of the carbonate bedrock open hole. After completion of the drilling, the existing well will be pumped to waste briefly, and placed back in service.

Upon completion of the drilling, a pumping test will be performed on the test well to assist in the well design.

The information obtained from this test well will be used to design a replacement for the Christie Well. This may involve things such as installing the casing deeper into the bedrock to allow for more suitable pump installations. The current turbine pump in the existing well is installed into the open hole section of the carbonate bedrock aquifer.

If the test holes are not successful, they will be grouted and sealed following provincial guidelines.

Friesen Drillers will prepare a report and proposed well design for the replacement well upon completion of the test well.

Should you require anything further or have any additional questions, please call me at (204) 326-2485.

Sincerely

Friesen Drillers Limited

J.J.(Jeff) Bell, B.Sc.(G.E.), P.Eng.
Hydrogeological Engineer

Attachment

Copy Mr. D. McDermid – City of Selkirk
Mr. Dale Scott – City of Selkirk

FORM E

Application for Licence to Construct a Well and Divert Groundwater

Water Stewardship Division
Water Use Licensing Section
200 Saulteaux Crescent
Winnipeg MB R3J 3W3

Manitoba
Conservation and Water Stewardship

Pursuant to *The Water Rights Act*

APPLICANT'S NAME: The City of Selkirk			CONTACT NAME: Mr. Dan McDermid	PHONE: 204-785-4932
POST OFFICE ADDRESS: 739 Sophia Street Selkirk, Manitoba R1A 2M1				MOBILE: 204-485-3120
CITY or TOWN: Selkirk	PROV: Manitoba	POSTAL CODE: R1A 2M1	E-MAIL ADDRESS: dmcdermid@cityofselkirk.com	

hereby applies for authority to construct a water well(s) on the following described land(s):

QUARTER	SECTION	TOWNSHIP	RANGE	E OR W
River Lot	52 - Parish	of St. Clements		

or otherwise described as Christie Avenue Water Supply Well

and divert groundwater for Municipal Use
(municipal, agricultural, industrial, irrigation, other uses)

use purposes on the following described land:

QUARTER	SECTION	TOWNSHIP	RANGE	E OR W
River Lot	52 - Parish	of St. Clements		

or otherwise described as Christie Avenue Water Supply Well

at the following rates:
No change from existing license
________ cubic metres per second (pumping rate)
________ cubic decametres per day (daily usage)
________ cubic decametres per year (annual usage)

Total number of acres to be irrigated: ________ (if applicable)

The above described lands are held as follows: (check applicable box)

☑ as registered owner ☐ purchased under agreement for sale ☐ lessee ☐ to be determined

Attach copy(s) of the certificate(s) of title or title number(s).

Is this application for the renewal of an existing licence? ☐ YES ☐ NO **Existing Licence No.** ________
Is this application for the transfer of an existing licence? ☐ YES ☐ NO **Existing Licence No.** ________
Is this application to amend an existing licence? ☑ YES ☐ NO **Existing Licence No.** 2000-047

Date: May 13 2014

Daniel McDermid
(Signature of applicant)

**** IMPORTANT **** FEE OF \$100.00 MUST ACCOMPANY THIS APPLICATION, CHEQUE AND APPLICATION MUST BE MAILED TO: **MANITOBA CONSERVATION CASHIER'S OFFICE BOX 42, 200 SAULTEAUX CRESCENT WINNIPEG MB R3J 3W3** **CHEQUES TO BE MADE PAYABLE TO MINISTER OF FINANCE**	**FOR OFFICE USE ONLY:**

Driller's Report

Contractor | License #: | Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8 | Driller: | Assistant:

Date well completed: July 20 /2014

Well Location QTR SEC TWP RGE E W

R.L. 52 Parish ST. CLEMENTS

Address of Well: CHRISTIE WELL REPLACEMENT

GPS Reading: Lat. N° 50°08'32.01" | Lon W° 96°52'20.70"

Well Owner Name: CITY OF SELKIRK

Address: 200 EATON AVE. Phone

Accuracy: ± 5 | Sat Count:

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Signature of Contractor

Well Identification: CHRISTIE REPLACEMENT WELL

Well Use / Water Use

Production	✓	Test Well		Recharge		Irrigation	
Domestic		Livestock		Industrial			
Municipal	✓	Dewatering		Not Used			
Geothermal				Observation			

Other (Specify)

DESCRIPTION WELL LOG

Depth Below Ground in Feet | Water Record

From	To	Description	From	To	Description	Water Record
0	5ft	TOP SOIL / FILL	75	82ft	BROKEN BEDROCK BOULDERS	
5	30ft	GREY CLAY	82	85ft	LIMESTON BOULDERS	
30	52ft	GRAVELLY TILL	85	112ft	GREY TILL	
52	55ft	GREY TILL	112	273ft	LIMESTONE - FRACTURES @ 190ft/209ft.	
55	60ft	CLAY	273	275ft	SHALE	
60	70ft	GRAVEL				
70	75ft	BROWN TILL				

Water Temperature F° / C°:

Depth Below Ground Level From	To	Casing	Open Hole	Perforations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	181 ft	✓					12 INCH			BLACK ERW	STEEL	SCH 40
181	275 ft		✓				10 5/8 INCH			OPEN HOLE		
10	80 ft					✓				CEMENT	PORTLAND	TYPE 50

Top of Casing: 3 Feet above ✓ Below Ground Level | Well must be vented X

Pitless Unit: Feet above Below Ground Level | Not Installed ✓

Remarks: REPLACEMENT CHRISTIE WELL. NEW WELL KEPT OUT SIDE PUMP HOUSE. OLD (1968) WELL TO BE MAINTAINED AS BACK UP.

Pump Installation By Drilling Contractor: Yes No ✓

Field Test: Iron — Grains Hardness —

PUMPING TEST

Date of Test: TEST NOT COMPLETED. Air Lifting

Bailing Recovery Flowing Rate IGPM

Other (Specify) Pumping IGPM

Water level before pumping (Static) Feet Above Below

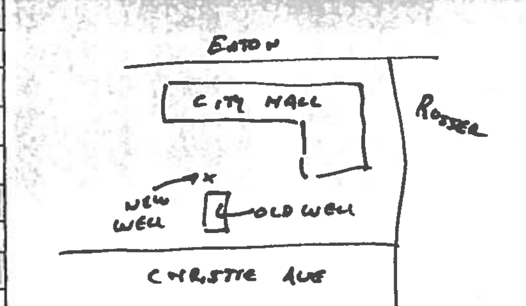
Pumping level at end of test Feet Above Below

Duration of test HRS Minutes

Recommended pumping rate I.G.P.M.

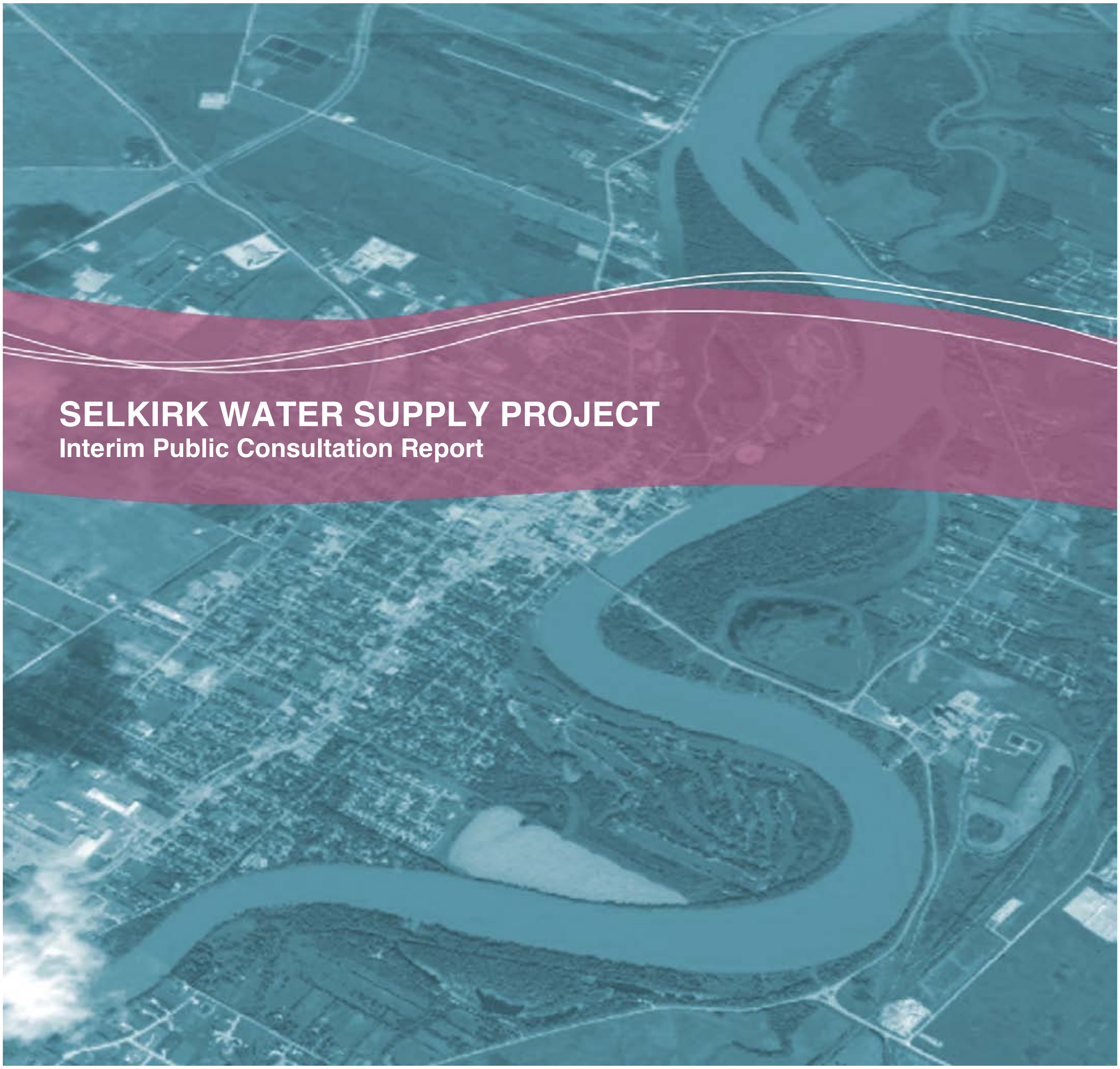
With pump intake at (feet) below ground level

Location Sketch of Well



Appendix B

Landmark Planning and Design Consultation Reports



SELKIRK WATER SUPPLY PROJECT

Interim Public Consultation Report

Landmark

Planning & Design Inc.

Table of Contents

1.0 Introduction

In December 2014 the City of Selkirk and the Water Services Board retained Landmark Planning and Design Inc. to undertake a public consultation process for a potential project to acquire an additional water supply source for the City. The objectives of the process were to communicate project information to key stakeholders, to gain feedback concerning the project and to address participant concerns.

The public consultation process was carried out in two rounds and consisted of the following components:

- Meeting with study area landowners to review project parameters and understand landowners concerns or ideas (Round 1)
- Preliminary internal and external stakeholder meetings to review project parameters and understand stakeholder concerns or ideas (Round 1)
- A public open house to review project parameters and understand public concerns or ideas (Round 1)
- Follow-up landowner meetings to present findings from the study and receive feedback (Round 2)
- Follow-up stakeholder meetings to present findings from the study and receive feedback (Round 2)
- A second public open house to present findings from the study and receive feedback (Round 2)

This report describes the consultation program in terms of format, purpose, event notification, attendance, participant feedback/input[1], and summary remarks.

2.0 Landowner Meetings (Round 1)

2.1 Format and Purpose

Landowner meetings were held on February 2 and 3, 2015 at the Selkirk Recreation Complex and March 3, 2015 at the Canalta Hotel Selkirk. Meetings were carried out to review project parameters and understand landowner concerns and ideas.

2.2 Notification and Attendance

Invitation letters were sent directly to all landowners in the study area. Landowners within a one-mile radius of the proposed well site received invitation letters via registered mail. The meetings were well attended with 58 of approximately 100 landowners taking part. Copies of notification materials are provided in Appendix F.

Figure 1.0 illustrates the meeting attendance of landowners within the study area. All areas highlighted as green indicate that a landowner or landowner representative attended a meeting with the study team or had a telephone conversation with the team regarding the project. The broken black lines indicate one-mile and two-mile distances from surrounding the proposed well site.

[1] Results presented in this report should not be considered scientifically derived or statistically relevant. Input received is from a non-random participant group.

Figure 1.0   Landowner Participation

2.3 Participant Information

Of the 58 participants that provided written feedback, 61% indicated that they owned property within a one-mile radius of the proposed well site, 32% owned property within a two-mile radius and 6% had property outside of the two-mile radius.

The vast majority of respondents (93%) noted that there was a residence on their property and 97% indicated that one or more wells existed on their property. A total of 39 wells were identified on participant lands.

2.4 Understanding the City of Selkirk's Need for a Water Supply Option

Participants were asked if they understood the reasons why the City of Selkirk needs to look for a water supply option. The majority of respondents (87%, or 27 out of 31) understood the City of Selkirk's reason for pursuing a new water source; 13% of participants (4 out of 31) indicated they "somewhat understood" the need, but did not offer additional commentary. Non of the participants indicated that they did not understand the need.

2.5 Understanding the Desire to Study This Potential Water Supply Option

Participants were asked if they understood that the City of Selkirk and the Water Services Board wish to study this potential water supply option in order to help form a decision on whether it is a feasible option. The vast majority of participants (90%) understood why this option must be studied in order to determine if it is feasible and 10% “somewhat understood” the reasoning. No participants indicated that they did not understand why this potential water supply option was being studied.

2.6 Concerns About Potential Well

When participants were asked if they had concerns about a potential well, 71% said “yes” and 26% said they were “somewhat” concerned. One participant responded that they had no concerns.

The two main concerns participants noted about the potential well project were the potential impact to either the quality or quantity of their current water supply.

Other concerns included:

- a potential decline in property value,
- the way in which negatively impacted existing wells would be addressed; and
- implications the project may have on agriculture.

A few participants indicated they would not express their concerns until the study was complete.

Specific comments included:

- I am concerned about water quality and water supply [quantity]. (x8)[2]
- I am concerned about long term and short term potential effects of a new well. (x2)
- I am concerned about property value. (x2)
- Would like environmental assurances if something happens to our existing well.
- Would like a written guarantee for our well in the future, maintenance of the road [Meadowdale] during and after construction of the wells.
- Recovery time [of their existing well].
- [Concerned about] changing the subterranean water flow routes.
- The lower aquifer is full of iron.
- The effects [the new well] may have on the agricultural industry and the water requirements used by farmers each year.
- Concerned about how this will impact our farm.
- This will reduce or destroy our good drinking water.
- Sulphur belt and rust.
- Quality of our water is a concern. Detailed sampling before, during and after so we can see any changes. Quantity of water changing is also a concern.

2.7 Well Inventory

Nearly all participants were receptive to participating in a local well inventory, which would provide a base condition to compare to future well conditions. The majority of participants (83%, or 24 out of 29) agreed to participate, while 13% (4 out of 29) said they would like to think about it. Only one participant declined to participate.

[2] “(x8)” indicates that 8 respondents provided the same or similar comment.

2.8 Other Comments

When given the opportunity to provide the study team with additional comments some participants provided specific information about the well(s) on their property, while others suggested alternative options to the one being studied

Specific comments included:

- The information session was very informative.
- Well on property is 120 feet deep and of poor quality; is artesian at times.
- Tap into the artesian well(s) at Oak Hammock Marsh
- We have one well and one return.
- Our well was drilled by Friesen Drillers in 2010. Water analysis was done last year - results can be provided.
- Probably will be interested in participating in well inventory. Would like to have water sample done to check quality.

3.0 Stakeholder Meetings (Round 1)

3.1 Format and Purpose

A series of stakeholder meetings were carried out in order to discuss key project parameters with identified stakeholders, and to understand stakeholder concerns or ideas. Meetings were held with the following groups[3]:

- City of Selkirk, CAO and Council
- RM of St. Andrews, CAO and Council
- RM of Rockwood (invitation extended)
- Manitoba Conservation and Water Stewardship
  - Environmental Approvals Branch
  - Water Use Licensing Section
  - Wildlife and Ecosystem Protection Branch
- Parks Canada
- Oak Hammock Marsh
- Ducks Unlimited
- Gerdau Ameristeel
- Selkirk Fire Department (invitation extended)
- St. Andrews Fire Department
- Selkirk Linen
- Selkirk Mental Health Centre
- Interlake Regional Health Authority
- Selkirk and District General Hospital
- Red River Planning District
- Selkirk and District Chamber of Commerce
- Lord Selkirk School Division (invitation extended)

3.2 Participant Feedback/Input

At each of the stakeholder meetings, project representatives informed participants of the proposed project parameters. Participants shared information concerning their respective interests and/or concerns.

[3] Invitations were extended to the RM of Rockwood and Lord Selkirk School Division.

The following notes summarize key discussion points from various stakeholders (see Appendix B for copies of meeting minutes):

- **Manitoba Conservation and Water Stewardship (EAB and WUL)**
  General discussion about key project parameters and the requirements of the Environmental Approvals Branch and the Water Use Licencing Section should the project move forward.
- **Parks Canada**
  General discussion about key project parameters and how the proposed well might affect Parks Canada (Lower Fort Garry). There was discussion about the potential for Lower Fort Garry to connect to the City of Selkirk water supply should the project move forward. The current situation with the sewer and water at Lower Fort Garry was identified as “time sensitive” and therefore issues must be addressed more quickly than the proposed time line of this potential project.
- **Oak Hammock Marsh and Wildlife and Ecosystem Protection Branch**
  General discussion about the project including why the study is necessary, the various options that were considered, and what made those options less desirable than the preferred option. The Bristol contamination site was discussed and what impact it may or may not have on the project.
- **Ducks Unlimited**
  Representatives expressed an interest in the environmental aspects of the project and how these issues would be addressed. The study team indicated it would calculate supply versus demand, predict the long term impact on the aquifer and asses any effects on potential growth in the RM of St. Andrews should this project move forward.
- **Gerdau Ameristeel**
  Gerdau provided a background on its operation in terms of water supply. It was noted that the mill has recently renewed their water rights licence for its private well. In doing so, the amount of water allocated under the licence was reduced during this process. Gerdau anticipates achieving zero discharge in the future and using 100% recycled water for the operation.
- **RM of St. Andrews Fire Department**
  General discussion about the project including justification for the location of the potential well sites, ownership of the project, cost responsibility and the potential benefits this project could yield local fire fighting efforts. All three departments were receptive to the idea of having an additional water source and understood that should the project move forward, there may be potential to provide a fill station for fire fighting purposes.
- **Selkirk Linen**
  Selkirk Linen provided background information on its operation including size of the operation, current water consumption and future plans for the operation. Specific questions were answered regarding the location, financial responsibility and life expectancy of the proposed wells.

- **Selkirk Mental Health Centre (SMHC)**
  SMHC provided a history on the Centre's private water supply system. The water quality and water pressure were noted to be concerns for SMHC. The City of Selkirk has previously approached SMHC to request access to the Centre's wells for City use, however this was not an option due to liability concerns.
- **Interlake Regional Health Authority and Selkirk and District General Hospital**
  Representatives provided information on the existing hospital and the new hospital currently under construction. It was noted that the new hospital will not use more water than the existing one. The new hospital will be supplied solely by City water. Questions were raised regarding how development and water quality will be addressed with the proposed well.
- **Red River Planning District**
  Representatives of the Red River Planning District understood the need for the study and were pleased with the extensive consultation process that was being undertaken. A request was made to be kept up-to-date on the study as it moves forward.
- **Selkirk and District Chamber of Commerce**
  Discussion focused on the pressing need of the project to move forward to ensure no unnecessary disruption to local business. Potential road blocks were considered as well as the Chamber's role in assisting with support for the project. Financial responsibility was outlined and study objectives were discussed.

4.0 Public Open House (Round 1)

4.1 Format and Purpose

A Public Open House was held on March 9, 2015 at the Selkirk Recreation Centre. The Open House was held in traditional open house format, with a series of display boards illustrating various project parameters. Project representatives were available to respond to questions and to talk with participants. Participants were asked to register their name and address and to fill out a written response form prior to leaving the open house. The display boards included the following information (see Appendix B for a copy of the display boards):

- Welcome/Project Background
- Study Area
- Study Purpose and Timeline
- Landowner/Resident, Stakeholder and Public Consultation Program
- Current Water Supply
- Water Supply Challenges
- The Stonewall Uplands Recharge Area
- Water Investigation Program
- Water Supply Options
- Existing Local Wells
- Inter-Municipal Water Sharing
- Water Conservation Measures
- Common Questions/Inquiries
- Next Steps

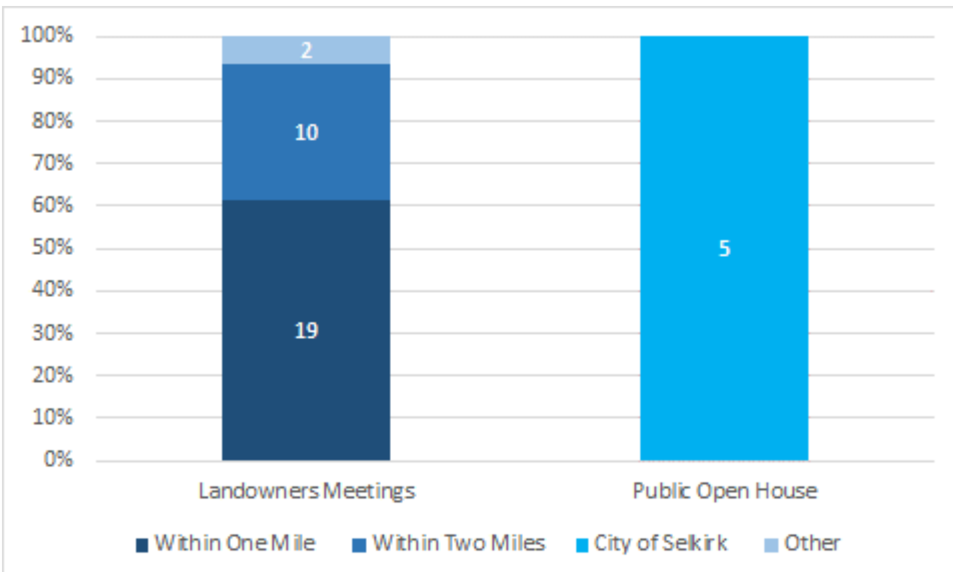
4.2 Notification and Attendance

An extensive notification program was undertaken. The Public Open House was advertised in the *Selkirk Journal* and the *Selkirk Record* the week prior to the event. Radio ads aired on *680 CJOB*, *99.1 Fresh*, and *97.5 Big* four times daily, for five days leading up to the Public Open House. Notification was also posted on the project website, the RM of St. Andrews website, the City of Selkirk website and the communications board at the Selkirk Recreation Centre. Thirteen people attended the Public Open House. Copies of notification materials are provided in Appendix F. A relatively low attendance at the open house is partially explained by the relatively high attendance and significant consultation effort directed towards landowners at the landowner's meetings.

4.3 Public Open House Participants

Figure 2.0 illustrates the home location of participants who attended a landowner meeting and/or the Public Open House.

Figure 2.0 Area of Residence – Landowner Meetings and Open House



4.4 Understanding the City of Selkirk's Need for a Water Supply Option

When respondents were asked if they understood the reasons why the City of Selkirk needs to look for a water supply option, all respondents (5 out of 5) indicated they understood the initiative.

Specific comments included:

- Existing wells in Selkirk will not support our town's needs in the future. If this option is not feasible what are our options?
- This issue was discussed in the 1990's. At that time it was suggested that Oak Hammock Marsh was a possible water source.

4.5 Understanding the Desire to Study this Option

Public Open House participants were asked if they understood that the City of Selkirk and the Water Services Board wished to study this potential well option in order to help form a decision on whether it is a feasible option. All respondents indicated that they understood the reasoning for the study.

4.6 Concerns About Potential Well

When participants were asked if they had concerns about this potential well a small range of options were offered. One respondent indicated they had concerns while the remaining responses were split between “somewhat concerned” and no concerns (Figure 3.0).

Figure 3.0 Public Open House Participant Level of Concern for Potential Well

Comments included:

- Iron content - if it is high does that mean additional (possibly unsustainable) treatment?
- Will a future "underground dam" affect the flow to the potential well site?
- We need new wells as soon as possible. This should have been done years ago. Water is needed for businesses, homes and future development of our city. What if this option is not feasible; what are our other options?
- I would like the City of Selkirk to explore using river water for watering (landscape) public spaces.

4.8 Public Open House Effectiveness

All respondents, regardless of their opinion about the proposed well, indicated that they found the open house helpful.

Comments included:

- Information was very interesting.
- Good explanation about how we [attain] our water.
- Good approach.
- Very conscious of citizens living in the area of potential well site.

5.0 Local Well Inventory Program

5.1 Format and Purpose

Landowners within the study area were invited to participate in a Well Inventory Program. This program formed an important part of the overall study to determine if the potential wells might have any effect on existing local wells.

5.2 Process

The inventory process involved a site visit by study team members, who undertook the following activities:

- Collected basic information concerning the existing well history and any other details participant had to offer;
- Assembled a photo inventory of each well;
- Plotted the precise location of each well site using a GPS program;
- Provided water sampling upon request. These samples were for the information of the landowner only. The study team also tested water quality at non-residential areas throughout the study area.

5.3 Result

Approximately 40 landowners within the study area participated in the Local Well Inventory Program. The information collected provided valuable information including the age, location, depth, and general condition of local wells. The study team also referenced GWDrill, a drill log database maintained by Manitoba Water Stewardship. GWDrill tracks information such as driller's name, date the well was drilled, well depth, and soil types encountered when drilling. The results of the program formed part of the overall project analysis.

6.0 Landowner Meetings (Round 2)

6.1 Format and Purpose

Landowner meetings were held on October 22, 2015 at the Selkirk Recreation Centre. Meetings were carried out to review project parameters and to present study results.

6.2 Notification and Attendance

Invitation letters were sent directly to all landowners in the study area. The meetings were well attended with 37 participants, 24 of whom provided written feedback. Copies of notification materials are provided in Appendix L.

6.3 Participation Information

Of the 24 respondents, 35% indicated that they resided within a one-mile radius of the proposed well site, 61% resided within a two-mile radius and 4% resided in the City of Selkirk.

6.4 General Understanding of Study Results

When participants were asked if they generally understood the results of the study, 100% of participants indicated "yes".

Specific comments included:

- Well explained.

- Lots of discussion.
- Explained clearly and logically.
- Good information.
- Still worried for family members in years to come.
- I understand but I am still not happy.
- Would we be compensated for property devaluation if we lost our water source?

6.5 Information to Increase Understanding or Confidence in the Results

When participants were asked if there was other information they would like to see that would increase their understanding or confidence in the results, 57% said “yes”.

Requests or comments included:

- To be kept informed about the licensing process and that the hydrogeological report outlining licensing recommendations be made available to the general public.
- That notification be given once the application for an Environmental License was submitted
- Information on the amount of water pumped from the proposed production well, should it go online, and monitoring data be made available publically.
- To receiving information on water quality.
- To receive information on drawdown for a period greater that seven days.

6.6 Helpfulness of Communication Process

Nearly all respondents, 96% (23 of 24) indicted they found the communication process for this project to be helpful and one participant indicated the process to have been “somewhat” helpful.

7.0 Stakeholder Meeting (Round 2)

7.1 Format and Purpose

A Stakeholder Meeting was held on November 10, 2015 at the Canalta Hotel Selkirk. The meeting was carried out to review project parameters and to present study results.

7.2 Notification and Attendance

Stakeholders were notified directly via email. Four representatives attended the Stakeholder Meeting.

7.3 Participation Information

Participant groups included the Clandeboye Fire Department, Selkirk Mental Health Centre, Ducks Unlimited and Manitoba Conservation.

7.4 General Understanding of Study Results

When asked if they generally understood the study results, all participants indicated “yes” they understood the study results.

7.5 Information to Increase Understanding or Confidence in Results

When participants were asked if there was other information that they would like to see that would increase their understanding or confidence in the results, all participants indicated that they did not require further information.

7.6 Helpfulness of Communication Process

All participants indicated that they found the communication process for this project to be helpful.

Specific comments included:

- PowerPoint and one-on-one discussion was very helpful.
- Very informative.
- Layman terms were appreciated.
- Excellent presentation.
- I learned a lot.
- The presentation was very informative and easy to understand.
- Very thorough presentation.

8.0 Public Open House (Round 2)

8.1 Format and Purpose

A Public Open House was held on November 10, 2015 at the Canalta Hotel Selkirk. The Open House was held in traditional open house format, with a series of display boards illustrating various project parameters. Project representatives were available to respond to questions and to talk with participants. Participants were asked to register their name and address and to fill out a written response form prior to leaving the open house. The display boards included the following information (see Appendix K for a copy of the display boards):

- Test Procedures
- Test Results – Drawdown Map
- Monitored Wells Map
- Potentiometric and Recharge Map
- Relative Drawdown for G050J064
- Well Recovery After Pump Test – Sample Wells
- Well Recovery After Pump Test – All Wells
- Water Quality – Local Nitrates
- Water Quality – Piper Plot Comparison
- Conclusions
- Proposed North Production Well
- Proposed Monitoring Conditions
- Next Steps

8.2 Notification and Attendance

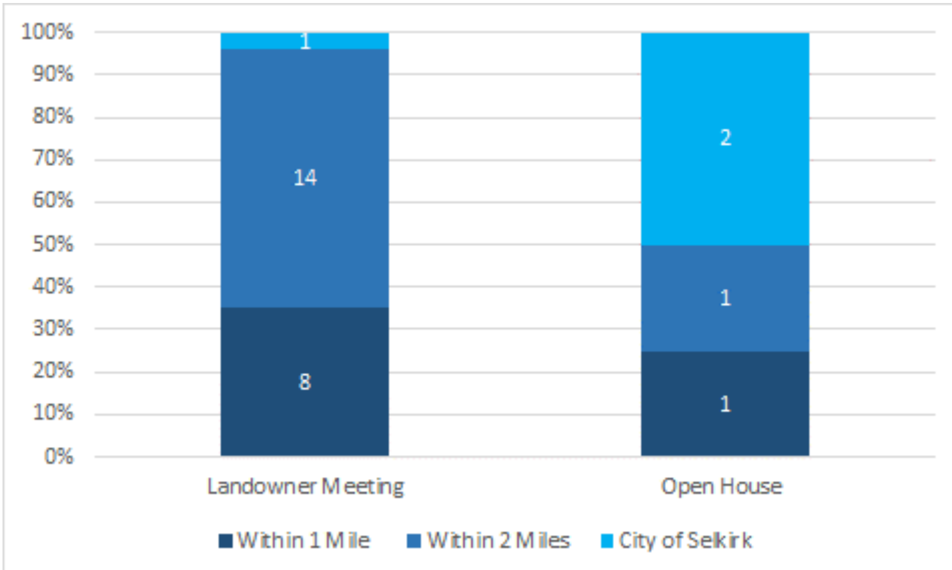
The Public Open House was advertised in the *Selkirk Journal* and the *Selkirk Record* the week prior to the event. Notification was also posted on the project website, the RM of St. Andrews website, the City of Selkirk website and an email blast was sent out to those that requested to be put on a notification list for project updates (42 recipients).

Fourteen people attended the Public Open House. Copies of notification materials are provided in Appendix L.

8.3 Participation Information

Figure 4.0 illustrates the home location of participants who attended a landowner meeting and/or the public open house.

Figure 4.0 Area of Residence – Landowner Meetings and Open House



8.4 General Understanding of Study Results

When respondents were asked if they generally understood the results of the study, 2 indicated “yes” and 2 indicated “somewhat”.

8.5 Information to Increase Understanding or Confidence in Results

When respondents were asked if there was other information they would like to see that would increase their understanding or confidence in the results, all participants indicated they did not require further information.

8.6 Helpfulness of Communication Process

All participants indicated that they found the communication process for this project to be helpful.

9.0 Summary Remarks

The public consultation process is considered very thorough for a project of this scale and nature. Most participants, though leery of the project at the beginning, were generally appreciative of the communication and generally accepting of the results. Any remaining concerns regarding water supply (quantity), water quality and/or recharge rate were addressed. Further assurances were provided that strict monitoring conditions and safeguards protecting the water supply would be recommended to form part of the Environmental Act License if granted.

RECORD OF MEETING

Landmark Planning & Design Inc.

Title: Selkirk Water Supply (Landowners R1, Session 1)
Date of Meeting: Feb 2, 2015 – Feb 3, 2015
Time: 1:00pm, 4:00pm, 7:30pm
Location: Selkirk Recreation Complex – 200 Easton Drive
In Attendance: 43 Landowners (within 2 miles of the potential well site)
Jeff Bell, Friesen Drillers Ltd.
Donovan Toews, Landmark Planning and Design Inc.
Curwood Ateah, Landmark Planning and Design Inc.
Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. Landmark is aware that this option has arisen in the recent past and that it has been a contentious one. Landmark will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	Q. When was Landmark Planning and Design retained for this project? A. Landmark Planning and Design and Friesen Drillers were retained by the City of Selkirk and the Water Services Board in mid-December 2014.	

		Q. This project was stopped in 2012, what has changed in the last 2 years that it is being re-visited again? A. The water supply problem still exists. The preferred option has been identified as viable and needs to be explored further to determine whether in fact it is a good option. Q. Have you reviewed all the information from previous meetings in 2012 regarding this project? A. Yes, the relevant background information has been reviewed. Q. What are the qualification of the hydrogeologist working on this project? A. Jeff Bell of Friesen Drillers is a licenced Hydrogeological Engineer in the province of Manitoba and is recognized as among the best in the province. Q. Where is proposed well site? A. The proposed well site is approximately two and a half miles north-west of the City of Selkirk in the RM of St. Andrews at the southwest corner of Meadowdale Road and McRae Road. Q. What can we expect to see at the proposed well site (equipment)? A. You may potentially see the wellhead or some sort of well housing, a chain link fence and an electrical panel. Q. How much land is required to operate the proposed well? A. No private land will need to be acquired. The well will be constructed in the road right-of-way. Q. Will the water pipeline cross private property? A. The Water Services Board typically likes to keep to the road right-of-way where lines will be under provincial control. Q. Why are meetings only being held with residents within a two mile radius of the site? A. Residents within a two mile radius are more likely to be impacted by the project. An open house will be held to include anyone that has an interest in the project. Q. Who will be reviewing the report? A. Reports will be reviewed by Manitoba Conservation and Water Stewardship. The Director of the Water Rights Licencing is a Ground Water Hydrogeoligist with 35 years of experience. Q. Who is the decision maker for this project? A. The final decision will be made by the Minister of Conservation and Water Stewardship. Q. Do local landowners have a say in whether or not this project will move forward? A. The local landowners have the ability to effect the project but they do not have a say in whether or not the project will move forward. Water is a provincial resource and therefore the authority lies with the provincial government. Q. Is this project a done deal? A. This project is in the preliminary stages. This option must be proven to be feasible and sustainable for the Minister of Conservation and Water Stewardship to consider approving it to move forward. Q. Are all test hole locations shown in the presentation still in use? A. Some of the test hole locations shown in the presentation are currently active and others have been capped or buried.	

	Q. How long has the City of Selkirk know about the long-term issue with the supply of water? A. The City of Selkirk has known about the water supply issue since the early 1950's and has been addressing the issue over this period. Q. Why hasn't Selkirk addressed this issue sooner? A. It was never pursued as an urgent issue. Test holes were drilled in the 1970's at which time monitoring revealed issues that led the City of Selkirk to utilize the Red River as a water source. Q. Why is the City of Selkirk allowed to develop if they do not have an adequate water supply? A. From a province-wide perspective, growth is not stopped if there is an adequate water source nearby. Many growing communities have water sources that are at a distance. Q. Where is the City of Selkirk's water supply coming from now? A. The City of Selkirk currently draws water from 4 wells located within the city boundaries. The main well is the Christie Well which supplies the City with 60% of its water. The other three wells (Rosser, Tower and McLean) make up the other 40%. Q. Will the proposed well sustain future growth in Selkirk? A. The only way to determine what the new well is capable of producing is through testing. Q. Will the City of Selkirk maintain its current water supply? A. Yes, they will maintain their current water supply. Q. Is the intent of the proposed well to supplement the City of Selkirk's water supply or will it be their primary source. A. It's proposed that the new well will be the primary source of water until such time that the existing wells within the City have had an opportunity to recharge. Q. How deep is the Christie Well? A. The Christie Well is approximately 300ft deep. Q. How much water is Selkirk proposing to take? A. Regardless of how much water Selkirk would like, testing will determine what the well can sustainably handle. Q. With the new well extracting water from the aquifer, how much water will reach the other wells in Selkirk? A. The reason the current wells are not recharging is due to a geological feature under the ground that is acting like a dam and preventing the passage of water. Water is there, it just can't get through at a sufficient rate to accommodate the City. Q. How will the RM of St. Andrews benefit from having a well at this location? A. This would have to be negotiated. There may be a potential for a pumping station at the well site for firefighters and local farmers. Q. Will the City of Selkirk be responsible for upgrading the road leading to the well site (Meadowdale)? A. Should the project move forward, this would need to be negotiated. Q. Are there legal options for the RM of St. Andrews to prevent this project from moving forward? A. Yes, objecting parties would have to go to court to get an injunction, but it is unlikely they would be successful. Later, if a license is granted, an objecting party could contest that license.	

		Q. Is the data collected in 2012 of any use? A. In 2012 only preliminary testing was done. This data will be considered but a whole new scope of work will be undertaken. Q. What size of well is being considered for this site? A. That has yet to be determined. Q. What is the life expectancy of the proposed well? A. The life expectancy of the new well would be approximately 30-35 years. Q. Who is responsible for the cost of installing the proposed well? A. The City of Selkirk would be responsible for funding the project with possible funding from the Manitoba Water Services Board. Q. How do you test this option? A. A well inventory will be done. A seven day stress test will be performed to see how the aquifer reacts. Private and provincial wells will be monitored during that time. Historical data will also be factored into the analysis. Q. How will private wells be monitored? A. The hydrogeologist will install transducers into private wells (if the homeowner agrees) to monitor water levels and recovery time. Testing for water quality will also be performed. Q. Can all private wells in the area be tested? A. Transducers can be installed in all wells within a two mile radius where authorization from the landowner has been obtained. Q. Will water quality be tested? A. Yes, water quality will be tested. Q. Will water quality be effected? A. Extensive testing and detailed analysis will be done to determine this. Q. Is the quality of water protected? A. Yes, the Groundwater Interference Plan will outline how water quality issues will be dealt with. Q. Will the recovery time of private wells be effected? A. Testing will determine if recovery time would be impacted by the potential new well. Q. If monitoring a private well, will the land owner receive copies of the test information? A. Yes, copies of all test results will be provided to the landowner. Q. Will there be guarantees put in place to hold the City of Selkirk financially liable for wells that are negatively impacted by this project? A. This will be outlined in the Groundwater Interference Plan as part of the Water Rights Licence. Q. How will it be determined if an individual well has been impacted by this project? A. Data collected prior to the project will be used as a base line to determine if a private well has been negatively impacted. Q. Who determines if an existing well has been negatively impacted and a new well is required? A. This will be stated in the Groundwater Interference Plan. Q. What happens if the effects of this well do not become apparent for several years? A. There is constant monitoring of the aquifer. Aquifers also move very slowly so affects would be seen early and alternatives would then made.	

		Q. Will there be a lifetime guarantee for existing wells? A. An existing well must be legally protected. Over its lifetime if that supply is ever effected, there must be certification or compensation. Q. Is there legal recourse for any negative impact this project may have on individual wells? A. The procedure will be outlined in the Groundwater Interference Plan under the Water Rights Licence. Q. How can this amount of water be taken without damaging the supply? A. Testing will indicate how much water can be taken without jeopardizing the water source. Q. How will stressing the well provide accurate data that will replicate long term use? A. A combination of historical data and data from the stress test will be analysed to get a better understanding how the aquifer will be impacted by long term use. Q. Will testing in the spring yield different results than if testing in the fall? A. By stressing the well and analysing historical data we can get a good understanding of how the aquifer will be impacted during different times of the year. Q. Is there a potential for surface water to contaminate groundwater? A. Groundwater under the influence of surface water will need to be studied. We need to get a thorough understanding of the potential project. Q. Could this new well potentially dry up the aquifer? A. The project team does not want there to be any negative impact on the aquifer. We will monitor several test wells and stress the potential well site to see the impact on the aquifer. Q. What is an acceptable amount of draw down for domestic wells? A. This will need to be studied. We will have more information once the well inventory has been completed. Q. Will private wells be affected during the test period? A. Precautionary measures will be taken to ensure private wells are not affected during testing. Q. What are the potential impacts to geothermal? A. Testing will determine this. Q. Will this affect water usage for agricultural operations? A. Testing will help determine this. Q. Have hydro lines already been installed on Meadowdale Road to supply the new well? A. Our team will look into this. Q. How far away is the landfill site from the proposed well site? A. Both the landfill and the snow dump will be studied under the environmental aspects of the project. Q. Have other alternative options been studied? A. Yes, several other options have been considered but this option appears to be the best in terms of location, cost, constructability and feasibility. Q. Is taking water from the Red River an option? A. Since Walkerton and North Battleford new regulations have been implemented for the way surface water and groundwater are treated. This option would require Selkirk to construct a new water treatment plant,	

	which would be much more costly. Q. Why not update the Selkirk Water Treatment Plant to accommodate surface water? A. The cost of updating the water treatment plant to meet today's regulations is significant with a projected cost of more than $20 million. This is not a realistic solution at this time. Q. Why not spend the additional $2.5 million and extend the pipe to Oak Hammock Marsh and be guaranteed sufficient water? A. The benefit needs to out-way the cost. If the water is coming from the same source and has all the same impact on the aquifer then it is not preferred to spend extra money on pipe, when the benefits are no greater, and the impacts (if any) are less. Q. Can we have a copy of the presentation material? A. The presentation is in draft format but will be available on the project website on the day of the open house.	
13.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present finding from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Brenda Tesarski
		Date: Feb 4, 2015

RECORD OF MEETING

Title:	Selkirk Water Supply (Landowners, R1, Session 2)
Date of Meeting:	March 3, 2015
Time:	1:00pm and 7:30pm
Location:	Canalta Hotel Selkirk – 1061 Manitoba Ave.
In Attendance:	15 Landowners (within 2 miles of the potential well site) Jeff Bell, Friesen Drillers Ltd. Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	**Process**	

	The project process was described as follows: 1. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 3. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 4. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	Q. How much water is the City of Selkirk proposing to take? A. Regardless of how much water Selkirk would like, testing will determine what the well can sustainably handle. Q. Is this the most desirable option? A. This location was first identified as a desirable location in the 1950's. While numerous other options have been examined, right now this option is the most preferred. Further testing will confirm this. Q. Have the rolling mills been considered as a water source? A. Yes, but their supply draws in river water which would require a new water treatment plant. Q. Are the rolling mills a large consumer of City water? A. Approximately 60% of their water comes from the river and is used to cool their plant. Q. Where is the proposed well site? A. The proposed well site is approximately two and a half miles north-west of the City of Selkirk in the RM of St. Andrews at the southwest corner of Meadowdale Road and McRae Road. Q. What can we expect to see at the proposed well site (equipment)? A. The wellhead or some sort of well housing would be seen, as well as a chain link fence and an electrical panel. Q. When pipelines are installed, what condition will the right-of-way be left in? A. The Water Services Board is diligent at cleaning up their work sites to pre-existing conditions. Q. Will the City of Selkirk maintain its current water supply? A. Selkirk has invested a significant amount of money maintaining its well field; there is no intent to decommission the existing wells. Q. Is the intent of the proposed well to supplement the City of Selkirk's water supply or will it be their primary source. A. It's proposed that the new well will be the primary source of water and existing wells will continue to supplement supply. Q. Two wells are being proposed, will both be used? A. This will depend on the capacity the wells run at. An option may be to alternate between the two wells. Q. Where will the pumping station be located? A. This is yet to be determined. Q. Will a pumping station increase the amount of truck traffic? A. Potentially, yes.	

		Q. Will the City of Selkirk be able to truck water from the pumping station to their water towers? A. No. Q. What prevents everyone from using the pumping station? A. Municipal pumping stations are typically locked with restricted access. Q. Where will test wells be located? A. The study team will the well inventory to determine where existing wells are and then drill additional test wells in areas where no monitoring is being done. Q. When drilling test wells what can be expected in terms of noise and length of time to drill. A. Most likely area residents won't notice this happening. The generator and equipment is fairly quiet. A small hole takes a day or two to complete and a larger hole takes about a week. Q. What type of things are being considered during stress testing? A. The study team is looking for any response from the well including decline in water levels and recovery time. Q. What types of things will be monitored/tested for? A. The study team will monitor the levels of both the upper and lower aquifer as well as quality of the water and recovery time. Q. Will monitoring in the Spring versus the Fall yield different results? A. By stressing the well and analysing historical data the study team can get a good understanding of how the aquifer will be impacted during different times of the year. Q. Will geothermal have an impact on testing? A. The study team has knowledge of the systems and are able to address them; they just change our perspective. Q. How are private wells monitored? A. A transducer can be installed in private wells to measure water level and water temperature. Q. How does a transducer work? A. The transducer is sterilized, setup to record data, dropped in the well on a string and the string is tied to the outside of well. After testing period, the transducer is removed, cleaned and data is downloaded on a computer. The transducer does not affect well performance. Q. How long does the transducer remain in the well? A. Typically, the transducer is installed in the well two weeks prior to the stress test and is left in for three weeks after the test has been completed. Q. Do you recommend having a transducer installed? A. Yes, this sets a base line in case there is a negative impact to your well due to the proposed well. Annual monitoring is also recommended; this way you can review the data and see what is going on with your well. Q. Is data from the monitoring station available online? A. The Groundwater Monitoring System has this information. You need to know the station number you want data for. Q. Will septic and ejector systems impact the water source? A. There is a protective layer of clay that protects the source in this area. Q. How is the landfill going to be addressed? A. There are several ways to address the site as it is an "impacted site" therefore there is lots of data available. The study team can approach the owner for data or visit the Environmental Library. The study team may	

	also put a test well close to the site. Q. Is testing going forward? A. We will be applying for a Groundwater Exploration Permit and if approved, testing will proceed. Q. Will we be updated on the process? A. Yes, follow up meetings will be held once testing has been completed.	
5.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Brenda Tesarski
		Date: March 4, 2015

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (RM of St. Andrews)
Date of Meeting:	January 15, 2015
Time:	10:00 am
Location:	RM of St. Andrews – 500 Railway Ave, Clandeboye, MB
In Attendance:	George Pike, Mayor Laurie Hunt, Deputy Mayor Rob Hogg, Councillor Elmer Keryluk, Councillor Joy Sul, Councillor Sue Sutherland, CAO Ian Tesarski, Director of Operations Randene Keats, Public Works Administration Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Jeff Bell, Friesen Drillers Ltd. Dave Shwaluk, Manitoba Water Services Board

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process • Questions and answers	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. Landmark is aware that this issue has arisen in the recent past and that it has been a contentious one. Landmark will be working to ensure there is good communication between all parties that have an interest in this project including the RM	

	of St. Andrews, The City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, SMHC, local businesses and others. The desire would be to work together to find a solution that all parties can live with.	
3.	**Process** The project process was described to be as follows: 5. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 6. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 7. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 8. Apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. Will there be a measures in place if private wells are affected? A. There will be a Groundwater Interference Plan developed that provides assurances to private well owners. This plan will be included in the licensed requirement. There will also be conditions written into the Water Rights License. Q. Will the project go ahead if there are serious issues? A. No, the project will only proceed if the analysis provides that the well system can be developed in a sustainable manner without negative implications to adjacent landowners or others. Q. Who will be responsible for obtaining the Water Rights License? A. The City of Selkirk. Q. What is the problem with the City of Selkirk water supply? A. The City of Selkirk's current water supply system struggles to meet current demands due to transmissivity issues with the bedrock in the area. Q. Will water consumption by the Manitoba Rolling Mills affect this project? A. No, it should not. The Manitoba Rolling Mills currently utilizes about 10-15% of its water license. Q. Will the RM of St. Andrews be able to use/benefit from the new wells. A. The Manitoba Water Services Board will consider including a municipal water loading station that could be used for municipal purposes such as firefighting. Q. Will staff from the Red River Planning District be consulted with? A. Yes, we will meet with staff from the Red River Planning District.	

5.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present finding from the study. From there, a decision will be made as to whether or not to proceed with the project.	
	Recorded By: Curwood Ateah	
	Date: January 19, 2015	

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Red River Planning District)
Date of Meeting:	January 23, 2015
Time:	2:00 pm
Location:	298 Waterfront Drive, Winnipeg, MB
In Attendance:	Jennifer Ferguson, Manager Matthew Fitzgerald, Assistant Manager Curwood Ateah, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** CA provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	**Process** The project process was described as follows:	

	9. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 10. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 11. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 12. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**General Comments** - Pleased that there is an extensive consultation program with area residents and landowners - Recognized that the City of Selkirk requires a sustainable water supply to ensure future growth can be accommodated - Would like to see the City of Selkirk and the RM of St. Andrews work cooperatively on the project – they are both members of the Red River Planning District - Would like to be kept up to date on the progress of the study	
6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Curwood Ateah
		Date: January 26, 2015

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Selkirk Mental Health Centre)
Date of Meeting:	January 29, 2015
Time:	2:00pm
Location:	Selkirk Mental Health Centre – 825 Manitoba Ave
In Attendance:	Bill Gamache, Facility Manager Ryxie Dupas, Manager Support Services Gwen Anderson, Acting Chief Engineer Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process • Questions and answers	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	

3.	**Process** The project process was described as follows: 13. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 14. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 15. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 16. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Background – Selkirk Mental Health Centre** Bill Gamache provided the study team with background on the Selkirk Mental Health Centre. • SMHC currently houses 300 patients and staffs approximately 700 employees. • There are 10 buildings on the property amounting to a total area of 400,000 sq ft. • SMHC is identified as the largest water user in Selkirk ($22,000-$25,000 monthly water bill). • The powerhouse is the largest consumer of water on site. • There were 54 million pounds of steam produced in 2014, 10 million pounds of which was supplied the Selkirk General Hospital. • 1.5 million gallons of water used to produce steam. • Enough excess steam is produced to supply another hospital. • SMHC provided its own water source up until 1970. • During the winter of 1969 the SMHC connected to the City's water supply. • The water tower on the grounds was torn down in 2011. • Wells on the property were used until approximately 1995. They were decommissioned after the Walkerton water tragedy. • Current water issues at SMHC are the water quality and the water pressure. • The quality of City water causes premature rusting of equipment. • There were three backflow protectors installed which lowers the water pressure by 10 lbs/protector. • A new filtration system has recently been installed in three buildings with patient care. • Water conservation measures exist only in the Tyndall Building (newest). • In the past, the City approached SMHC for access to their water supply however were turned down as the provincial government did not want to take on the liability of supplying	

	water to a municipal town.	
5.	**Question and Answer** Q. Is the City of Selkirk considering the SMHC well as an alternative water supply? A. No, this has not been identified as an option. Q. Will the City be contacting the SMHC to implement water conservation measures? A. The City is encouraging water conservation but we are unaware of any plans they may have to contact SMHC directly.	
6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: January 30, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Ducks Unlimited)
Date of Meeting:	January 30, 2015
Time:	10:00 a.m.
Location:	Landmark Planning and Design Inc. – 298 Waterfront Drive
In Attendance:	Greg Siekaniec, CEO Karla Guyn, National Director Conservation Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	**Process**	

	The project process was described as follows: 17. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 18. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 19. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 20. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. When do environmental considerations come into play? A. During the research and testing, and during the Water Rights License and Environmental License application process. Q. Will testing in the spring yield different results than testing done in the summer. A. The study team will look into this. Q. How will a well affect future development in the RM of St. Andrews and will there be a sufficient supply for future growth in the municipality? A. Based on the water volumes that St. Andrews currently uses, what Selkirk needs and anticipated growth based on the development plan for St. Andrews, calculations can be done to determine the ability of the aquifer to meet all needs. Q. Does the hydrogeologist have a sense of supply versus need? A. Yes, it is thought that the supply is sufficient to meet the need however testing can confirm this. Q. Will the data collected during testing be sufficient to predict how long the water supply will adequately meet the needs of both the RM of St. Andrews and the City of Selkirk (10, 20, 30 years)? A. The data collected during the testing will aid in this calculation however historical data will also be utilized. Additionally, the aquifer will be constantly monitored in dozens of locations locally and regionally. Q. What does the data collected at the provincial monitoring wells show? A. The monitoring wells show water levels and water trends over time. There is data on record from the 1970's. The data provides information on the how the aquifer reacts during different times of the year as well as during dry and wet periods. Q. Will the Bristol Aerospace contamination site impact this project? A. There are monitoring wells all around the site to ensure that the spill has not migrated. Any migration to date has not been in the direction of these potential wells.	

5.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: Jan 30, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title: Selkirk Water Supply (Selkirk Linen)
Date of Meeting: February 3, 2015
Time: 11:00 a.m.
Location: Selkirk Recreation Complex – 200 Easton Drive
In Attendance: William Burley, Selkirk Linen
Brian Sinclair, Selkirk Linen
Donovan Toews, Landmark Planning and Design Inc.
Curwood Ateah, Landmark Planning and Design Inc.
Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	**Process**	

	The project process was described as follows: 21. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 22. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 23. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 24. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Background – Selkirk Linen** Mr. Burley provided the study team with background information on the operation: • Current building is 38,000 square feet. • One gallon of water is used for each pound of laundry. • New technology uses much less water. • Machines cost $2 million each; they will depreciate in five years and then there will be a potential to upgrade. • Geothermal sources are used to pull water from the ground to cool the plant; all other water is acquired from the City. • Potential for sister company to move to Selkirk by 2025; this would increase water use by 70%.	
5.	**Question and Answer** Q. Where is the proposed well located? A. The proposed location is approximately 2.5 miles north-west of the City of Selkirk in the RM of St. Andrews at the corner of Meadowdale Road and McRae Road. Q. Who is responsible for the cost of the project? A. The City of Selkirk would be responsible for financing the project. Q. What is the life expectancy of the proposed well? A. Should the project prove sustainable and be able to be pumped without negative impacts to the hydrogeological system, the well field will be there for a long, long time. Water supplies typically see a “long term future” design life. The wells themselves will likely have a 30 to 40 year replacement life.	
6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been	

	collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: February 3, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title: Selkirk Water Supply (Parks Canada)

Date of Meeting: February 6, 2015

Time: 10:00 a.m.

Location: Landmark Planning and Design Inc. – 298 Waterfront Drive

In Attendance: Elvis Riou, Asset Manager – Parks Canada
Mark Schneider, Parks Canada
Donovan Toews, Landmark Planning and Design Inc.
Curwood Ateah, Landmark Planning and Design Inc.
Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	**Process**	

	The project process was described as follows: 25. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 26. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 27. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 28. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Background Information – Lower Fort Garry** Mr. Riou provided background information on the current waste water and water treatment systems for Lower Fort Garry. • In 2009 Stantec designed a new wastewater and water treatment system for Lower Fort Garry; the project was put on hold during the design process. • A new well is recommended for the site; they are unsure of the condition of the existing well but there is potential for contamination from surface water. • Lower Fort Garry has a treatment plant however it is used only for chlorination. • Currently, Lower Fort Garry is considering installation of new wells, a new water treatment plant and a new sewer treatment plant. • Current system is past its life expectancy; there is a need to address the issue now.	
5.	**Question and Answer** Q. How far from the distribution pipe is Lower Fort Garry? A. The study team will need to verify this. Q. What influence will this project have on Parks Canada (Lower Fort Garry)? A. There may be a potential for Lower Fort Garry to connect to the City's water system. Q. Will there be an impact on Lower Fort Garry's water supply? A. Testing and monitoring will be conducted to ensure that existing wells are not negatively impacted.	
6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been	

	collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Brenda Tesarski
		Date: Feb 6, 2015

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (St. Andrews Fire Departments)
Date of Meeting:	February 9, 2015
Time:	12:00 p.m.
Location:	Ricky's All Day Grill, Lockport
In Attendance:	Ken Peacock, Chief St. Andrews South Department Rick Keller, Lieutenant St. Andrews South Department Don Peters, Member St. Andrews South Department Ray Kelsch, Chief Clandeboye Fire Department Kim Henderson, Deputy Chief Clandeboye Fire Department Ed Paskaruk, Member Clandeboye Fire Department Ron Lucyshen, Chief Matlock Fire Department Rick Warner, Deputy Chief Matlock Fire Department Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire	

	would be to work together to find a solution that all parties can find acceptable.	
3.	**Process** The project process was described as follows: 29. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 30. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 31. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 32. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. Who will own the well? A. The City of Selkirk will own the well. Q. Will results of the study be made public? A. Yes, study results will be made public. Q. Will residents of St. Andrews be able to connect to the water supply? A. Water would not become potable until it reaches the Selkirk Water Treatment Plant therefore there would be limited opportunity for residential use in St. Andrews. There may be an opportunity for a pumping station at the well site for fire and farm use. Q. If a pumping station is considered, would the fire departments be consulted on what a pumping station should consist of and if so when would this consultation take place? A. Yes, the fire departments would be consulted about their needs but nothing will move forward until after testing has been completed and the site has been deemed sustainable. Q. Who would have access to the pumping station? A. If a pumping station is considered then the terms would have to be worked out with the municipality but potentially firefighters, farmers, RM employees, etc. Q. Who would be responsible for the maintenance of the well/pumping station? A. The City of Selkirk would be responsible. Q. How will Oak Hammock Marsh be affected by the potential well? A. Testing would determine any potential impact on Oak Hammock Marsh. Q. Why is the City of Selkirk accessing water in the RM of St. Andrews? A. Many options have been considered; this option appears to be the best in terms of location, cost, constructability and feasibility. The aquifer is a required resource that extends through the entire Interlake	

	region.	
5.	**Comments** • Fire Departments welcome another water source. • If a pumping station was considered, the fire department may require a loop to be installed at the site for the trucks to gain access. • It may be beneficial to contacting Ford Drilling. They know the area and did the previous test drilling.	
6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: Jan 30, 2015		

RECORD OF MEETING

Landmark
Planning & Design Inc.

Title: Selkirk Water Supply (Interlake Regional Health Authority)
Date of Meeting: February 9, 2015
Time: 2:30 p.m.
Location: IRHA – 233 Main St., Selkirk, MB
In Attendance: Gary Dandeneau, Director of Capital Planning
Glen Shymko, Selkirk General Facility Manager
Donovan Toews, Landmark Planning and Design Inc.
Curwood Ateah, Landmark Planning and Design Inc.
Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
3.	**Process**	

	The project process was described as follows: 33. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 34. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 35. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 36. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Background – IRHA** Mr. Dandeneau provided the study team with background information on the Interlake Regional Health Authority the operation, including: • The new Selkirk General Hospital will not use more water than the existing hospital. • There will be four wells located on the new hospital site – not enough water to justify geothermal. • The new hospital will be supplied completely with City of Selkirk water.	
5.	**Question and Answer** Q. How will population growth effect the proposed well? A. Water is a provincial resource that can be accessed outside of community boundaries; this is not an uncommon idea. Testing will determine if there is a sufficient supply to support both St. Andrews' and the City of Selkirk's projected growth. Q. Will test wells be drilled deep enough for water quality to be tested for odor and minerals? A. Yes, test wells will tap into both the upper and lower carbonate aquifers.	
6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: February 9, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Chamber of Commerce)
Date of Meeting:	March 3, 2015
Time:	3:00 p.m.
Location:	Canalta Hotel Selkirk – 1061 Manitoba Ave.
In Attendance:	Sherri Skalesky, Selkirk Biz Cindy Typliski, Sunova Credit Union Mike Klassen, K5 Insurance Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Jeff Bell, Friesen Drillers Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
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2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	

3.	**Process** The project process was described as follows: 37. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 38. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 39. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 40. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. Is it fair to say that the project is inevitable, it will just depend on which option is pursued? A. This option may or may not go forward depending on the study results, however there is an issue that needs to be addressed so something will need to be done. Q. What needs to be done in order to move forward? A. The testing needs to be done; if the site is determined to be sustainable then a decision would need to be made whether or not to proceed to the licensing stage. If licenses are granted then the construction process can begin. Q. Do you require a license to do testing? A. Yes, a Groundwater Exploration Permit is required. Q. Will any upgrading be required to Selkirk's existing water treatment plant? A. No, this option is a ground water source which is what the current treatment plant is rated for. A recent expansion has extended the life of the existing plant for another 25 years. Q. Will water service be expanded into the RM of St. Andrews? A. Not at this time however this is an option that the RM of St. Andrews and the City of Selkirk can discuss. Q. What would be considered a "show stopper" for this project? A. If there is a negative impact to the quality or quantity of water that cannot be appropriately addressed. Q. What has the reception to this project been so far? A. Residents within the study area have been concerned that their wells would be negatively impacted, however have appreciated the presentation and the question and answer period and have generally agreed that the testing is required. Q. Who provides funding for the project? A. The responsibility of cost will be shared between the City of Selkirk and the Manitoba Water Services Board. Q. Are you looking for anything specific from the Chamber of Commerce? A. No, just to be informed if there are any information gaps because we	

	would like to address all concerns. Q. What do you see as potential road blocks? A. If individual landowner concerns cannot be addressed or the testing presents problems that cannot be addressed. Q. How can we help with this road block? A. Talk to your members to provide them correct information. During the licensing process provide to the regulators.	
5.	**General Comments** • We are very concerned with the current situation and that a new water source be found immediately. • Concerned about timing, would like to see this project move forward quickly.	
5.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Brenda Tesarski
		Date: March 3, 2015

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Oak Hammock Marsh)
Date of Meeting:	March 10, 2015
Time:	2:00 p.m.
Location:	Oak Hammock March Interpretative Centre, One Snow Goose Bay, Stoney Mountain
In Attendance:	James Duncan, Director Wildlife Branch Robert Bruce, Regional Wetland and Wildlife Biologist Derek Clark, Drinking Water Officer Dave Roberts, Regional Wildlife Manager Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Jeff Bell, Friesen Drillers

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. Landmark is aware that this option has arisen in the recent past and that it has been a contentious one. Landmark will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	

3.	**Process** The project process was described to be as follows: 41. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 42. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 43. Hold follow-up meetings with landowners stakeholders and the general public to discuss study results (Fall 2015) 44. Apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. What impact will the Bristol contamination issue near Stonewall have on this project? A. The contamination is generally heading to the southeast away from the potential new well site, although its progress has recently halted. Q. Why isn't the Bird's Hill area not being considered as a potential site for a new well? A. It is one of the options that has been considered, however because of the cost of crossing the Red River and the Floodway and the piping distance it has been viewed as financially un-preferable. Q. Why isn't water from the Red River used for firefighting purposes, which may lessen the need for a new water system for the City of Selkirk? A. There is contamination issue with utilizing river water to fight fires, as it will be drawn through City pipes. Q. Will water use be limited to reflect the capacity of the recharge area? A. Yes, through the well testing program and analysis water usage will be limited to a sustainable volume. Q. Why is there a need for new water studies? A. The previous studies were undertaken in the 1980's and prior so this new analysis will re-confirm that there is sufficient quantities of water to serve local and regional requirements.	
5.	**General Comments** • The study should show the existing springs within the Oak Hammock Marsh area • The study should recognize that over the last decade or so there has been a lot of rainfall/snow which has helped in keeping groundwater levels high – during the 1980's there were drought issues	

6.	**Next Steps** Further meetings will be conducted with stakeholders and a public open house will be held for the general public. Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed, another round of meetings will be held to present finding from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Curwood Ateah		
Date: March 13, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Gerdau)
Date of Meeting:	April 7, 2015
Time:	10:00AM
Location:	Gerdau, 27 Main Street, Selkirk
In Attendance:	Cheryl Daher, Environmental Manager Curwood Ateah, Landmark Planning and Design Inc. Jeff Bell, Friesen Drillers Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** CA provided an introduction to the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	
4.	**Background - Gerdau** Ms. Daher provided the study team with background information on the	

	operation: • Gerdau has recently renewed their water license. • Water allocation to the operation was reduced with the renewal of the license. • Gerdau is expected to go to zero discharge within the next few years (recycle 100% water used in the operation)	
5.	**Question and Answer** Q. Why the sharp decline in water supply? A. This situation has occurred over time. The rock beneath Selkirk cannot transmit the amount of water that the City requires. In the past, the source would decline and alternative sources such as the Red River or the Selkirk Mental Hospital would supplement until such time that the City wells had recharged. Q. If given permission to obtain water samples from the site, what would you be testing for? A. We would be testing the quality of the water. Similar testing as completed by Frank Render in the late 1980's would be done; this would allow for a comparison of the data to show any changes.	
6.	**Next Steps** Technical studies and field work will begin in early Spring. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Brenda Tesarski
		Date: April 10, 2015

LANDOWNER INFORMATION SHEET

Selkirk Water Supply Project

1. **I own land:**
   - ☐ Within about one mile of the potential wells
   - ☐ Within about two miles of the potential wells
   - ☐ Other: ____________________

2. **The land I own has an occupied residence on it:** ☐ Yes ☐ No

3. **The land I own has one or more wells on it:** ☐ Yes ☐ No # of Wells: ________

   Notes: ____________________

4. **I understand the reasons why the City of Selkirk needs to look for a water supply option:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ____________________

5. **I understand that the City of Selkirk and the Manitoba Water Services Board wish to study this potential well option in order to help inform a decision on whether it is a feasible option:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ____________________

6. **I have concerns about this potential well:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ____________________

7. **A local well inventory would provide local well owners with information about their own well, and would provide the study team with information that would help ensure there would be no negative impacts to existing wells. If a well project were to go ahead, this information would help provide a base condition to compare to future well conditions. The inventory would be free of charge and the results would be provided to the landowner. Would you be willing to consider allowing a well assessment to be undertaken for your well(s).**

   ☐ Yes ☐ No ☐ I'd like to think about it

   Contact information:

   Name: ____________________

   Mailing address: ____________________

   Phone: ____________________ Email: ____________________

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8. **Below is an area for you to sketch your property. Please roughly indicate the location of your well in relation to the road, your house, landscaping, fencing, or any outbuilding on your property.**

Section/Township/Range:________________________ Size of parcel: ________________

NORTH

Other Comments: ____

____

____

____

Thank you for your helpful feedback.

PUBLIC OPEN HOUSE COMMENT SHEET

Selkirk Water Supply Project

If you need additional space for any of your answers below,
more space is provided on the reverse side of this page

1. **I live:**
   - ☐ Within about two miles of the potential wells
   - ☐ In RM of St. Andrews
   - ☐ In the City of Selkirk
   - ☐ Other: ______________________________

2. **I have a well on my property:** ☐ Yes ☐ No

3. **I understand the reasons why the City of Selkirk needs to look for a water supply option:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ______________________________

4. **I understand that the City of Selkirk and the Manitoba Water Services Board wish to study this potential well option in order to help inform a decision on whether it is a feasible option:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ______________________________

5. **I have concerns about this potential well:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ______________________________

6. **Please provide any other comments or questions you may have:**

   ____

7. **Did you find this information session helpful:**

   ☐ Yes ☐ No ☐ Somewhat

   Please Explain ______________________________

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Planning & Design Inc.

8. **How did you hear about this information session:**
   - ☐ Letter
   - ☐ Newspaper Ad (Circle one: Selkirk Journal or Selkirk Record)
   - ☐ Radio Ad (Circle one: 680 CJOB or 97.5 BIG or 99.1 FRESH)
   - ☐ Word of mouth
   - ☐ Other

Contact information:

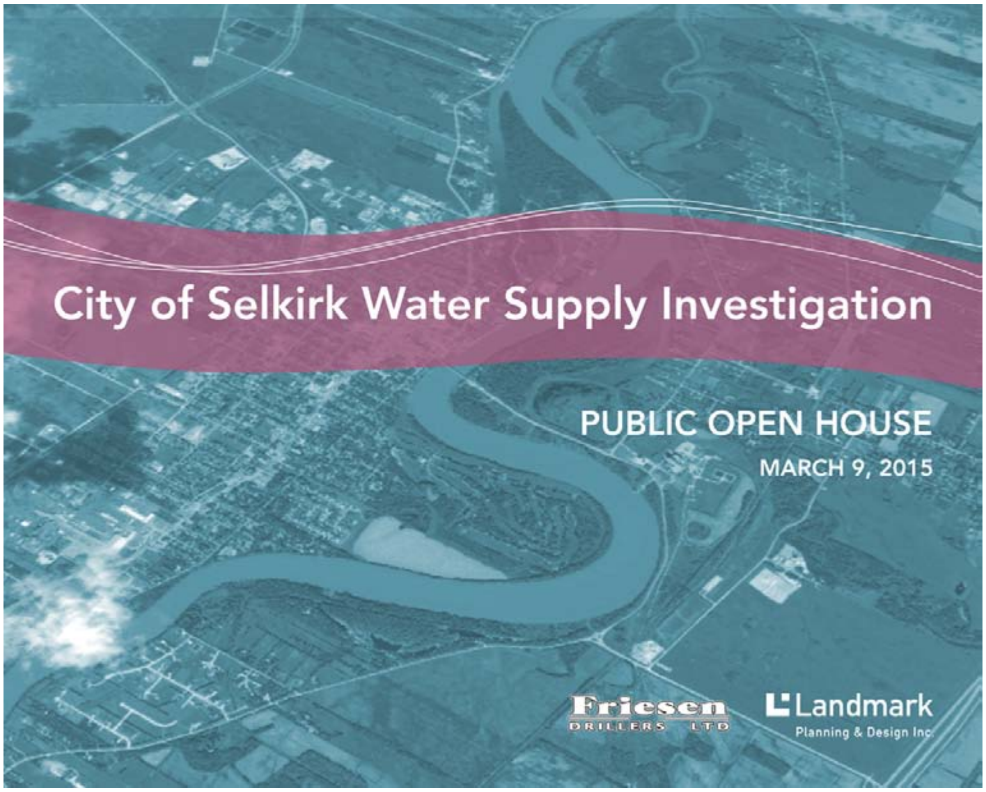
Name:________________________________

Mailing address: ________________________________

Phone:________________ Email: ________________________

Thank you for your helpful feedback.

Landmark Planning & Design Inc.



1

WELCOME

- The information displayed around the room will help explain the concept.
- Please feel free to view the information and speak with anyone wearing a name tag with questions, concerns, or thoughts you may have.
- The project team has begun speaking with stakeholder groups, such as local landowners, Ducks Unlimited, local water users, and other user groups to hear how a potential project might affect them and what could be done to address any concerns.
- Our goal for today is to explain the potential project, the process for the project, provide an opportunity to answer questions, and to listen to any feedback you may have.

Before leaving, please take a minute or two to fill out a comment sheet.

Thank you.

These display boards are available online at: landmarkplanning.ca

Friesen DRILLERS LTD

Landmark Planning & Design Inc.

PROJECT BACKGROUND

CLIENT:

- The City of Selkirk and the Manitoba Water Services Board have initiated this study.

CONSULTANT STUDY TEAM:

- These companies have been hired to assist with the process of studying the water supply, communicating with stakeholders and making a water license application as required:
  - Friesen Drillers Ltd.
  - Landmark Planning & Design Inc.

OVERVIEW:

- The purpose of the study is to examine the feasibility of a new expanded water supply for the City of Selkirk.
- If tests show that a new water supply, in this location, is not environmentally sustainable or will damage the existing the well system within the RM, the project will not be undertaken.
- Many stakeholders are interested and may be concerned about this project and it is important that our team hears all of those interests.

Friesen Drillers Ltd

Landmark Planning & Design Inc.

STUDY AREA

This map illustrates the approximate local area that will be studied in order to determine potential water supply options and issues.

STUDY PURPOSE AND TIMELINE

There are three main reasons for this study:

1. To establish a water supply for the City of Selkirk that will help meet its current and future demands.
2. To modify the existing water supply so that it can serve as a long-term back up water supply.
3. To ensure that existing and future wells in the immediate area are protected.

The study will include the following steps as illustrated below:

1. Hold landowner meetings, stakeholder meetings, and public meetings to discuss the overall study and to identify any concerns (January to March 2015).
2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015).
3. Hold follow-up meetings with landowners, stakeholders, and the general public to discuss study results (Fall 2015).
4. Apply for water licenses based on community dialogue and study results (Late 2015/Early 2016).

LANDOWNER/RESIDENT, STAKEHOLDER, AND PUBLIC CONSULTATION PROGRAM

A critical part of studying the water supply issue is ensuring that all individuals that have an interest in the study can be involved in the process. The study team will take the following steps to encourage participation in the study:

1. We will meet with individual landowners in the local study area to discuss the project.
2. We will identify and contact stakeholder groups and individuals that may have an interest in the project.
3. We will prepare contact information and prepare ways of notifying groups and individuals about project meetings. For example, we will meet with the RM of St. Andrews and the City of Selkirk, Manitoba Conservation and Water Stewardship, Manitoba Infrastructure and Transportation, Ducks Unlimited, the Lord Selkirk School Division, the Health Authority, and major water users.
4. We will hold public meetings for all those who are interested to discuss the project.

Meeting topics will include:

- Project Parameters
- Public Consultation Process
- Current Water Supply
- Water Supply Options
- Resident/Landowner Concerns
- Stakeholder Concerns
- Local Well Inventory
- Aquifer Testing
- Hydrogeological Analysis
- Government Approvals

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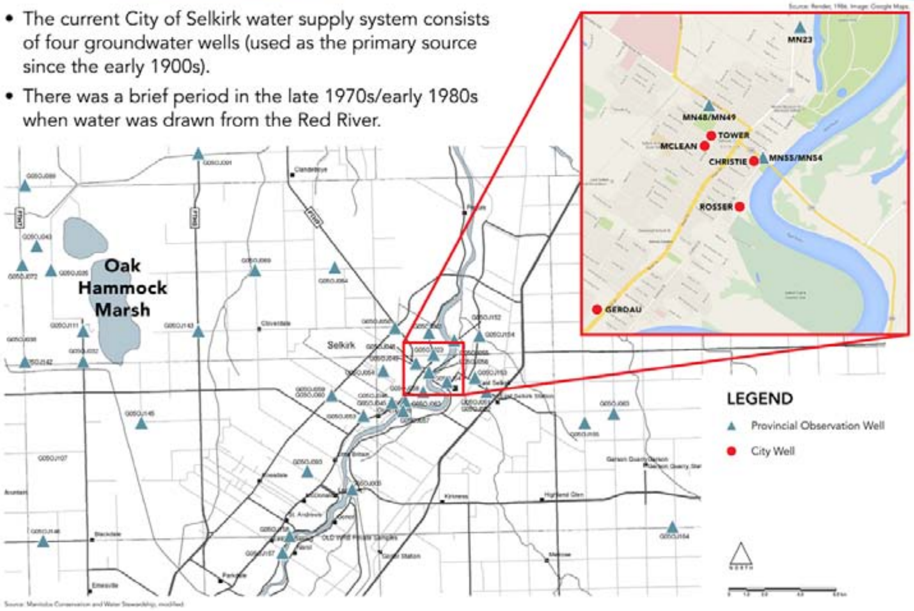
Landmark Planning & Design Inc.

6

CURRENT WATER SUPPLY SYSTEM

- The current City of Selkirk water supply system consists of four groundwater wells (used as the primary source since the early 1900s).
- There was a brief period in the late 1970s/early 1980s when water was drawn from the Red River.



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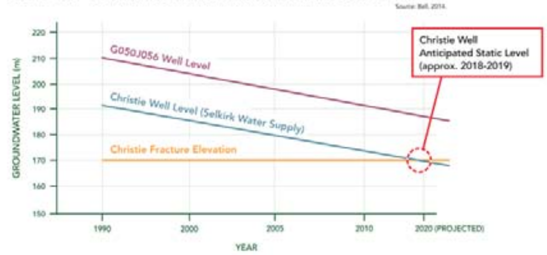
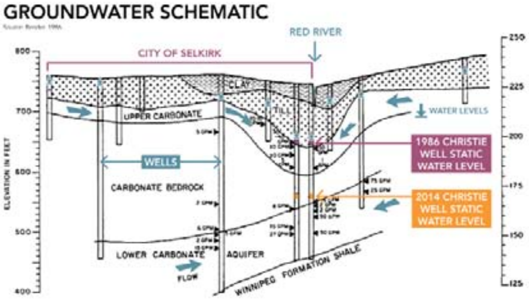
WATER SUPPLY CHALLENGES

- Since the 1970s it has been recognized by a variety of researchers that the City of Selkirk groundwater supply system is challenged to meet peak day water demands.
- Over the last few years there have been occasions when the City of Selkirk has been at risk of not being able to provide sufficient water for its users during peak times, including the need for fire fighting protection.
- The water supply system for the City of Selkirk will become critical in the next few years.
- Existing studies are too old to be relied upon; the proposed new studies are needed.
- The Christie Well supplies the majority of water to the City.

CITY OF SELKIRK WATER SUPPLY PROJECTIONS



GROUNDWATER SCHEMATIC

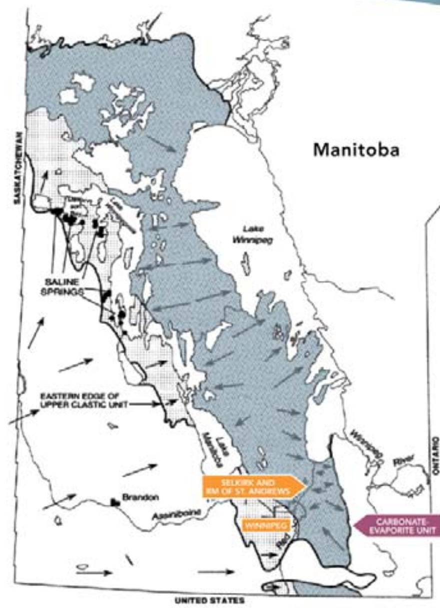


8

WATER SUPPLY CHALLENGES

CARBONATE EVAPORITE UNIT (INTERLAKE AQUIFER)

- This drawing illustrates how large the water source for this region is.
- The boundaries of the aquifer extend from the United States border to northern Manitoba through the Interlake region.
- The following display board illustrates specific areas where this aquifer is recharged each year.



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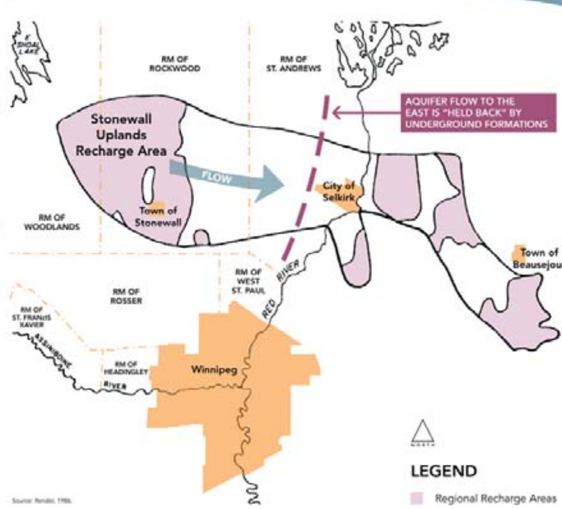
WATER SUPPLY CHALLENGES

- The main problem with the current water system is the ability of the aquifer to transmit groundwater from outside the city limits to within the city boundaries. This is due to a series of natural flow restrictions within the aquifer near the city limits.
- The regional aquifer, located mainly in the RM of Rockwood, appears capable of sustaining the required withdrawal rates, but not capable of transmitting the water to the current withdrawal locations (wells) at a sufficient rate.
- In order for the City of Selkirk to make use of the regional water supply, a well would have to be located within the RM of St. Andrews or further west.



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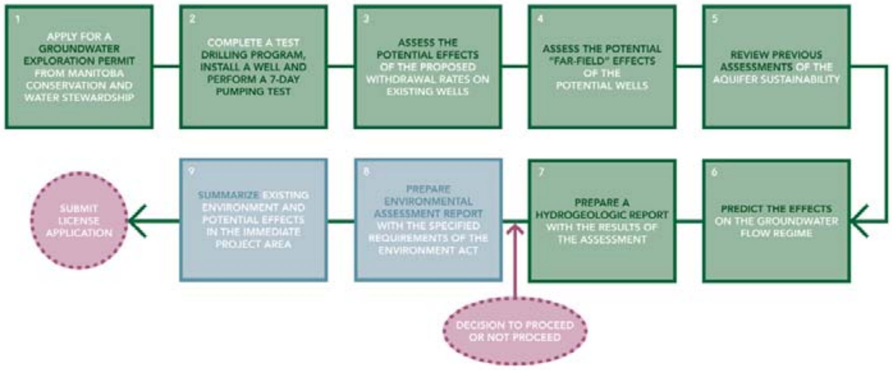
WATER INVESTIGATION PROGRAM

The following steps outline the major technical components of the water supply investigation. Once the technical investigations are complete, a decision would need to be made as to whether to proceed or not.



Friesen Drillers Ltd. Landmark Planning & Design Inc.

WATER SUPPLY OPTIONS

Over the years there have been a number of investigations to assess water supply options. This chart summarizes various considerations associated with each option.

POOR OR LOW | MODERATE OR QUESTIONABLE | GOOD OR VERY GOOD

	OPTION 1 Construct RM of St. Andrews Groundwater Wells	OPTION 2 Construct Oak Hammock Marsh Area Groundwater Wells	OPTION 3 Use Oak Hammock Marsh Surface Water	OPTION 4 Construct Birds Hill Groundwater Wells	OPTION 5 Construct Other Well Sites around Selkirk	OPTION 6 Use Existing or New Wells plus Water Conservation Program	OPTION 7 Use Red River Surface Water
DESCRIPTION	Construct a well and supply line in the RM of St. Andrews as identified in 1973.	Similar to Option 1 but there would be an additional six miles of piping.	As this is surface water, upgrades to the Selkirk water treatment plant may be required and an additional six miles of piping.	With this option, the water quality would be good and quantity is excellent, however water would be piped and pushed below the Red River and possibly the floodway.	New wells near the Manitoba Rolling Mills (MRM) plant and/ or wells east of the City of Selkirk, including East Selkirk/ Garson/ Tyndall.	Construct a new well within the City of Selkirk. This may meet short term requirements but within a few years the supply problem would return.	Construct a new water treatment plant along the Red River. This surface water would require treatment to meet new regulations.
POTENTIAL RISK/ IMPACT	VERY LOW	VERY LOW	VERY LOW	MODERATE Groundwater protection is limited due to permeable soil conditions.	MODERATE TO HIGH MRM wells may include pathogens and bacteria issues. With the East wells there is potential for nitrate and de-watering issues.	HIGH Will not meet Selkirk's medium or long term water requirements.	MODERATE TO HIGH There are pathogen and bacteria concerns – during flooding periods, there may not be adequate treatment.
QUALITY OF SUPPLY	Appears VERY GOOD This will be confirmed by detailed technical investigation.	Appears VERY GOOD Would require further investigation to confirm.	ACCEPTABLE	VERY GOOD	MRM wells blend groundwater with river water. Quality is good but requires treatment. High shallow bedrock conditions to the east have created some issues with nitrates in the groundwater.	ACCEPTABLE	Considered a HIGH RISK water supply. New regulations (put in place following the Walkerton and North Battleford E. Coli outbreaks) would mitigate this risk.
CONSTRUCTION FEASIBILITY	GOOD	MODERATE Extensive piping required.	MODERATE Water treatment plant upgrades and expensive piping.	POOR Extensive piping distance and the difficulty in piping across the Red River and Floodway.	QUESTIONABLE City of Selkirk may not be able to acquire the rights to use the water. High bedrock conditions and transmissive conditions are not good. In some cases pipes cross the Red River.	GOOD but supply not feasible. The bedrock in Selkirk is not transmissive enough to allow the volume of water to enter the area to meet current demands.	GOOD Water treatment plant required.
COST	GOOD	MORE EXPENSIVE	EXPENSIVE	VERY EXPENSIVE for piping works.	MORE EXPENSIVE May be costly to deal with MRM water rights. Piping costs expensive.	MORE EXPENSIVE (short term) or VERY EXPENSIVE and not cost effective (long term).	VERY EXPENSIVE Upgrade or construct the treatment plant and river intake.
COMMUNITY ACCEPTANCE	Concerns from local residents and landowners have to be addressed.	Concerns from local residents and landowners have to be addressed. Higher cost than Option 1.	Likely LOW due to high costs and potential concern from environmental groups.	Likely LOW due to high costs. Concerns from local residents/landowners have to be addressed.	LOW with MRM water as it has a high percentage of river water. Low to moderate with eastern wells as concerns from local residents and landowners have to be addressed.	LOW Since existing supply is not feasible and conservation measures are slow to be accepted.	LOW There were many complaints about the quality of water in the 1977/80 period and the poor perception of using river water.

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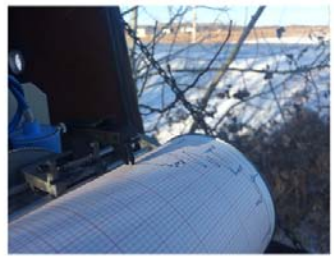
EXISTING LOCAL WELLS

- A very important part of the work relates to investigating existing wells or water supplies in the area to ensure they will not be negatively impacted.
- To obtain regulatory approval from the Province it must be demonstrated that existing wells in the area will not be negatively affected by the withdrawal of groundwater.
- With a well inventory program, all wells within the area of influence of a proposed supply location can be assessed to obtain information on existing condition and capacity. This way if any change occurs in the future, it will be clear what the change is and what must be done to address any change.
- All test results would be provided to the resident/landowner.

All residents and landowners within a two-mile radius of the supply well location would have their wells tested as part of this program, if they wish to participate.



14

INTER-MUNICIPAL WATER SHARING

- There are good examples of communities in Manitoba that obtain groundwater from sources located below other municipalities including:
  - The RM of East St. Paul has wells located in the RM of Springfield.
  - The City of Winkler has wells within the RM of Stanley, as does the City of Morden, and the Town of Roland.
  - Water supply for the RM of Headingly, the RM of St. Francis-Xavier, and the RM of Portage la Prairie are all serviced by a water treatment plant within the RM of Cartier. The RM of Rosser and the RM of Rockwood will be added to the system in the near future.
  - The City of Winnipeg acquires its water from Shoal Lake First Nation within the Province of Ontario.
  - The Town of Neepawa acquires its water supply from the RM of Langford.
- Potential benefits to the RM of St. Andrews include:
  - Potential for existing and future RM of St. Andrews residents/businesses to access this water supply.
  - Potential for filling station for firefighters or other agricultural or municipal purposes.
  - Examples of regional cooperation with a neighbouring municipality facing a challenging water shortage problem.

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WATER CONSERVATION MEASURES

- The City of Selkirk has instituted a number of water conservation measures including:
  - Water meters on all homes and businesses.
  - The City of Selkirk has changed every toilet in public facilities to be low flow toilets.
  - The City of Selkirk has updated its computerized water use monitoring equipment.
  - The City of Selkirk will be reducing the volume of water at the Selkirk Park pool by approximately 1500 cubic metres by raising the elevation of the base.
  - Retrofitting program for bathroom fixtures and kitchen appliances to reduce flows.
  - Water leakage review on public infrastructure.
  - Working with major water users (e.g. Lord Selkirk School Division) to reduce water usage.
- These measures will reduce the overall water requirement for the City of Selkirk but will not remove the need for a new water service.
- Further conservation measures may be explored.

COMMON QUESTIONS/INQUIRIES

The following are some common questions/inquiries from past consultation meetings:

1. **Will there be safeguards put in place to prevent the aquifer from being drawn down too much? If yes, what are they?**

   This project will not proceed if there are concerns that cannot be mitigated.

2. **What guarantees are there that this project would not cause local residents to have water supply issues?**

   An extensive analysis will be undertaken that includes water sampling and other scientific studies. If there are water quantity or quality issues, the project will not go ahead.

3. **Will there be maximum limits on what the City of Selkirk will be able to draw from the aquifer?**

   Limits need to be established to reflect the capacity of the aquifer to provide the water. The Province of Manitoba will not allow any groundwater extraction that is not sustainable.

4. **If water levels drop and local residents need to drill new or deeper wells, who will pay for this?**

   Even though the chances of an issue arising would be extremely low (to be confirmed by the studies), the City of Selkirk will be responsible for resolving any such issues. This will be a condition in the Water Rights License. A groundwater interference program will be put in place to deal with the possibility of water supply problems.

NEXT STEPS

The next steps will be to:

- Review the feedback provided.
- Conduct required technical studies and field work.
- Respond to questions as they arise.
- Schedule follow-up meetings.
- Make a decision as to how to proceed.

Thank you for attending this information session.

Please feel free to fill out a comment sheet before you leave.

CONTACT INFORMATION

Donovan Toews, MCP, MCIP
Landmark Planning & Design
Phone: 204-453-8008
Email: dtoews@mts.net

Daniel McDermid
Director of Operations
City of Selkirk
Phone: 204-785-4932
Email: dmcdermid@cityofselkirk.com

PROJECT WEBSITE

These display boards are available online at: landmarkplanning.ca

Friesen Drillers Ltd

Landmark Planning & Design Inc.

[Date]

Dear [Landowner],

We are writing to invite you to attend a meeting concerning the water supply for the City of Selkirk. As you may be aware, the City of Selkirk is looking at options of supplementing its current water supply, since the current supply has been identified as inadequate for future needs.

The water supply for the City of Selkirk is a regional issue which has been studied extensively over many years. We are aware that the subject of water supply has been controversial in the past for various reasons. Our company has been retained to initiate dialogue with all parties that may have an interest in this project, and to assist in finding an agreeable solution.

As a landowner within the study area, we would like to invite you to attend a special meeting to discuss key project parameters and to identify local issues and concerns. This will help our team begin to assess the potential solutions and any implications of those solutions.

A series of 90 minute sessions will be held at the Selkirk Recreation Complex (180 Easton Drive) as follows:

February 2, 2015	**1:00pm**
February 2, 2015	**4:00pm**
February 2, 2015	**7:30pm**
February 3, 2015	**1:00pm**
February 3, 2015	**4:00pm**
February 3, 2015	**7:30pm**

Due to limited seating capacity, please RSVP to Brenda Tesarski (Landmark Planning) at 204-291-0115 to confirm your attendance. This special meeting is for landowners within the study area only. Other stakeholder and public meetings will be held in the weeks and months to follow.

Sincerely,

p.p.
Donovan Toews, MCIP
Landmark Planning and Design

[Date]

Dear [Stakeholder],

We are writing to invite you a meeting concerning the water supply for the City of Selkirk. As you may be aware, the City of Selkirk is looking at options of supplementing its current water supply, since the current supply has been identified as inadequate for future needs.

The water supply for the City of Selkirk is a regional issue which has been studied extensively over many years. We are aware that the subject of water supply has been controversial in the past for various reasons. Our company has been retained to initiate dialogue with all parties that may have an interest in this project, and to assist in finding an agreeable solution.

As a stakeholder with a potential interest in the project, we would like to meet with you to discuss key project parameters and to identify local issues and concerns. This will help our team begin to assess the potential solutions and any implications of those solutions.

We will be contacting you shortly to arrange a meeting time that fits your schedule. We intend to hold a larger public meeting in early spring and would appreciate finding a time to meet with you before then.

Sincerely,

Donovan Toews, MCIP
Landmark Planning and Design Inc.

Selkirk Water Supply OPEN HOUSE

You're invited.

The water supply for the City of Selkirk requires upgrading in order to meet future needs. A potential new well site is being studied within the RM of St. Andrews. You are invited to attend a public open house for more information on this potential well project.

Monday March 9, 2015
2:30 – 4:30 pm and 6:30 – 8:30 pm
Banquet Hall
Selkirk Recreation Complex
180 Easton Drive, Selkirk

For more information please contact:
Brenda Tesarski
Landmark Planning and Design Inc.
204-291-0115 or btesarski@mymts.net

Landmark
Planning & Design Inc.

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Landowners – Well Inventory, Session 1)
Date of Meeting:	June 22, 2015
Time:	1:00PM
Location:	Canalta Hotel Selkirk – 1061 Manitoba Ave.
In Attendance:	Ken and Linda Bumstead George Fedoruk Fidelia Gayleard Brian Kazuk Gerald and Cynthia Lecocq Eleanor Panaschuk Bill Phelan Jeff Bell, Friesen Drillers Ltd. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** CA and JB provided an introduction to the Well Inventory Study for the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the meeting • Outline of the study process and the consultation process for this phase of the project	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures, the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses, and others. The desire	

	would be to work together to find a solution that all parties can find acceptable.	
3.	**Process** The project process was described as follows: 1. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 3. Hold follow-up meetings with landowners, stakeholders and the general public to discuss study results (Fall 2015) 4. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. What is the anticipated recovery time of the aquifer? A. This cannot be determined until the pump test. Q. What is the monitoring period? A. There will be continuous monitoring during the seven day pump test but monitoring wells will allow for monitoring to continue for years after initial testing. Q. The seven day pump test only pertains to those seven days, why not test for one year? A. This is not feasible with respect to quantity of water but the aquifer will be monitored for a very long period of time. Q. Is a seven day pump test enough? A. Yes, typically only a three day pump test is performed; the study team is going above and beyond to stress the aquifer. The study team will also analyze monitoring stations over a larger geographical area and historic data will provide information on how the aquifer responds to different weather patterns. Q. There is a concern that Selkirk will not follow through if there are negative impacts that need to be rectified; how will this be addressed? A. These concerns could be dealt with under the Water Rights Licence. There may be a potential to have the City of Selkirk provide a 100% letter of credit or have specific clauses written into the licence to protect the residents of St. Andrews. Q. How will perpetuity be guaranteed? A. Clauses can be written into the Water Rights Licence to protect future generations. Q. What happens next? A. We will confirm the monitoring plan, drill monitoring wells, install transducers, drill test wells, and then perform the pump test. Follow up meeting will be held with residents to share the test results. Q. Is there potential for contamination from groundwater infiltration? A. In this area groundwater is naturally filtered before it gets to St.	

	Andrews wells. Q. Why can't the City of Selkirk just build a treatment facility to treat the existing supply? A. The issue is that the City of Selkirk does not have enough water. Q. What is the water level depth in the St. Andrews area? A. We did not collect water level data during the inventory. Depths vary but we will get an idea of depth from the monitoring wells during the pump test. Q. Has the study team considered coordinating with the Federal Government for information? A. Yes, we do coordinate and use their data. Q. Will there be third party funding for residents to ask questions and have the information reviewed to protect the interests of St. Andrews residents? A. No, there will not be funding provided for third party review. Q. What good will the information do the residents if the study team says the project is feasible and the project moves forward. A. The project will not automatically move forward if the study proves the aquifer is sustainable. The Water Rights Act protects the residents of St. Andrews therefore if there are negative implications that cannot be resolved the project will not go ahead. Q. Will residents be notified of when the pump test will occur? A. Yes, residents will be notified my mail. Q. When do you anticipate drilling the test wells? A. Test wells will be drilled in the next couple of weeks (mid-July). Q. Where will monitoring wells be located? A. We have not confirmed the monitoring plan yet. Q. How close to the road (McRae Rd.) will the test wells be located? A. Test wells will be located in the right-of-way. A surveyor will mark the right-of-way. Q. How much water does the City of Selkirk want? A. 54 litres/second is what the City services now; they will only receive what the aquifer can sustain. Q. Why did the City not pursue this well option in 1973? A. Not aware of the politics behind the decision at that time. Q. Where will the water discharge to during the pump test? A. Water will be discharged into the ditch and be carried out of the area through natural drainage courses. Q. Why not test for quality from private wells. A. Testing is done from monitoring wells where variables are controlled and results are not skewed by private well maintenance.	
5.	**Next Steps** Field work will begin in mid-July and continue through to the end of August. During this period Friesen Drillers will drill monitoring wells, install transducers in both monitoring wells and in select private wells, drill test wells, and conducting the seven-day pump test. In the Fall, once data has been collected and analyzed another round of	

	meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: July 1, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Landowners – Well Inventory, Session 2)
Date of Meeting:	June 22, 2015
Time:	3:00PM
Location:	Canalta Hotel Selkirk – 1061 Manitoba Ave.
In Attendance:	Robert and Eileen Anderson Steve and Marilyn Chanas Tim Chanas Jeff Bell, Friesen Drillers Ltd. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** CA and JB provided an introduction to the Well Inventory Study for the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the meeting • Outline of the study process and the consultation process for this phase of the project	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures, the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses, and others. The desire would be to work together to find a solution that all parties can find acceptable.	

3.	**Process** The project process was described as follows: 1. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 3. Hold follow-up meetings with landowners, stakeholders and the general public to discuss study results (Fall 2015) 4. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. How will this affect Oak Hammock Marsh? A. The affects will be analyzed during the monitoring process/pump test. Q. Where is the pump test going to take place? A. Test wells will be drilled in the road right-of-way at the intersection of Meadowdale Road and McRae Road. Q. Where will the water be discharged during the pump test? A. Water will be discharged into the ditch and be carried out of the area through natural drainage courses. Q. Will transducers work in wells that have submersible pumps? A. Yes they will work. Q. How will the transducers work if the wells they are installed in are at different depths? A. Although the wells are at different depths it is the same aquifer. Q. What are the depths of this aquifer? A. Depths range from less than 50ft to 320ft. approximately. Q. How deep are the City of Selkirk's wells. A. The Christie Well is approximately 270ft deep. Q. If the City of Selkirk is in a depressed zone then why does water not collect there? A. Water does not collect there because the aquifer is cut off. Water that does pass into this area is being used up faster than it is being recharged. Q. Will the situation in the Rockies (no precipitation, dry, etc.) affect this aquifer? A. Will not be significantly affected by what happens in Alberta because of the way the water flows. Q. What will happen to artesian wells if you reverse the flow of water? A. Not sure how the test will affect the aquifer but earlier tests in the 1970's showed little effect on the aquifer. Q. Will turbidity in private wells change during the pump test? A. There has not been any issues with this in past tests because turbidity is usually associated with individual wells. Q. What happens if this option is not feasible? A. The City of Selkirk will have to look at other options; this project will not move forward.	

	Q. What happens if there are problems in the future? A. Ground water moves very slowly (meters per year). Continuous monitoring will detect issues in advance. If problems become evident, the City of Selkirk will have to cease pumping from this area and find another option. Q. Will future development for industry and residential be factored into this project? A. Yes, future development for both St. Andrews and Selkirk will be considered.	
5.	**Next Steps** Field work will begin in mid-July and continue through to the end of August. During this period Friesen Drillers will drill monitoring wells, install transducers in both monitoring wells and in select private wells, drill test wells, and conducting the seven-day pump test. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: July 1, 2015		

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Landowners – Well Inventory, Session 3)
Date of Meeting:	June 22, 2015
Time:	6:00PM
Location:	Canalta Hotel Selkirk – 1061 Manitoba Ave.
In Attendance:	Loretta Gratton Ken and Donna Klim Robert and Lois Mabee Vasilios and Pamela Oliver Jeff Bell, Friesen Drillers Ltd. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** CA and JB provided an introduction to the Well Inventory Study for the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the meeting • Outline of the study process and the consultation process for this phase of the project	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures, the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses, and others. The desire would be to work together to find a solution that all parties can find acceptable.	

3.	**Process** The project process was described as follows: 1. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 3. Hold follow-up meetings with landowners, stakeholders and the general public to discuss study results (Fall 2015) 4. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. How wide is the geological feature preventing water from entering into Selkirk? A. The feature is fairly large and would require a significant amount of mining to "break through" it. Q. How big will the test wells be? A. There will be two test wells, both 12 inches in diameter. Q. What will the effects of a dry year be on the aquifer? A. The study team will use and analyze historic monitoring data to verify the effects of a dry season(s) on the aquifer. Q. What will the depth of the test wells be? A. This will be determined at a later date but they will probably be drilled around 100ft. Q. Why is my well 40ft deep and my neighbours 100ft deep? A. Limestone fractures are at different levels and change from place to place; it depends where you were able to hit a fracture. Q. Where will the water from the pump test be discharged? A. Water will be discharged into the ditch and be carried out of the area through natural drainage courses. Q. Is there an agreement for landowners in case they have problems with their well. A. Potential to have a Groundwater Interference Plan form part of the Water Rights Licence. Q. Where will Selkirk's pumping station and treatment plant be located? A. Water will be piped to Selkirk's existing treatment plant. Nothing will be constructed in the RM of St. Andrews. Q. When would Selkirk like the project to be completed by? A. The City of Selkirk has put money in next year's budget for the project. Q. What other options is Selkirk investigating? A. This is the only option at this time. Q. If this option is only going to fulfill part of Selkirk's need, why are they not looking at options that can meet all of their needs? A. We do not know if and how much of Selkirk's requirements can be met by this option. We need to determine what is feasible and sustainable	

	for the proposed wells and proceed from there.	
5.	**Next Steps** Field work will begin in mid-July and continue through to the end of August. During this period Friesen Drillers will drill monitoring wells, install transducers in both monitoring wells and in select private wells, drill test wells, and conducting the seven-day pump test. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
		Recorded By: Brenda Tesarski
		Date: July 1, 2015

Landmark Planning & Design Inc.

RECORD OF MEETING

Title:	Selkirk Water Supply (Landowners – Well Inventory, Session 4)
Date of Meeting:	June 22, 2015
Time:	7:30PM
Location:	Canalta Hotel Selkirk – 1061 Manitoba Ave.
In Attendance:	Derrick and Lillian Cheslock Walter Cheslock Adam and Pamela Grocholski Kent and Jill Shackelford Kenneth Stewart Patti Vandenbossche Jeff Bell, Friesen Drillers Ltd. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** CA and JB provided an introduction to the Well Inventory Study for the City of Selkirk Water Project, including: • Introduction of the study team • Reason for the meeting • Outline of the study process and the consultation process for this phase of the project	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures, the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. The study team is aware that this option has arisen in the recent past and that it has been a contentious one. The study team will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses, and others. The desire would be to work together to find a solution that all parties can find	

	acceptable.	
3.	**Process** The project process was described as follows: 1. Hold landowner meetings, stakeholder meetings and public meetings to discuss the overall study and to identify any concerns (January to March 2015) 2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). 3. Hold follow-up meetings with landowners, stakeholders and the general public to discuss study results (Fall 2015) 4. Potentially apply for water licenses based on community dialogue and study results (Late 2015/Early 2016)	
4.	**Question and Answer** Q. How long will it take to receive water sample results? A. If we chose to run the sample results will be back in 4-5 weeks. Q. How will you determine which wells will have transducers installed? A. Transducers will be placed strategically within the study area to ensure good geographical coverage and will be installed in selected private wells where additional monitoring in that geographic area would be beneficial. Q. Can water quality decrease with depth? A. Quality may get a little worse with depth but water is very "fresh" in this area. Q. What are you expecting for draw down during the pump test? A. Not able to predict this until the test wells are drilled. Q. Where will the water from the pump test be discharged? A. Water will be discharged into the ditch and be carried out of the area through natural drainage courses. Q. If the project moves forward what will happen to Selkirk's other wells when they run dry? A. Selkirk's plan is to upgrade, support and maintain their existing well field. Q. What safeguards will be put in place for the residents of St. Andrews? A. A Ground Water Interference Plan can form part of the Water Rights Licence. Q. Where is the underground geological barrier that prevents water flow to Selkirk physically located? A. It's proximity in close to the Selkirk bypass. Q. How much water does Selkirk want? A. What they want is not important; they will be allowed to access only what is sustainable for the aquifer. Q. How are the transducers installed? A. The transducer is sanitized, attached to a string and dropped down the well.	

5.	**Next Steps** Field work will begin in mid-July and continue through to the end of August. During this period Friesen Drillers will drill monitoring wells, install transducers in both monitoring wells and in select private wells, drill test wells, and conducting the seven-day pump test. In the Fall, once data has been collected and analyzed another round of meetings will be held to present findings from the study. From there, a decision will be made as to whether or not to proceed with the project.	
Recorded By: Brenda Tesarski		
Date: July 1, 2015		

RECORD OF MEETING

Landmark
Planning & Design Inc.

Title:	Selkirk Water Supply (Landowner)
Date of Meeting:	October 22, 2015
Time:	1:00 p.m.
Location:	Selkirk Recreation Centre Banquet Hall – 180 Easton Drive
In Attendance:	13 Landowners (within 2 miles of the potential well site) Jeff Bell, Friesen Drillers Ltd. Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an overview of the City of Selkirk Water Supply Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process • Purpose of the meeting • Review of the study results • Next steps	
2.	**Project Background** The water supply for the City of Selkirk is inadequate for future needs. Even with conservation measures the current water supply requirements will be inadequate within the next few years. The City has been examining its options and has identified a preferred well location on a preliminary basis. The potential well is located within the RM of St. Andrews. Landmark is aware that this option has arisen in the recent past and that it has been a contentious one. Landmark will be working to ensure there is good communication between all parties that have an interest in this project including the RM of St. Andrews, the City of Selkirk, local landowners, RM and City residents and various stakeholder groups such as Ducks Unlimited, Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable.	

	A seven-day pump test and analysis is now complete and the results suggest that there is an excellent supply of water that can be utilized without impact to the long-term sustainability of the aquifer in the region and without impact to any local wells. Strict monitoring conditions in an Environmental Act License (if granted) will help ensure there is no impact now and in the future.	
3.	**Question and Answer** Q. What size of pipe was used during the pump test? A. A six-inch pipe was used during the pump test. Q. How many gallons per minute were pumped during the pump test? A. 800 gallons per minute were pumped during the pump test. Q. How much water does the City of Selkirk currently use? A. The City of Selkirk is currently licensed for 1,017.8 US GPM. Keep in mind Selkirk's water use is dropping over the years, and they have never pumped more than 65% of this volume. Q. How will drawdown experienced during the pump test affect private wells during a dry year? A. There is a sufficient supply of water; this level of drawdown during a dry year will have little or no effect on private wells. Q. How will the aquifer be affected with the City of Selkirk taking water from both inside and outside the geological boundary? A. There is no change in the amount of water available, the only change would be how the City accesses it. Q. If the City of Selkirk continues to draw water from the aquifer for several years, will the amount of water available continue to decrease until there is none left? A. No, the aquifer continuously recharges with precipitation. Q. Do the study team's recommendations need to be followed? A. The study team is not the governing authority in this process, the Province is. The Province doesn't have to adhere to our recommendations however the Province takes recommendations very seriously and they often become clause in the license. Q. Will residents get an opportunity to review the license before it is approved? A. The study team will provide all available information to the residents including the hydrogeological report which will outline licensing recommendations. Q. Who will monitor the City of Selkirk if a license is granted? A. It will be a recommendation that the City of Selkirk monitors all wells in the area and reports the results publically. Q. What type of assurances will be provided to hold the City of Selkirk accountable should issues arise with private wells in the area? A. A Groundwater Interference Plan will form part of the license and will identify the process that needs to be followed should issues arise with private wells in the area. The Well Inventory Program has formed a basis for the Groundwater Interference Plan. Q. Did water quality change during the pump test?	

	A. There was little or no change to water chemistry during the pump test. Q. Over time, with the City of Selkirk drawing water as proposed, will there be a change in water quality? A. Water chemistry is determined by what the water travels through in the aquifer and is not affected by the amount that is extracted. Q. How do nitrates enter the aquifer? A. Nitrates pass through the soil and can potentially contaminate the groundwater. Common sources of nitrates are agricultural applications, septic fields, septic tanks, abandoned wells and bad water hook-ups. Q. Is there a period of time between the Environmental Act License application and approval when the public can review and comment on the application? A. Yes, there is a 30 day period that allows for the public to review and comment on the application. Q. Can the City of Selkirk dispute the recommended amount of water the license will allow? A. The recommendations are based on the test results and what is sustainable. The City of Selkirk's needs can't influence what is sustainable.	
4.	**Next Steps** A public open house will be held for the general public to attend. The study team will report to the MWSB and the City of Selkirk Council. A decision will be made as to whether or not to proceed with an Environmental Act License application. If a license is granted construction will begin early in 2016.	
Recorded By: Brenda Tesarski		
Date: October 22, 2015		

RECORD OF MEETING

Landmark
Planning & Design Inc.

Title:	Selkirk Water Supply (Landowner)
Date of Meeting:	October 22, 2015
Time:	3:30 p.m.
Location:	Selkirk Recreation Centre Banquet Hall – 180 Easton Drive
In Attendance:	6 Landowners (within 2 miles of the potential well site) Jeff Bell, Friesen Drillers Ltd. Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

Item	Description	Action By
1.	**Introductions and Project Overview** DT provided an overview of the City of Selkirk Water Supply Project, including: • Introduction of the study team • Reason for the project being undertaken • Outline of the study process and the consultation process • Purpose of the meeting • Review of the study results • Next steps	
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	A seven-day pump test and analysis is now complete and the results suggest that there is an excellent supply of water that can be utilized without impact to the long-term sustainability of the aquifer in the region and without impact to any local wells. Strict monitoring conditions in an Environmental Act License (if granted) will help ensure there is no impact now and in the future.	
3.	**Question and Answer** Q. If the pump test had been pursued longer than seven days would drawdown have been greater? A. Yes, drawdown probably would have been greater but only by inches. Q. Will the test results from the seven-day pump test (drawdown and recovery) be consistent with prolonged use? A. Yes, the longer we do the pump test the greater confidence we have in the results. Q. Who will oversee the monitoring that is being recommended? A. Someone will be appointed to monitor and report the results annually. Q. Why is the Christie Well failing? A. There is no issue with the well itself. There is a geological barrier that restricts water from coming into the area. Q. How many wells does the City of Selkirk draw from. A. The City of Selkirk has 4 wells. The Christie Well is the primary well; the other three wells pump at a very low rate. Q. Is there a possibility that the Province will not consider the recommendations put forth by the study team? A. Typically, the Province takes recommendations seriously and will use the recommendations as clauses in the license.	
4.	**Next Steps** A public open house will be held for the general public to attend. The study team will report to the MWSB and the City of Selkirk Council. A decision will be made as to whether or not to proceed with an Environmental Act License application. If a license is granted construction would begin early in 2016.	
		Recorded By: Brenda Tesarski
		Date: October 22, 2015

RECORD OF MEETING

Landmark
Planning & Design Inc.

Title:	Selkirk Water Supply (Landowner)
Date of Meeting:	October 22, 2015
Time:	7:30 p.m.
Location:	Selkirk Recreation Centre Banquet Hall – 180 Easton Drive
In Attendance:	18 Landowners (within 2 miles of the potential well site) Jeff Bell, Friesen Drillers Ltd. Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

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3.	**Question and Answer** Q. At what depth is the geological barrier that restricts water from coming into the City of Selkirk? A. The barrier is approximately 30ft deep. Q. Was the pump test performed on both the wells located at the corner of Meadowdale Road and McRae Road. A. One well was pumped for two hours and the other well was pumped for seven days. Q. What was the pumping rate during the pump test? A. The well was pumped at a rate of 800 gallons per minute. Q. Is the pump rate of 800 gallons per minute sufficient to supply the entire City of Selkirk. A. Yes, currently the City of Selkirk is licensed for 600 gallons per minute. Q. How deep is the test well? A. The test well is approximately 100 ft. deep. Q. Will drawdown continue to increase with prolonged use? A. No, the aquifer is regularly recharged by the snow melt and rain cycles. Q. Can the ground shift and move to change the limestone fractures? A. No, the fractures have been where they are for thousands of years and are very large and very transmissive. Q. Did the "Render Report" conclude that this option is a poor one. A. No, the report actually recommended this option as a water source for the City of Selkirk at a pump rate of 1500 gallons per minute. Q. How will drawdown during both dry and wet years affect private wells? A. Private wells have proven their ability to deal with this type of fluctuation successfully (naturally) over the past 40 years. Q. What happens if there are issues with private wells in the future? A. There will be safe guards put in place to protect the wells in the area. Q. Where are the nitrate levels the highest? A. They are the highest in the southern part of the study area. Q. What are nitrates? A. Nitrates are a contaminant that enters the aquifer through abandoned water wells, bad water hook-ups, septic fields, septic tanks and agricultural applications. Q. Would it beneficial to drill the production well deeper? A. Drilling to 200 ft. did not hit any fractures in the limestone therefore going deeper would not contribute to the well supply. Q. Who determines how long the recommendations made by the study	

		team remain valid? A. Recommendations are valid for the term of the license and can be extended into the next license renewal if granted. Q. How will residents know what recommendations are included in the license? A. The study team will share the information via email with anyone wishing to be kept informed. Q. Why can't the City of Selkirk recycle the water they use? A. Provincial regulations do not allow for this as an option. Q. Will RM of St. Andrews residents get a copy of the Groundwater Interference Plan that will form part of the license so that they are aware of how issues are to be dealt with should they arise? A. The study team will share all information via email with those who have provided addresses and the information will be posted on the project website. Q. Who will be responsible for the annual monitoring program? A. The City of Selkirk will have to hire a qualified third party to undertake the monitoring program. Q. When the City of Selkirk's water license is renewed, will the existing recommendations/conditions remain in the license? A. It is very likely that they will be carried forwarded into future licenses, if granted. Q. Will there be political pressure from the City of Selkirk to remove conditions in the license. A. No comment. Q. How much authority does St. Andrews have over the decision to proceed with this option? A. St. Andrews does not have any authority in the decision-making process as they do not have ownership over the resource (Provincial jurisdiction). Q. Who would fund the Aquifer Management Program that is being proposed? A. This program is an inexpensive program to run; it will be recommended that the City of Selkirk fund the program. Q. What is the daily maximum drawdown that is being recommended? A. The testing had 8 feet at the well, pumping 800 US GPM after 7 days. The study team will calculate out the 75% totals and that is what the recommendation will be. Q. Will the City of Selkirk put restrictions on its resident's water use? A. Water use can be regulated by the water consumption rate charged to its users. The higher the rate the more the water use per capita would drop. Q. What can be expected on site if this project moves forward? A. At the site of the production well there will likely be an approach, a fence, and an electrical box. The pump will be installed inside the well. Q. Will the City of Selkirk continue to draw from their existing well field? A. Yes, they will maintain their existing well field and it will be a key part of their water supply. Q. Are there two Christie Wells? A. Yes there are two Christie Wells however one is not operational.	

	Q. What will prevent the RM of St. Andrews water supply from drying up like the City of Selkirk's? A. The reason the City of Selkirk's water supply is diminished is because of a geological barrier that prevents water from entering the area at a sufficient rate. The water regime in the RM of St. Andrews is ample. Q. Why not drill a new well to supply the City of Selkirk near the rolling mills? A. This is not an option for several reasons including that the City of Selkirk does not have a water treatment plant with the capability to treat surface water. Q. Will the recommendations be written in terms that the residents can interpret? A. Yes, and if there are questions, residents are encouraged to contact the study team for clarification. Q. Are licensing conditions transferable to new homeowners? A. Yes, conditions form part of the license and are applied to the study area as a whole, not individual property owners. Q. Will residents be responsible to pay the third party bill should the issue not be the City of Selkirk's responsibility? A. No, the City of Selkirk will be responsible for the assessment, however the resident would be responsible to pay for the cost of rectifying any problem that has not been caused by the proposed production well. Q. Who determines if the license gets renewed and if the proposed conditions remain in future licenses? A. The Province has authority to renew the license although renewal is not automatic. The Province will also determine what conditions could be included in future licenses. Q. What gives the City of Selkirk the right to take water and sell it? A. Water is a regional resource therefore the City of Selkirk is not taking it from the RM of St. Andrews. The residents of Selkirk are not paying for water, they are paying for a service (treatment and supply). Q. What happens if there are major impacts to the RM of St. Andrews residents? A. A condition of the license will be that the City of Selkirk must stop pumping and rectify any impacts to the RM of St. Andrews residents water supply.	
4.	**Next Steps** A public open house will be held for the general public to attend. The study team will report to the MWSB and the City of Selkirk Council. A decision will be made as to whether or not to proceed with an Environmental Act License application. If a license is granted construction would begin early in 2016.	
		Recorded By: Brenda Tesarski
		Date: October 22, 2015

RECORD OF MEETING

Landmark Planning & Design Inc.

Title:	Selkirk Water Supply (Stakeholder)
Date of Meeting:	November 10, 2015
Time:	1:30 p.m.
Location:	Canalta Hotel Selkirk – 1061 Manitoba Avenue
In Attendance:	Ed Paskaruk, Clandeboye Fire Department Rob Bruce, Manitoba Conservation and Water Stewardship Bill Gamache, Selkirk Mental Health Centre Brandon Logan, Selkirk Record Karla Guyn, Ducks Unlimited Jeff Bell, Friesen Drillers Ltd. Donovan Toews, Landmark Planning and Design Inc. Curwood Ateah, Landmark Planning and Design Inc. Brenda Tesarski, Landmark Planning and Design Inc.

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	Selkirk Mental Health Centre, local businesses and others. The desire would be to work together to find a solution that all parties can find acceptable. A seven-day pump test and analysis is now complete and the results suggest that there is an excellent supply of water that can be utilized without impact to the long-term sustainability of the aquifer in the region and without impact to any local wells. Strict monitoring conditions in an Environmental Act License (if granted) will help ensure there is no impact now and in the future.	
3.	**Question and Answer** Q. Will the Christie Well recover if the City of Selkirk starts using the proposed production well? A. Yes it will recover but it will probably take a number of years. Q. Why is the City of Selkirk's water supply declining? A. There is a geological barrier that prevents groundwater from coming into the City of Selkirk at a sufficient rate. Q. Is the population growth in Selkirk affecting their water supply? A. Selkirk is experiencing only moderate growth therefore the effect is marginal. Q. Is the proposed production well an existing well or a new well? A. The proposed production well is new. The wells drilled in 1973 in the same vicinity were previously capped approximately five years ago. Q. Did landowners residing close to the production well experience any negative effects during the pump test? A. No, they were able to carry on with daily activities with no effect. Q. When the production well is in use will it be pumping at the full rate of the pump test? A. No, the study team will be recommending a pumping rate of 75% of what was tested, and the well will only be used as required. Q. What pump rate is the City of Selkirk requesting. A. Consideration is not given to what the City of Selkirk wants. The study team will be recommending a pumping rate that is feasible and sustainable for the aquifer. Q. If the proposed production well goes online, how many wells will the City of Selkirk be using? A. The City of Selkirk will maintain their existing well field and will be drawing water from all wells at a rate that allows the Christie Well to recover. Q. Will the City of Selkirk's water quality improve with the use of the proposed production well? A. The water quality will be a bit better because the production well is drawing from a lower aquifer than the City of Selkirk's existing well field, which has better quality water. Q. How will the Bristol contamination site affect this project? A. Bristol is controlling the plume using a pump and treat system. The plume has not moved. Even if controlling stopped and the plume	

	migrated it would not be anywhere near this well location. Q. Where will the pipeline be located? A. The pipeline will be located in Provincial rights-of-way and it is likely that the City of Selkirk will keep the pipeline in their right-of-way once it reaches the city boundaries (this is not confirmed). Q. What is the probability of an Aquifer Management Committee being formed. A. It is very likely that the Province will accept the study team's recommendation to establish an Aquifer Management Committee; they are cheap to run and a strong committee to have in place. In order to be successful the committee should be comprised of area residents, and City and Provincial representatives, and other local interests.	
4.	**Next Steps** A public open house will be held for the general public to attend. The study team will report to the MWSB and the City of Selkirk Council. A decision will be made as to whether or not to proceed with an Environmental Act License application. If a license is granted construction would begin early in 2016.	
Recorded By: Brenda Tesarski		
Date: October 22, 2015		

COMMENT SHEET
Selkirk Water Supply Project

If you need additional space please use the reverse side of this page.

1. **I reside:**
   - ☐ Within about 1 mile of the potential wells
   - ☐ Within about 2 mile of the potential wells
   - ☐ Elsewhere in the RM of St. Andrews
   - ☐ In the City of Selkirk
   - ☐ Other: ____________________

2. **I have attended a previous meeting on this project:** ☐ Yes ☐ No

3. **Do you generally understand the results of the study?**

   ☐ Yes ☐ No ☐ Somewhat

   Please explain your answer: ____________________

4. **Is there other information you would like to see that would increase your understanding or confidence in the results?**

   ☐ Yes ☐ No

   Please describe the information: ____________________

5. **Have you found the communication process for this project to be helpful?**

   ☐ Yes ☐ No ☐ Somewhat

   Suggestions for improvement: ____________________

6. **Would you like to be included in our email notification list for project updates?**

   ☐ Yes ☐ No

   Email address (please print clearly):

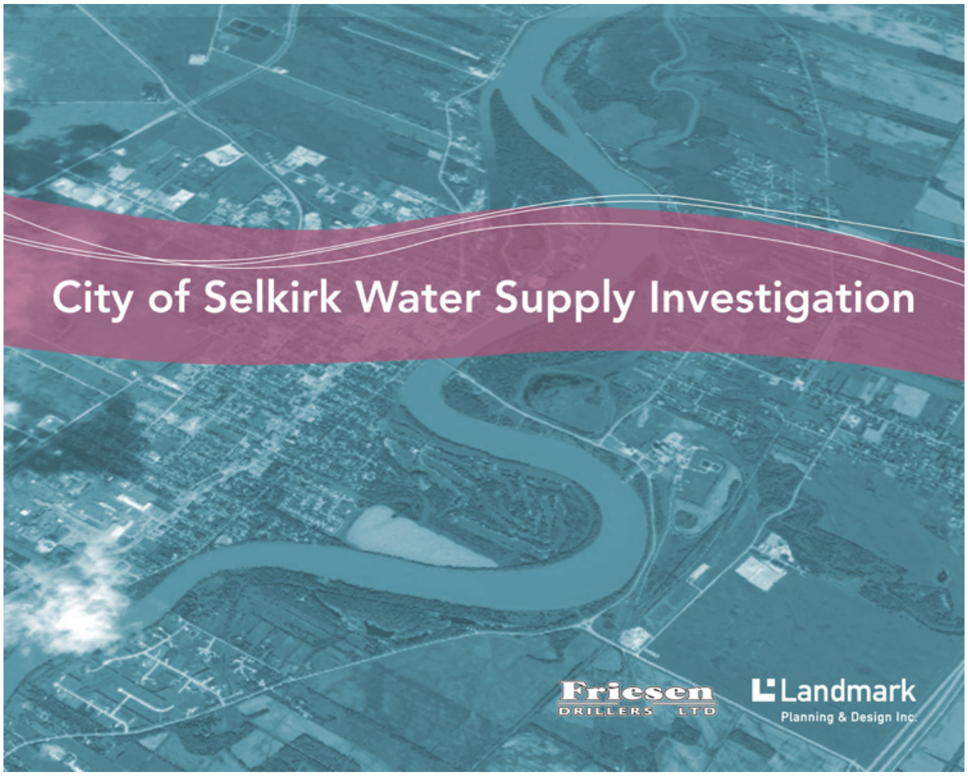
   ____

Thank you for your helpful feedback.

Landmark
Planning & Design Inc.

Landmark
Planning & Design Inc.

APPENDIX K
Public Open House Display Boards (Round 2)



WELCOME

- The information displayed around the room will help explain the latest findings.
- Please feel free to view the information and speak with anyone wearing a name tag with questions, concerns, or thoughts you may have.
- Our goal for today is to explain the study results, to provide an opportunity to answer questions, and to listen to any feedback you may have.

Before leaving, please take a minute or two to fill out a comment sheet.

Thank you.

PROJECT BACKGROUND

2

CLIENT:

- The City of Selkirk and the Manitoba Water Services Board initiated this study.

CONSULTANT STUDY TEAM:

- These companies have been hired to assist with the process of studying the water supply, communicating with stakeholders, and making a water license application as required:
  - Friesen Drillers Ltd.
  - Landmark Planning & Design Inc.

OVERVIEW:

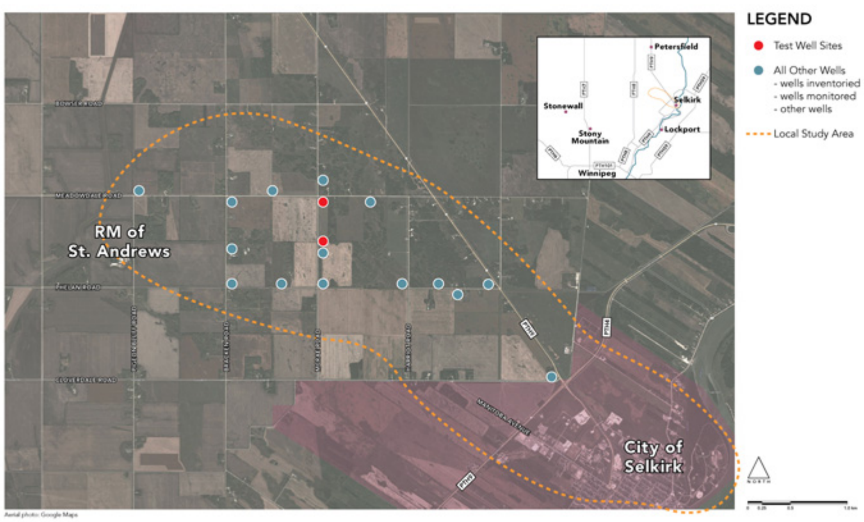
- The purpose of the study is to examine the feasibility of a new expanded water supply for the City of Selkirk.
- If tests show that a new water supply, in this location, is not environmentally sustainable or will damage the existing the well systems within the RM, the project will not be undertaken.
- Many stakeholders are interested and may be concerned about this project and it is important that our team hears all of those interests and concerns.

Friesen Drillers Ltd. Landmark Planning & Design Inc.

STUDY AREA

3

This map illustrates the area that is being studied.



STUDY PURPOSE AND TIMELINE

There are three main reasons for this study:

1. To establish a water supply for the City of Selkirk that will help meet its current and future demands.
2. To modify the existing water supply so that it can serve as a long-term back up water supply.
3. To ensure that existing and future wells in the immediate area are protected.

The study will include the following steps as illustrated below:

1. Hold landowner meetings, stakeholder meetings, and public meetings to discuss the overall study and to identify any concerns (January to March 2015). ✔
2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015). ✔
3. Hold follow-up meetings with landowners, stakeholders, and the general public to discuss study results (Fall 2015). UNDERWAY
4. Apply for water licenses based on community dialogue and study results (Late 2015/Early 2016).

LANDOWNER/RESIDENT, STAKEHOLDER, AND PUBLIC CONSULTATION PROGRAM

A critical part of studying the water supply issue is ensuring that all individuals that have an interest in the study can be involved in the process. The study team has been taking the following steps:

1. Meeting with individual landowners in the local study area to discuss the project.
2. Identifying and contacting stakeholder groups and individuals that may have an interest in the project.
3. Meetings with the RM of St. Andrews and the City of Selkirk, Manitoba Conservation and Water Stewardship, Manitoba Infrastructure and Transportation, Ducks Unlimited, the Lord Selkirk School Division, the Health Authority, and major water users.
4. Holding public meetings for all those who are interested to discuss the project.

Meeting topics have included:

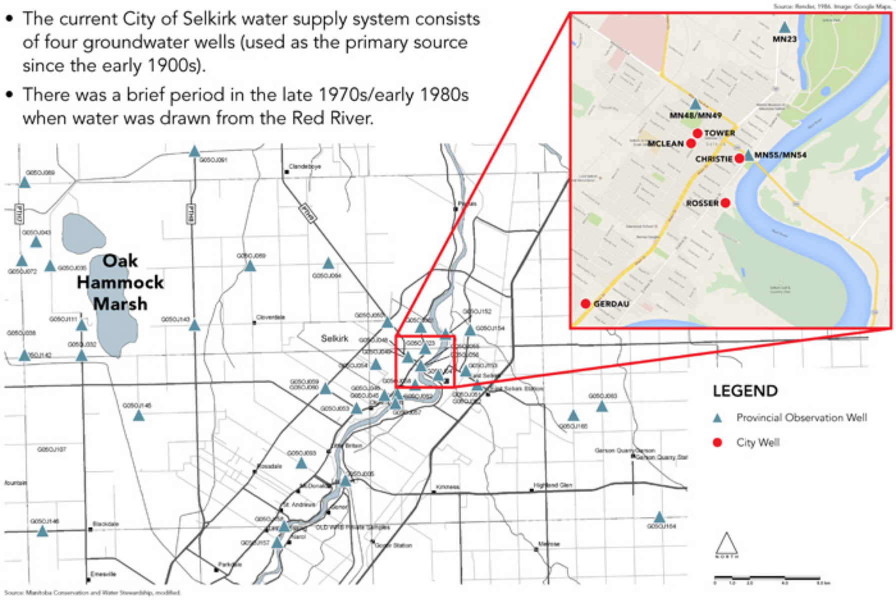
- Project Parameters
- Public Consultation Process
- Current Water Supply
- Water Supply Options
- Resident/Landowner Concerns
- Stakeholder Concerns
- Local Well Inventory
- Aquifer Testing
- Hydrogeological Analysis
- Government Approvals

Friesen Drillers Ltd
Landmark Planning & Design Inc.

6

CURRENT WATER SUPPLY SYSTEM

- The current City of Selkirk water supply system consists of four groundwater wells (used as the primary source since the early 1900s).
- There was a brief period in the late 1970s/early 1980s when water was drawn from the Red River.



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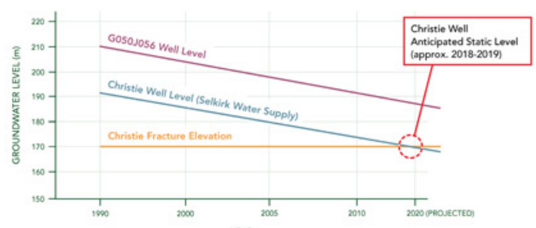
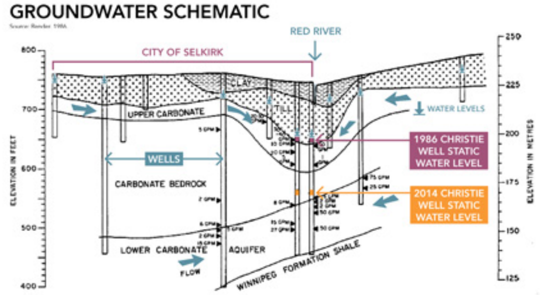
WATER SUPPLY CHALLENGES

- Since the 1970s it has been recognized by a variety of researchers that the City of Selkirk groundwater supply system is challenged to meet peak day water demands.
- Over the last few years there have been occasions when the City of Selkirk has been at risk of not being able to provide sufficient water for its users during peak times, including the need for fire fighting protection.
- The water supply system for the City of Selkirk will become critical in the next few years.
- Existing studies are too old to be relied upon; the proposed new studies are needed.
- The Christie Well supplies the majority of water to the City.

CITY OF SELKIRK WATER SUPPLY PROJECTIONS



GROUNDWATER SCHEMATIC



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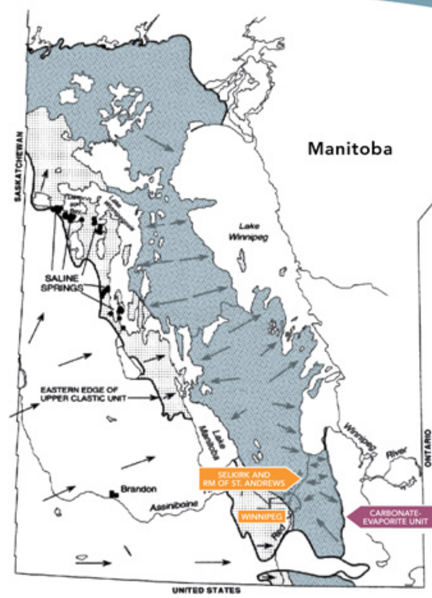
WATER SUPPLY CHALLENGES

CARBONATE EVAPORITE UNIT (INTERLAKE AQUIFER)

- This drawing illustrates how large the water source for this region is.
- The boundaries of the aquifer extend from the United States border to northern Manitoba through the Interlake region.
- The following display board illustrates specific areas where this aquifer is recharged each year.



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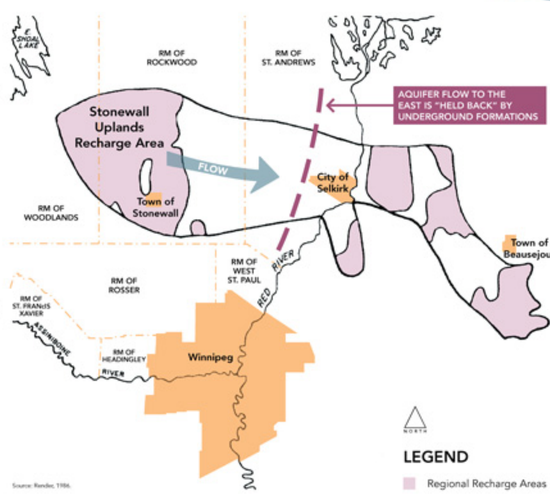
WATER SUPPLY CHALLENGES

- The main problem with the current water system is the ability of the aquifer to transmit groundwater from outside the city limits to within the city boundaries. This is due to a series of natural flow restrictions within the aquifer near the city limits.
- The main recharge area for the aquifer is located mainly in the RM of Rockwood and appeared capable of sustaining the required withdrawal rates, but is not capable of transmitting the water to the current withdrawal locations (wells) at a sufficient rate.
- In order for the City of Selkirk to make use of the regional water supply, a well would be located within the RM of St. Andrews or further west.



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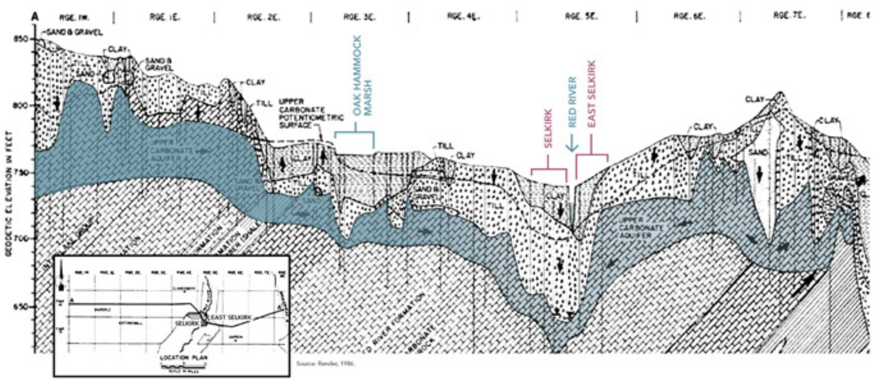
THE STONEWALL UPLANDS

- The Stonewall Uplands are know to be the major source of groundwater recharge to the St. Andrews/Selkirk area, contributing about 80% of the groundwater in the area.
- The groundwater flows from west to east, but is limited from entering the City of Selkirk by geographic features under the ground that form a kind of "underground dam".
- As a result, groundwater to the west of this "dam" "backs-up", which creates an artesian well effect in the area.
- These flowing artesian conditions result in groundwater discharge through springs and relief wells to the east of Oak Hammock Marsh, with excess flow ending up in local ditches.
- The majority of the groundwater that would be withdrawn by a future well would be replenished by groundwater that normally discharges to the surface.



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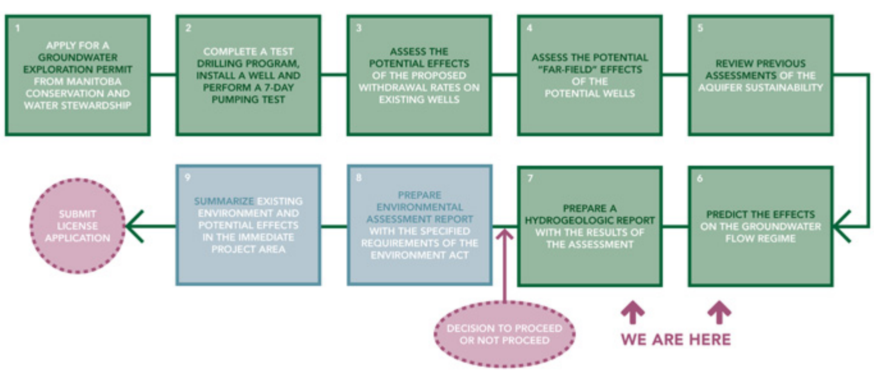
WATER INVESTIGATION PROGRAM

The following steps outline the major technical components of the water supply investigation. Once the technical investigations are complete, a decision would need to be made as to whether to proceed or not.



Friesen Drillers Ltd
Landmark Planning & Design Inc.

12

WATER SUPPLY OPTIONS

Over the years there have been a number of investigations to assess water supply options. This chart summarizes various considerations associated with each option.

POOR OR LOW | MODERATE OR QUESTIONABLE | GOOD OR VERY GOOD

	OPTION 1 Construct RM of St. Andrews Groundwater Wells (PREFERRED)	OPTION 2 Construct Oak Hammock Marsh Area Groundwater Wells	OPTION 3 Use Oak Hammock Marsh Surface Water	OPTION 4 Construct Birds Hill Groundwater Wells	OPTION 5 Construct Other Well Sites around Selkirk	OPTION 6 Use Existing or New Wells plus Water Conservation Program	OPTION 7 Use Red River Surface Water
DESCRIPTION	Construct a well and supply line in the RM of St. Andrews as identified in 1973.	Similar to Option 1 but there would be an additional six miles of piping.	As this is surface water, upgrades to the Selkirk water treatment plant may be required and an additional six miles of piping.	With this option, the water quality would be good and quantity is excellent, however water would be piped and pushed below the Red River and possibly the floodway.	New wells near the Manitoba Rolling Mills (MRM) plant and/ or wells east of the City of Selkirk, including East Selkirk/ Garson/ Tyndall.	Construct a new well within the City of Selkirk. This may meet short term requirements but within a few years the supply problem would return.	Construct a new water treatment plant along the Red River. This surface water would require treatment to meet new regulations.
POTENTIAL RISK/ IMPACT	VERY LOW	VERY LOW	VERY LOW	**MODERATE** Groundwater protection is limited due to permeable soil conditions.	**MODERATE TO HIGH** MRM wells may include pathogens and bacteria issues. With the East wells there is potential for nitrate and de-watering issues.	**HIGH** Will not meet Selkirk's medium or long term water requirements.	**MODERATE TO HIGH** There are pathogen and bacteria concerns – during flooding periods, there may not be adequate treatment.
QUALITY OF SUPPLY	Appears **VERY GOOD** This will be confirmed by detailed technical investigation.	Appears **VERY GOOD** Would require further investigation to confirm.	ACCEPTABLE	VERY GOOD	MRM wells blend groundwater with river water. Quality is good but requires treatment. High shallow bedrock conditions to the east have created some issues with nitrates in the groundwater.	ACCEPTABLE	Considered a **HIGH RISK** water supply. New regulations (put in place following the Walkerton and North Battleford E. Coli outbreaks) would mitigate this risk.
CONSTRUCTION FEASIBILITY	GOOD	**MODERATE** Extensive piping required.	**MODERATE** Water treatment plant upgrades and expensive piping.	**POOR** Extensive piping distance and the difficulty in piping across the Red River and Floodway.	**QUESTIONABLE** City of Selkirk may not be able to acquire the rights to use the water. High bedrock conditions and transmissive conditions are not good. In some cases pipes cross the Red River.	**GOOD** but supply not feasible. The bedrock in Selkirk is not transmissive enough to allow the volume of water to enter the area to meet current demands.	**GOOD** Water treatment plant required.
COST	GOOD	MORE EXPENSIVE	EXPENSIVE	**VERY EXPENSIVE** for piping works.	**MORE EXPENSIVE** May be costly to deal with MRM water rights. Piping costs expensive.	**MORE EXPENSIVE** (short term) or **VERY EXPENSIVE** and not cost effective (long term).	**VERY EXPENSIVE** Upgrade or construct the treatment plant and river intake.
COMMUNITY ACCEPTANCE	Concerns from local residents and landowners have to be addressed.	Concerns from local residents and landowners have to be addressed. Higher cost than Option 1.	Likely **LOW** due to high costs and potential concern from environmental groups.	Likely **LOW** due to high costs. Concerns from local residents/landowners have to be addressed.	**LOW** with MRM water as it has a high percentage of river water. Low to moderate with eastern wells as concerns from local residents and landowners have to be addressed.	**LOW** Since existing supply is not feasible and conservation measures are slow to be accepted.	**LOW** There were many complaints about the quality of water in the 1977/80 period and the poor perception of using river water.

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INTER-MUNICIPAL WATER SHARING

- There are good examples of communities in Manitoba that obtain groundwater from sources located below other municipalities including:
  - The RM of East St. Paul has wells located in the RM of Springfield.
  - The City of Winkler has wells within the RM of Stanley, as does the City of Morden, and the Town of Roland.
  - Water supply for the RM of Headingly, the RM of St. Francis-Xavier, and the RM of Portage la Prairie are all serviced by a water treatment plant within the RM of Cartier. The RM of Rosser and the RM of Rockwood will be added to the system in the near future.
  - The City of Winnipeg acquires its water from Shoal Lake First Nation within the Province of Ontario.
  - The Town of Neepawa acquires its water supply from the RM of Langford.
- Potential benefits to the RM of St. Andrews include:
  - Potential for existing and future RM of St. Andrews residents/businesses to access this water supply.
  - Potential for filling station for firefighters or other agricultural or municipal purposes.
  - Examples of regional cooperation with a neighbouring municipality facing a challenging water shortage problem.

Friesen Drillers Ltd
Landmark Planning & Design Inc.

WATER CONSERVATION MEASURES

- The City of Selkirk has instituted a number of water conservation measures including:
  - Water meters on all homes and businesses.
  - The City of Selkirk has changed every toilet in public facilities to be low flow toilets.
  - The City of Selkirk has updated its computerized water use monitoring equipment.
  - The City of Selkirk will be reducing the volume of water at the Selkirk Park pool by approximately 1500 cubic metres by raising the elevation of the base.
  - Retrofitting program for bathroom fixtures and kitchen appliances to reduce flows.
  - Water leakage review on public infrastructure.
  - Working with major water users (e.g. Lord Selkirk School Division) to reduce water usage.
- These measures will reduce the overall water requirement for the City of Selkirk but will not remove the need for a new water service.
- Further conservation measures may be explored.

COMMON QUESTIONS/INQUIRIES

The following are some common questions/inquiries from past consultation meetings:

1. **Will there be safeguards put in place to prevent the aquifer from being drawn down too much? If yes, what are they?**

   This project will not proceed if there are concerns that cannot be mitigated.

2. **What guarantees are there that this project would not cause local residents to have water supply issues?**

   An extensive analysis will be undertaken that includes water sampling and other scientific studies. If there are water quantity or quality issues, the project will not go ahead.

3. **Will there be maximum limits on what the City of Selkirk will be able to draw from the aquifer?**

   Limits need to be established to reflect the capacity of the aquifer to provide the water. The Province of Manitoba will not allow any groundwater extraction that is not sustainable.

4. **If water levels drop and local residents need to drill new or deeper wells, who will pay for this?**

   Even though the chances of an issue arising would be extremely low (to be confirmed by the studies), the City of Selkirk will be responsible for resolving any such issues. This will be a condition in the Water Rights License. A groundwater interference program will be put in place to deal with the possibility of water supply problems.

COMMON QUESTIONS/INQUIRIES

The following are some common questions/inquiries from past consultation meetings:

1. **Will there be safeguards put in place to prevent the aquifer from being drawn down too much? If yes, what are they?**

   This project will not proceed if there are concerns that cannot be mitigated.

2. **What guarantees are there that this project would not cause local residents to have water supply issues?**

   An extensive analysis will be undertaken that includes water sampling and other scientific studies. If there are water quantity or quality issues, the project will not go ahead.

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4. **If water levels drop and local residents need to drill new or deeper wells, who will pay for this?**

   Even though the chances of an issue arising would be extremely low (to be confirmed by the studies), the City of Selkirk will be responsible for resolving any such issues. This will be a condition in the Water Rights License. A groundwater interference program will be put in place to deal with the possibility of water supply problems.

NEXT STEPS

The next steps will be to:

- Review the feedback provided.
- Conduct required technical studies and field work.
- Respond to questions as they arise.
- Schedule follow-up meetings.
- Make a decision as to how to proceed.

Thank you for attending this information session.

Please feel free to fill out a comment sheet before you leave.

CONTACT INFORMATION

Donovan Toews, MCP, MCIP
Landmark Planning & Design
Phone: 204-453-8008
Email: dtoews@mts.net

Daniel McDermid
Director of Operations
City of Selkirk
Phone: 204-785-4932
Email: dmcdermid@cityofselkirk.com

PROJECT WEBSITE

These display boards are available online at: landmarkplanning.ca

Friesen Drillers Ltd
Landmark Planning & Design Inc.

October 5, 2015

Dear Sir or Madam,

We are writing to invite you to attend a special meeting to share the results of the field investigations for the water supply project for the City of Selkirk. As you may be aware, the City of Selkirk is looking at options of supplementing its current water supply, since the existing supply has been identified as inadequate for future needs.

You may or may not have attended a meeting this past May or June where key project parameters were discussed, identifying the construction of a well and supply line in the RM of St. Andrews as being the most feasible water supply option for the City of Selkirk. In order to determine the sustainability of this option an extensive field investigation has been undertaken. The field investigation included a local well inventory, private and provincial well monitoring and a seven-day pump test.

We would like an opportunity to share preliminary results of our investigation with you. Please consider attending the Selkirk Recreation Complex (180 Easton Drive) at one of the following times:

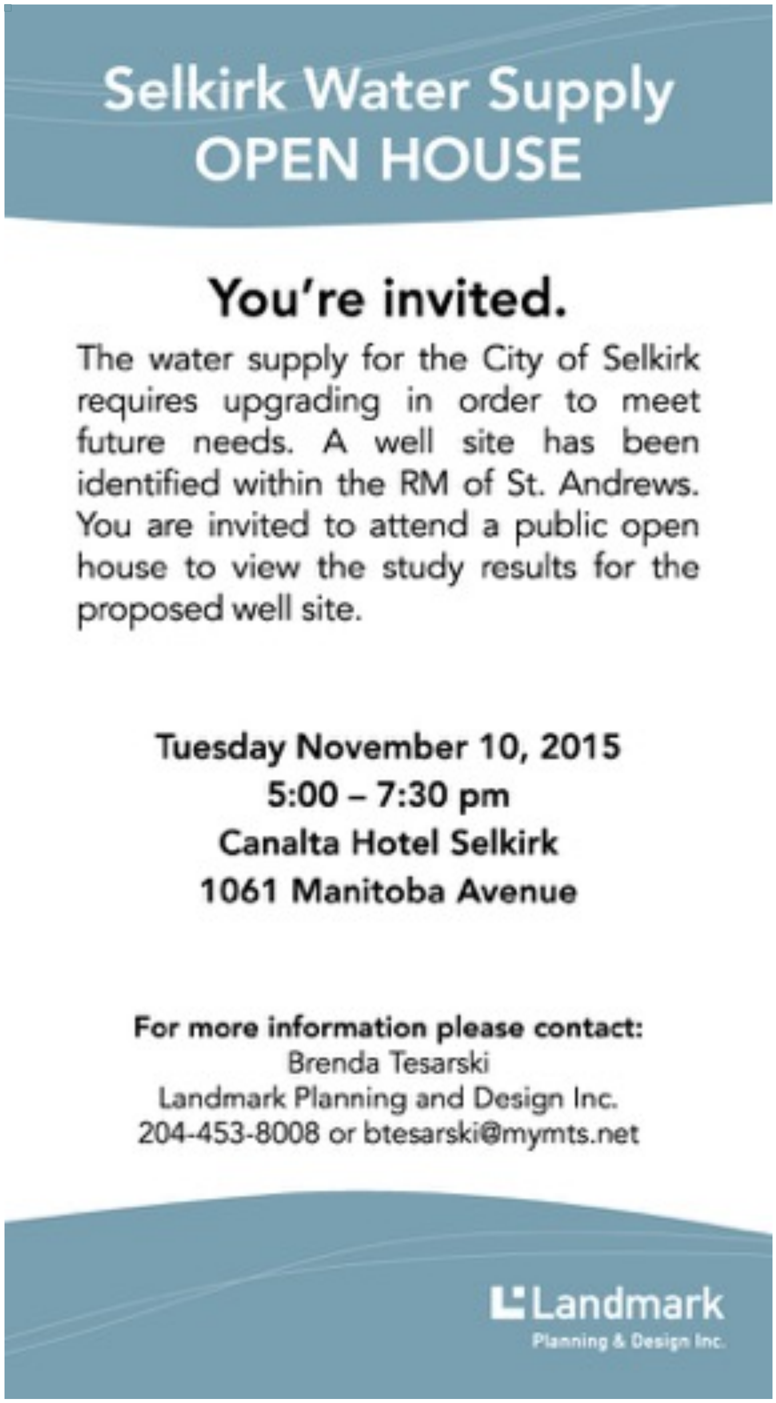
Thursday October 22, 2015	**1:00 p.m.**
Thursday October 22, 2015	**3:30 p.m.**
Thursday October 22, 2015	**7:30 p.m.**

Please RSVP to Brenda Tesarski (Landmark Planning) at 204-453-8008 or btesarski@mymts.net to confirm your attendance. This special meeting is by invitation only and is for landowners within the study area only. Other stakeholder and public meetings will be held in the weeks to follow.

Sincerely,

Donovan Toews, MCIP
Landmark Planning and Design Inc.

APPENDIX L
Notification Material (Round 2)



Appendix C

Existing and Past Water Rights Licenses

Licence to Use Water for MUNICIPAL Purposes

Manitoba
Natural Resources
Water Resources

1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

Issued in accordance with the provisions of
The Water Rights Act and regulations made thereunder.

Licence No. 89-7

Know all men by these presents that in consideration of and subject to the provisoes, conditions and restrictions hereinafter contained, the Minister of Natural Resources for the Province of Manitoba does by these presents give full right and liberty, leave and licence to THE TOWN OF SELKIRK

of the in the Province of Manitoba (hereinafter called "the LICENSEE") to divert water for municipal purposes from a fractured limestone aquifer by means of three water wells and pumps (hereinafter called "the WORKS"), located on the following described lands:

a) In the Town of Selkirk in the Province of Manitoba, and being Lot 6 in Block One, which Lot is shown on a plan of survey of part of Lot 52 of the Parish of St. Clements, registered in the Winnipeg Land Titles Office, Lisgar Division, as No. 26,

b) In the Town of Selkirk in the Province of Manitoba, and being Lot 234, which Lot is shown on a plan of survey of part of Lots 49 to 51 of the Parish of St. Clements registered in the Winnipeg Land Titles Office, Lisgar Division, as No. 11,

(c) In the Town of Selkirk, the 66-foot right-of-way of Roeser Avenue, east of Eveline Street,

and more particularly shown on a plan filed in the office of the Director, Water Resources Branch, a copy of which plan is hereto attached and marked Exhibit "A", "B", and "C".

This Licence is issued upon the express condition that it shall be subject to the provisions of the Water Rights Act and Regulations and all amendments thereto and, without limiting the generality of the aforesaid, to the following terms and conditions, namely:

1. The water shall be used solely for municipal purposes.
2. The WORKS shall be operated in accordance with the terms herein contained.
3. The rate at which water shall be diverted pursuant hereto shall not exceed 0.091 cubic metres of water per second and the total quantity diverted in any one year shall not exceed 2160 cubic decametres.
4. No water shall be diverted during any period when the water level in the said aquifer as measured at the said well is more than 58 metres beneath the surface of the ground.
5. The LICENSEE does hereby remise, release and forever discharge Her Majesty the Queen in Right of the Province of Manitoba, of and from all manner of action, causes of action, claims and demands whatsoever which against Her Majesty the LICENSEE ever had, now has or may hereafter have, resulting from the use of water for municipal purposes.
6. In the event that the rights of others are infringed upon and/or damage to the property of others is sustained as a result of the operation or maintenance of the WORKS and the rights herein granted, the LICENSEE shall be solely responsible and shall save harmless and fully indemnify Her Majesty the Queen in Right of the Province of Manitoba, from and against any liability to which Her Majesty may become liable by virtue of the issue of this Licence and anything done pursuant hereto.
7. This Licence is not assignable or transferable by the LICENSEE and when no longer required by the LICENSEE this Licence shall be returned to the said Minister for cancellation.
8. Records of the following shall be kept by the LICENSEE:
   (a) Quantities of water withdrawn from the said well daily and annually, and
   (b) Static and pumping water levels at the said well, measured not less than once each week, expressed in terms of metres beneath the surface of the ground, and copies of such records shall be furnished to the Director, Water Resources Branch, and/or his Agents upon request.
9. Upon the execution of this Licence the LICENSEE hereby grants the said Minister and/or his Agents the right of ingress and egress to and from the said lands for the purpose of inspection of the WORKS and the LICENSEE shall at all times comply with such directions and/or orders that may be given by the Minister or his Agents in writing from time to time with regard to the operation and maintenance of the WORKS and appurtenances.
10. If for any reason whatsoever the Minister deems it advisable to cancel this Licence, he may do so by letter addressed to the LICENSEE at 200 Eaton Avenue, Selkirk, Manitoba, R1A 0W6 and thereafter this Licence shall be determined and at an end.
11. The term of this Licence shall be twenty (20) years and this Licence shall become effective only on the date of execution hereof by a person so authorized in the Department of Natural Resources.
12. The LICENSEE does hereby agree to correct, to the satisfaction of the said Minister, any well failures which are partly or wholly attributable, in the opinion of the Minister, to the diversion of water as authorized by this License. This applies only to wells constructed and operating prior to the date of issuance of this License.

In witness whereof I the undersigned hereby agree to accept the aforesaid Licence on the terms and conditions set forth therein and hereby set my hand and seal this 11 th day of October A.D. 1988

SIGNED, SEALED AND DELIVERED
in the presence of

Gloria J Vinie
Witness

K R Conrad
Town of Selkirk (Seal)
Licensee

Canada
PROVINCE OF MANITOBA
To Wit:

I, GLORIA J. VINIE of the Town of Selkirk in the Province of Manitoba Asst. Secretary-Treasurer
Occupation

MAKE OATH AND SAY:

1. That I was personally present and did see K. R. CONRAD, the within named party, execute the within instrument.
2. That I know the said K. R. CONRAD and am satisfied that he is of the full age of eighteen years.
3. That the said instrument was executed at aforesaid and that I am subscribing witness thereto.

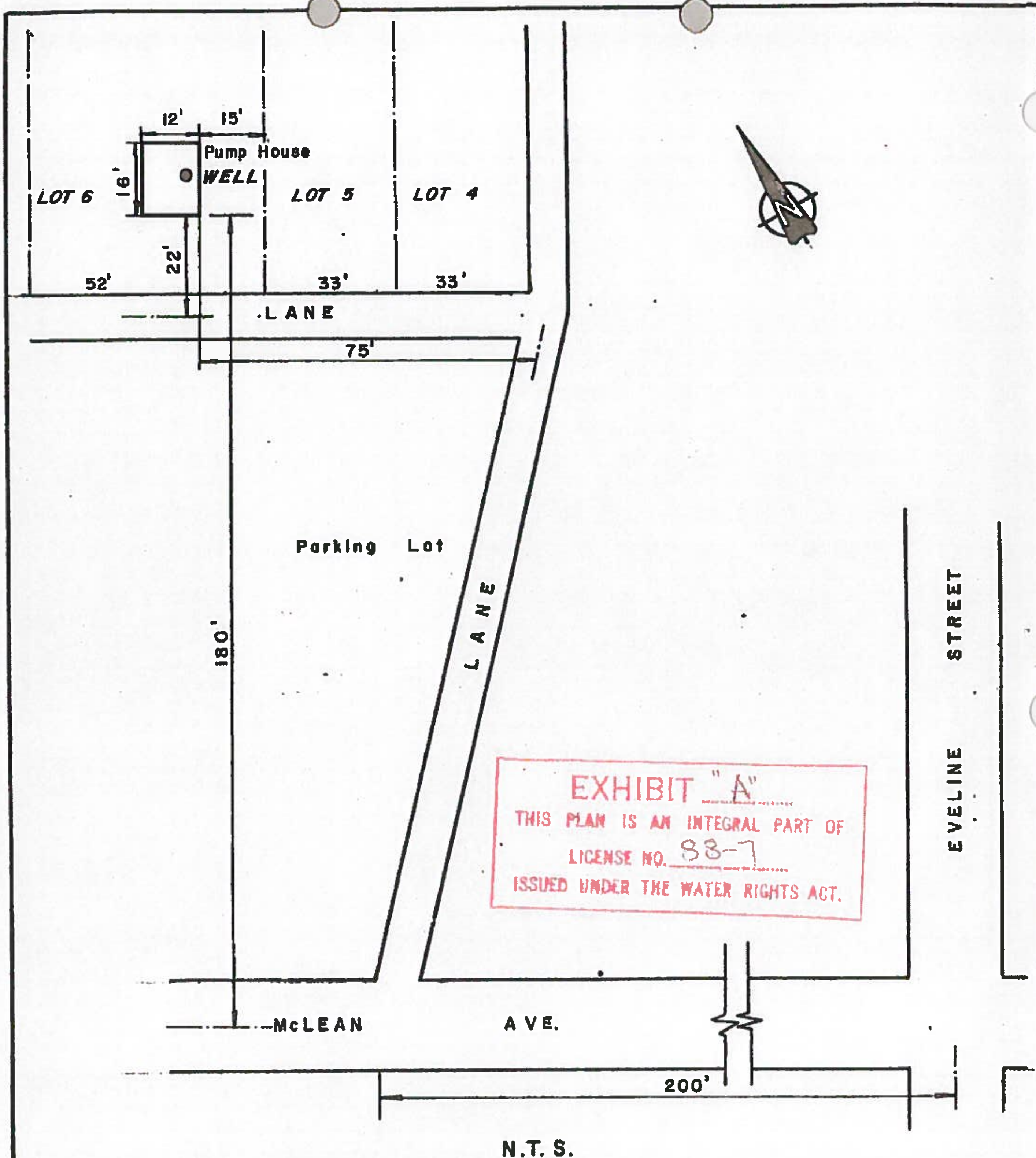
SWORN BEFORE me at the Town
of Selkirk
in the Province of Manitoba
this 11th day of October A.D. 1988.

Gloria J Vinie
Witness

Marolyn Carol Payne
A COMMISSIONER FOR OATHS
in and for the Province of Manitoba.
My commission expires Feb. 13/89.

Issued at the City of Winnipeg, in the Province of Manitoba, this 21 day of October A.D. 1988.

The Honourable the Minister of Natural Resources



LOCATION PLAN
OF
PRODUCTION WELL
FOR
CHRISTIE
(TOWN OF SELKIRK)

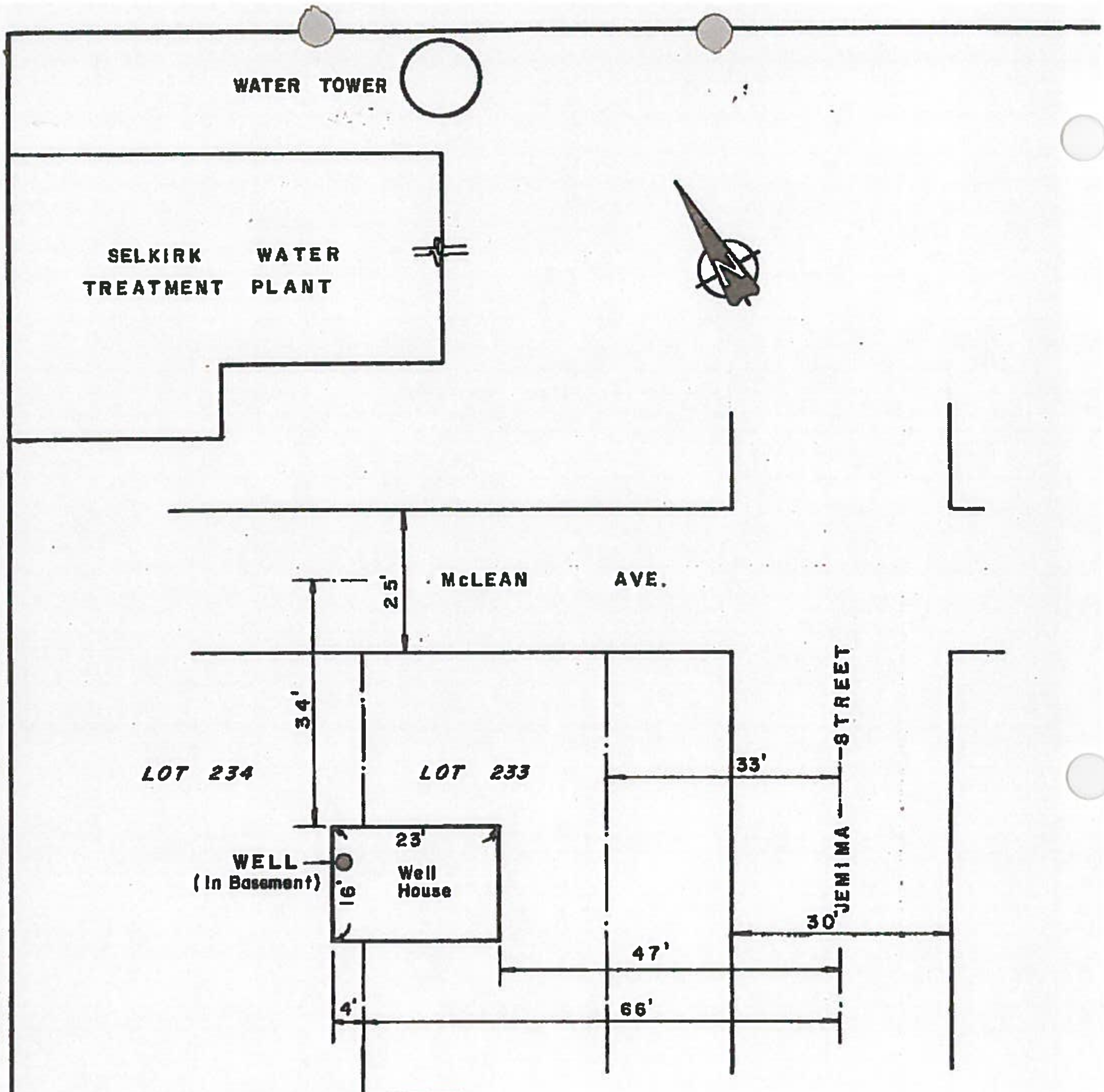
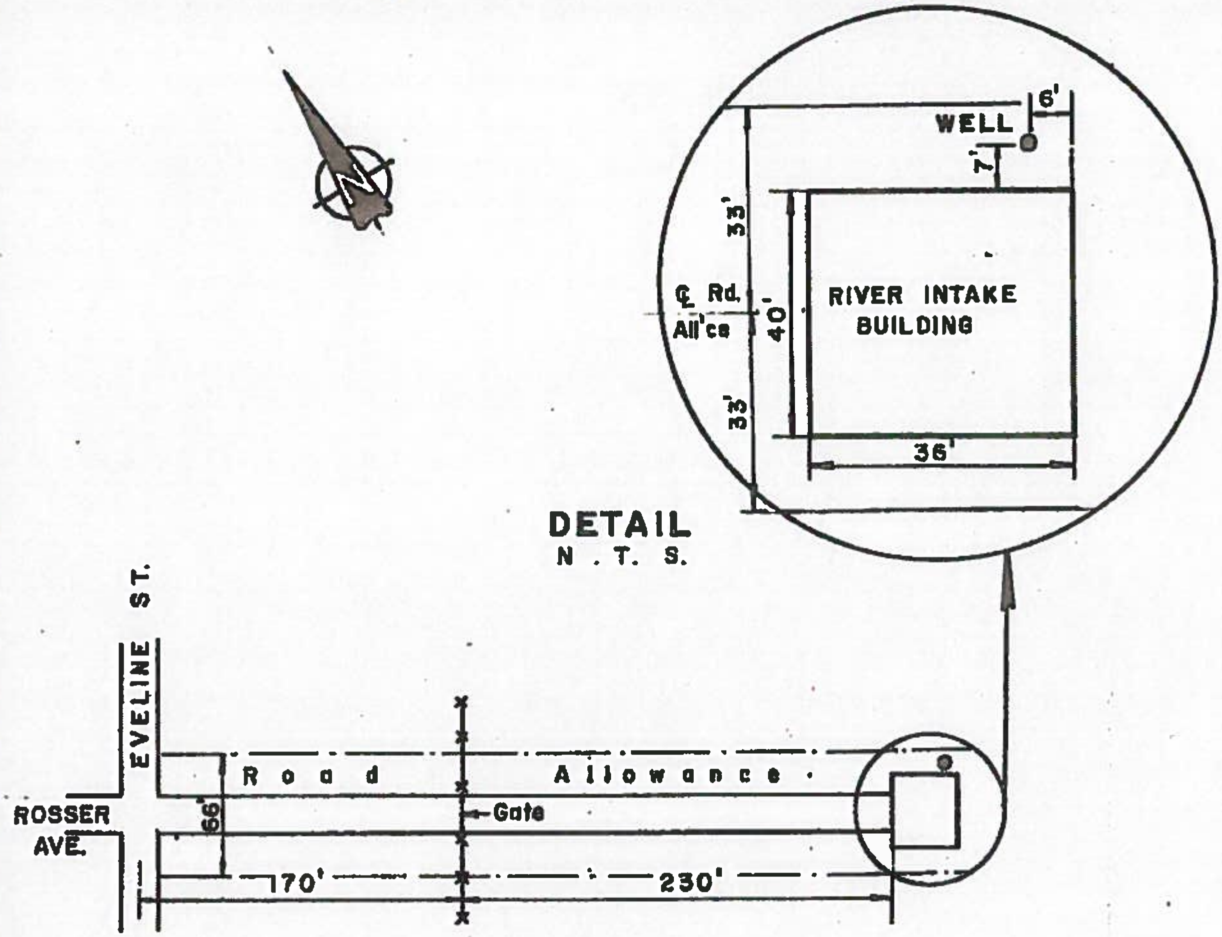


EXHIBIT "B"
THIS PLAN IS AN INTEGRAL PART OF
LICENSE NO. 88-7
ISSUED UNDER THE WATER RIGHTS ACT.

N. T. S.

LOCATION PLAN
OF
PRODUCTION WELL
FOR
McLEAN AVE.
(TOWN OF SELKIRK)



PLAN
N. T. S.

EXHIBIT "C"
THIS PLAN IS AN INTEGRAL PART OF
LICENSE NO. 88-7
ISSUED UNDER THE WATER RIGHTS ACT

LOCATION PLAN
OF
PRODUCTION WELL
FOR
ROSSER AVE.
(TOWN OF SELKIRK)

MG-14854 (English)

Licence to Use Water for Municipal Purposes

Manitoba Conservation Water Resources
200 Saulteaux Cres. Winnipeg, Manitoba R3J 3W3

Issued in accordance with the provisions of **The Water Rights Act** and regulations made thereunder.

Licence No.: **2000-047**
(Original Lic. No.: 88-7)
U.T.M.: Zone 14 651197 E
5556742 N

Know all men by these presents that in consideration of and subject to the provisoes, conditions and restrictions hereinafter contained, the Minister of Conservation for the Province of Manitoba does by these presents give full right and liberty, leave and licence to **The City of Selkirk** in the Province of Manitoba (hereinafter called "the LICENSEE") to divert water for **municipal** purposes from a **fractured limestone** aquifer by means of four (4) water wells and pumps (hereinafter called "the WORKS"), located on the following described lands:

a) Christie Well - in the City of Selkirk, in the Province of Manitoba, and being Lot 6 which is shown on a plan of survey of part of River Lot 52 of the Parish of St. Clements, registered in the Winnipeg Land Titles Office as No. 12,354 and as further described in Certificate of Title No. C90513,

b) McLean Well - in the City of Selkirk, in the Province of Manitoba, and being Lot 234, Plan 11 W.L.T.O. (L. Div.) of part of River Lot 51 of the Parish of St. Clements, as further described in Certificate of Title No.1328138 and further shown on Subdivision Plan No. 20919 W.L.T.O.,

c) Tower Well - in the City of Selkirk, in the Province of Manitoba, and being Lot 1 in Block 3 which lot is shown on a plan of subdivision of part of River Lot 52 of the Parish of St. Clements, registered in the Winnipeg Land Titles Office as No. 4531 and further described in Certificate of Title No. 623888,

d) Rosser Well - in the City of Selkirk, in the Province of Manitoba, of part of River Lot 46 of the Parish of St. Clements, the Rosser Avenue road allowance, east of Eveline Street.

and more particularly shown on plans filed in the office of the Director, Water Resources Branch, a copy of which plans are hereto attached and marked Exhibit "A", "B", "C", and "D".

This licence is issued upon the express condition that it shall be subject to the provisions of the Water Rights Act and Regulations and all amendments thereto and, without limiting the generality of the aforesaid, to the following terms and conditions, namely:

1. The water shall be used solely for **municipal** purposes.
2. The WORKS shall be operated in accordance with the terms herein contained.
3. The rate at which water shall be diverted pursuant hereto shall not exceed **0.091 cubic metres per second (3.2 cubic feet per second)** and the total quantity diverted in any one year shall not exceed **2160 cubic decametres (1751.13 acre feet)** .
4. No water shall be diverted during any period when the water level in the said aquifer as measured at the:

   a) Christie Well is more than 57 m (187 feet) beneath the surface of the ground,
   b) McLean Well is more than 52.43 m (172 feet) beneath the surface of the ground,
   c) Tower Well is more than 25.9 m (85 feet) beneath the surface of the ground, and
   d) Rosser Well is more than 56.08 m (184 feet) beneath the surface of the ground.

5. The LICENSEE does hereby remise, release and forever discharge Her Majesty the Queen in Right of the Province of Manitoba, of and from all manner of action, causes of action, claims and demands whatsoever which against Her Majesty the LICENSEE ever had, now has or may hereafter have, resulting from the use of water for **municipal** purposes.
6. In the event that the rights of others are infringed upon and/or damage to the property of others is sustained as a result of the operation or maintenance of the WORKS and the rights herein granted, the LICENSEE shall be solely responsible and shall save harmless and full indemnify Her Majestry the Queen in Right of the Province of Manitoba, from and against any liability to which Her Majestry may become liable by virtue of the issue of this Licence and anything done pursuant hereto.
7. This Licence is not assignable or transferable by the LICENSEE and when no longer required by the LICENSEE this Licence shall be returned to the said Minister for cancellation.
8. Upon the execution of this Licence the LICENSEE hereby grants the said Minister and/or his Agents the right of ingress and egress to and from the said lands for the purpose of inspection of the WORKS and the LICENSEE shall at all times comply with such directions and/or orders that may be given by the Minister or his Agents in writing from time to time with regard to the operation and maintenance of the WORKS and appurtenances.
9. If for any reason whatsoever the Minister deems it advisable to cancel this Licence, he may do so by letter addressed to the LICENSEE at **200 Eaton Avenue, Selkirk, MB, R1A 0W6, Canada** and thereafter this Licence shall be determined and at an end.

10. This Licence shall expire on October 21, 2008 and this Licence shall become effective only on the date of execution hereof by a person so authorized in the Department of Conservation.

11. The LICENSEE does hereby agree to correct, to the satisfaction of the said Minister, any water supply problems to wells, or other forms of supply, which were constructed and operating prior to the date of issuance of the original Licence (No. 88-7), and which are partly or wholly attributable, in the opinion of the Minister, to the diversion of water as authorized by this Licence.

12. At each of the water sources a flow meter must be installed, positioned to accurately measure instantaneous pumping rate and accumulative withdrawals.

13. Records of monthly and annual water use must be kept by the LICENSEE for each calendar year, and a copy of such records shall be furnished to the Director, Water Resources Branch, and/or his agents not later than February 1st of the following year.

In witness whereof I the undersigned hereby agree to accept the aforesaid Licence on the terms and conditions set forth therein and hereby set my hand and seal this 5 day of FEBUARY A.D. 20 01.

SIGNED, SEALED AND DELIVERED
in the presence of

Witness — Licensee R.S. Olivier (Seal)

Canada, PROVINCE OF MANITOBA To Wit:

I, James Fenske. of the City of Selkirk
of Selkirk. in the Province of Manitoba, MAKE OATH AND SAY:

1. That I was personally present and did see Mayor R.S. Olivier. the within named party, execute the within instrument.

2. That I know the said Mayor R.S. Olivier and am satisfied that he/she is of the full age of eighteen years.

3. That the said instrument was executed at Selkirk Civic Centre. aforesaid and that I am subscribing witness thereto.

SWORN BEFORE me at the City of Selkirk
in the Province of Manitoba this 5th day of February A.D. 20 01.

Marilyn Carol Kaye
A COMMISSIONER FOR OATHS
in and for the Province of Manitoba

Witness

My Commission expires February 13, 2003.

Issued at the City of Winnipeg, in the Province of Manitoba, this 7 day of FEBRUARY A.D. 20 01.

The Honourable the Minister of Natural Resources

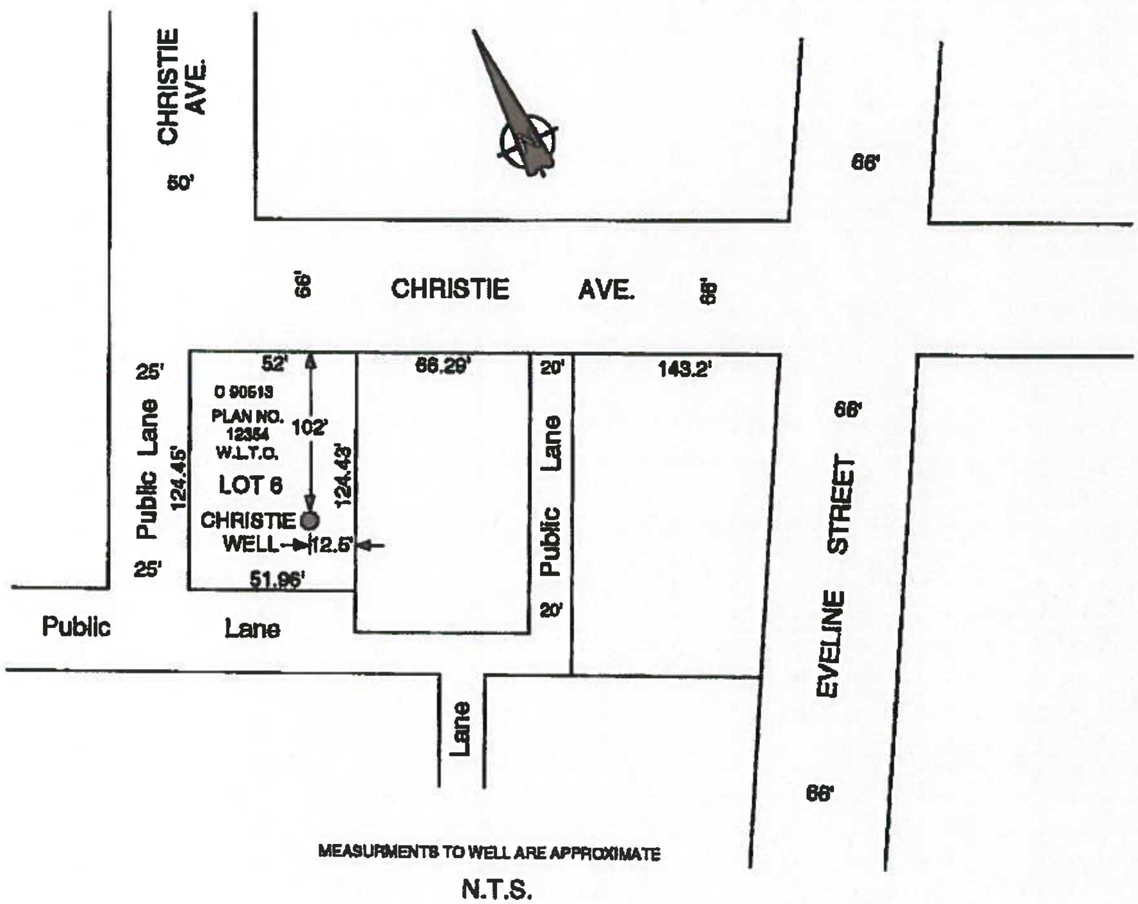


EXHIBIT "A"
THIS PLAN IS AN INTEGRAL PART OF
LICENSE NO. 2000-047
ISSUED UNDER THE WATER RIGHTS ACT.

LOCATION PLAN
FOR
CHRISTIE WELL
IN
R.L. 52 PARISH OF ST. CLEMENTS
CITY OF SELKIRK

R. L. 2000 06 05 A.L. ZIP AL-01

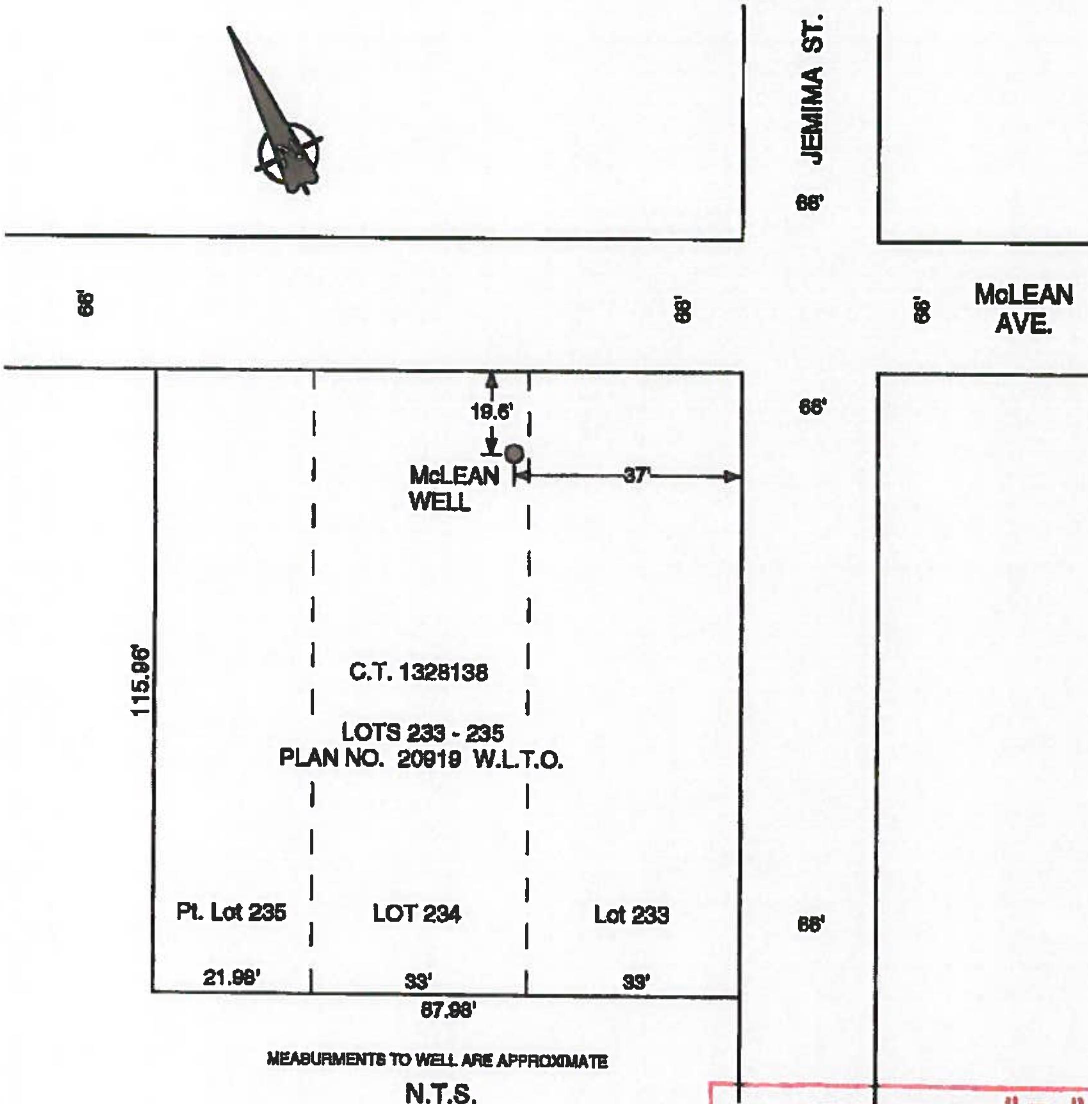


EXHIBIT "B"
THIS PLAN IS AN INTEGRAL PART OF
LICENSE NO. 2000-047
ISSUED UNDER THE WATER RIGHTS ACT.

LOCATION PLAN
FOR
McLEAN WELL
IN
R.L. 51 PARISH OF ST. CLEMENTS
CITY OF SELKIRK

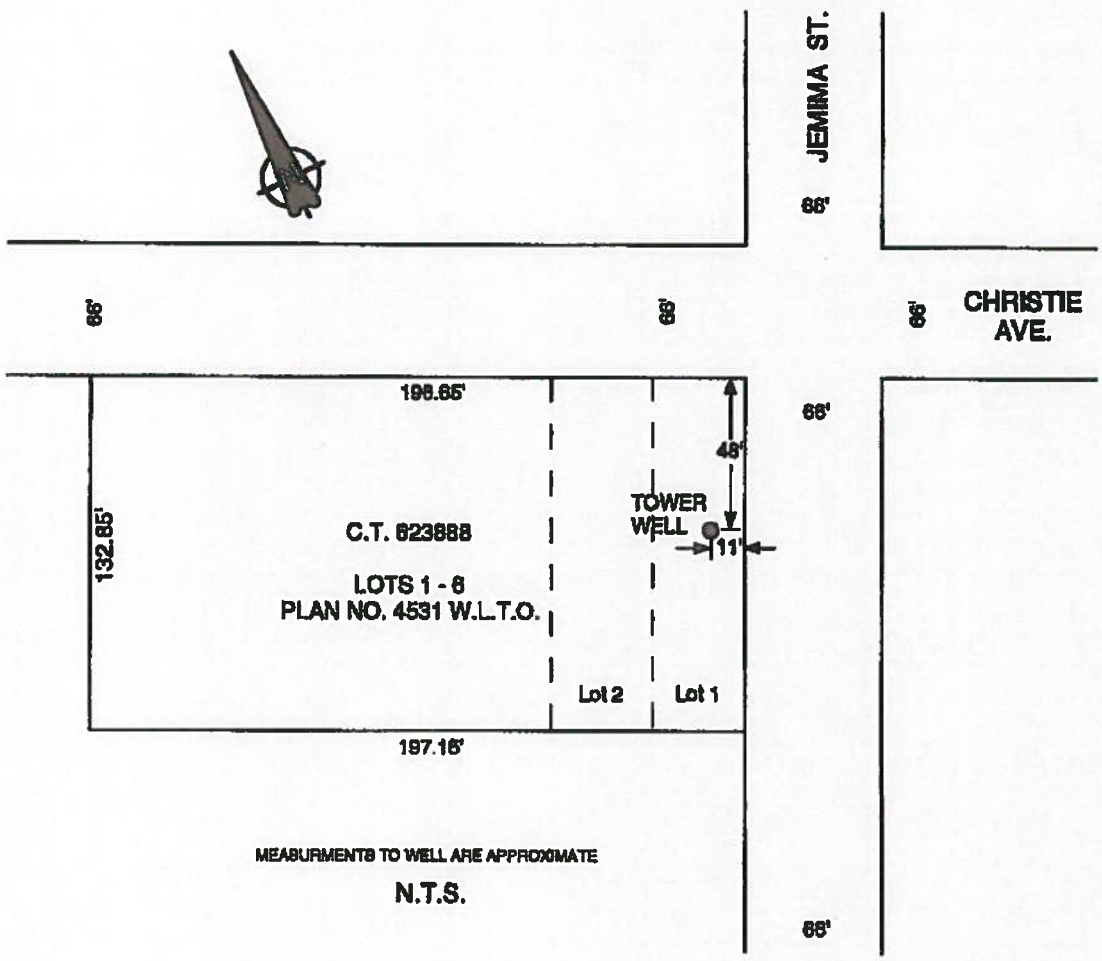


EXHIBIT "C"
THIS PLAN IS AN INTEGRAL PART OF
LICENSE NO. 2000-047
ISSUED UNDER THE WATER RIGHTS ACT.

LOCATION PLAN
FOR
TOWER WELL
IN
R.L. 52 PARISH OF ST. CLEMENTS
CITY OF SELKIRK

R. L. 2000 06 05 A.L. ZIP AL-01

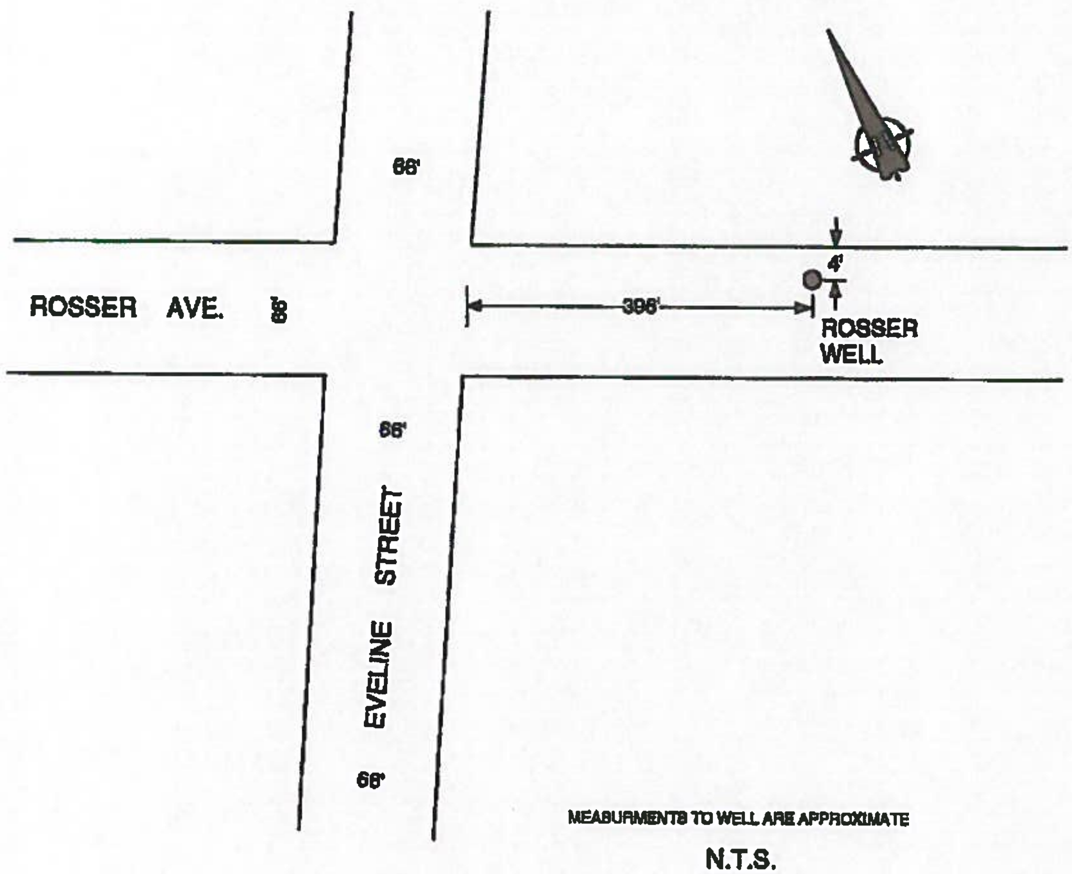


EXHIBIT "D"
THIS PLAN IS AN INTEGRAL PART OF
LICENSE NO. 2000-047
ISSUED UNDER THE WATER RIGHTS ACT.

LOCATION PLAN
FOR
ROSSER WELL
IN
R.L. 46 PARISH OF ST. CLEMENTS
CITY OF SELKIRK

R. L. 2000 08 05 A.L. ZIP AL-01

Licence to Use Water for Municipal Purposes

Manitoba
Manitoba Water Stewardship
Regulatory and Operational Services Division
200 Saulteaux Cresc.
Winnipeg, Manitoba
R3J 3W3

Issued in accordance with the provisions of
The Water Rights Act and regulations made thereunder.

Licence No.: **2009-047**
(Original Lic. No.: 2000-047)
U.T.M.: Zone 14 651197 E
5556742 N

Know all men by these presents that in consideration of and subject to the provisos, conditions and restrictions hereinafter contained, the Minister of Water Stewardship for the Province of Manitoba does by these presents give full right and liberty, leave and licence to **The City of Selkirk** in the Province of Manitoba (hereinafter called "the LICENSEE") to divert water from a **fractured limestone** aquifer by means of four water wells, pumps, pipeline(s) and other appurtenances (hereinafter called "the WORKS"), located on the following described lands:

a) Christie Well - Lot 6, Plan 12354 WLTO, Certificate of Title C90513 WLTO.
b) McLean Well - Lot 234, Plan 20919 WLTO, Certificate of Title 1328138 WLTO.
c) Tower Well - Lot 1, Block 3, Plan 4531 WLTO, Certificate of Title 623888 WLTO.
d) Rosser Well - Rosser Avenue road allowance lying to the East of Eveline Street,

and more particularly shown on a plan filed in the office of the Executive Director, Regulatory and Operational Services Division, a copy of which plan is hereto attached and marked Exhibit "A" for **municipal** purposes.

This licence is issued upon the express condition that it shall be subject to the provisions of The Water Rights Act and Regulations and all amendments thereto and, without limiting the generality of the aforesaid, to the following terms and conditions, namely:

1. The water shall be used solely for **municipal** purposes.

2. The WORKS shall be operated in accordance with the terms herein contained.

3. a) The maximum rate at which water may be diverted pursuant hereto shall not exceed **0.054 cubic metres per second (1.9 cubic feet per second)** .

   b) The total quantity of water diverted in any one year shall not exceed **2160 cubic decametres (1751.13 acre feet)** .

4. Water shall not be diverted during any period when the water level in the aquifer as measured at:

   a) Christie Well is more than 58.5 metres (192.0 feet) beneath the surface of the ground.
   b) McLean Well is more than 58.5 metres (192.0 feet) beneath the surface of the ground.
   c) Tower Well is more than 25.9 metres (85.0 feet) beneath the surface of the ground.
   d) Rosser Well is more than 56.4 metres (185.0 feet) beneath the surface of the ground.

5. The LICENSEE does hereby remise, release and forever discharge Her Majesty the Queen in Right of the Province of Manitoba, of and from all manner of action, causes of action, claims and demands whatsoever which against Her Majesty the LICENSEE ever had, now has or may hereafter have, resulting from the use of water for **municipal** purposes.

6. In the event that the rights of others are infringed upon and/or damage to the property of others is sustained as a result of the operation or maintenance of the WORKS and the rights herein granted, the LICENSEE shall be solely responsible and shall save harmless and fully indemnify Her Majesty the Queen in Right of the Province of Manitoba, from and against any liability to which Her Majesty may become liable by virtue of the issue of this Licence and anything done pursuant hereto.

7. This Licence is not assignable or transferable by the LICENSEE and when no longer required by the LICENSEE this Licence shall be returned to the Executive Director, Regulatory and Operational Services Division, for cancellation on behalf of the Minister.

8. Upon the execution of this Licence the LICENSEE hereby grants the Minister or the Minister's agents the right of ingress and egress to and from the lands on which the WORKS are located for the purpose of inspection of the WORKS and the LICENSEE shall at all times comply with such directions and/or orders that may be given by the Minister or the Minister's agents in writing from time to time with regard to the operation and maintenance of the WORKS.

9. This Licence may be amended, suspended or cancelled by the Minister in accordance with The Water Rights Act by letter addressed to the LICENSEE at **200 Eaton Avenue, Selkirk, MB, R1A 0W6, Canada** and thereafter this Licence shall be determined to be at an end.

10. Notwithstanding anything preceding in this Licence, the LICENSEE must have legal control, by ownership or by rental, lease, or other agreement, of the lands on which the WORKS shall be placed and the water shall be used.

11. The term of this Licence shall be **twenty (20) years** and this Licence shall become effective only on the date of execution hereof by a person so authorized in the Department of Water Stewardship. The LICENSEE may apply for renewal of this Licence not more than 365 days and not less than 90 days prior to the expiry date.

12. This Licence expires automatically upon the loss of the legal control of any of the lands on which the WORKS are located or on which water is used, unless the Licence is transferred or amended by the Minister upon application for Licence transfer or amendment.

13. The LICENSEE shall keep records of daily and annual water use and shall provide a copy of such records to the Executive Director, Regulatory and Operational Services Division, not later than February 1st of the following year.

14. A flow meter must be installed, positioned to accurately measure instantaneous pumping rate and accumulative withdrawals from the water source.

15. The LICENSEE does hereby agree to correct, to the satisfaction of the Minister, any water supply problems to wells or other forms of supply, which were constructed and operating prior to the date of application for the original Licence (No. 2000-047), and which are partly or wholly attributable, in the opinion of the Minister, to the diversion of water as authorized by this Licence.

16. The LICENSEE shall hold and maintain all other regulatory approvals that may be required and shall comply with all other regulatory requirements for the construction, operation, or maintenance of the WORKS or to divert or use water as provided by this Licence.

In witness whereof I the undersigned hereby agree to accept the aforesaid Licence on the terms and conditions set forth therein and hereby set my hand and seal this 26th day of August A.D. 2009.

SIGNED, SEALED AND DELIVERED
in the presence of

David K. Bell, Mayor

Witness

Licensee (Seal)
Chris Luellman, CAO

Canada, PROVINCE OF MANITOBA To Wit:

I, ______________________ of the ______________________

of ______________________ in the Province of Manitoba, MAKE OATH AND SAY:

1. That I was personally present and did see ______________________ the within named party, execute the within Instrument.

2. That I know the said ______________________ and am satisfied that he/she is of the full age of eighteen years.

3. That the said Instrument was executed at ______________________ aforesaid and that I am subscribing witness thereto.

SWORN BEFORE me at the ______________________

in the Province of Manitoba this ________ day of ________________ A.D. 20____.

A COMMISSIONER FOR OATHS
in and for the Province of Manitoba

Witness

My Commission expires ______________________

Issued at the City of Winnipeg, in the Province of Manitoba, this 9 day of September A.D. 2009.

The Honourable the Minister of Water Stewardship

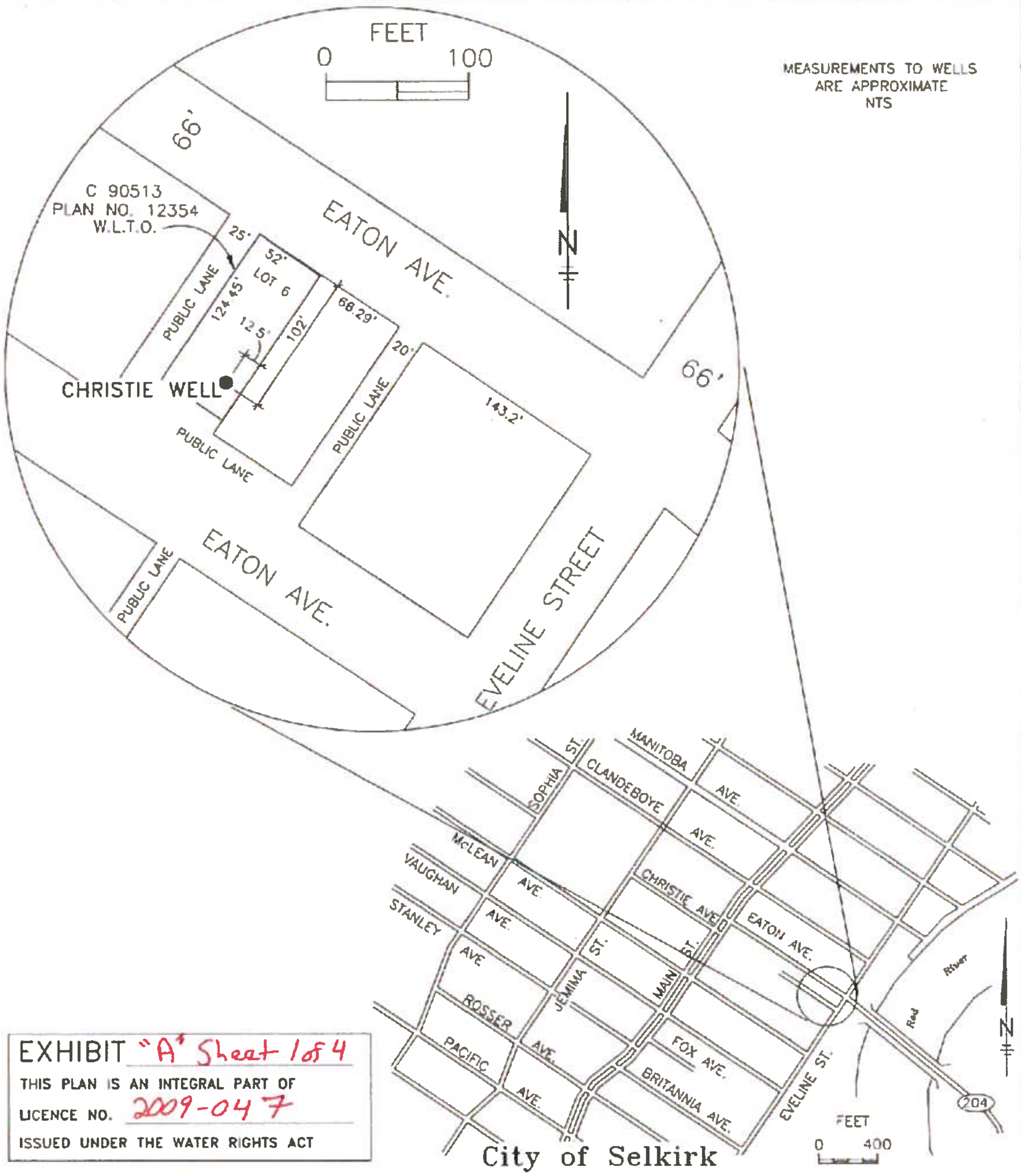


EXHIBIT "A" Sheet 1 of 4
THIS PLAN IS AN INTEGRAL PART OF
LICENCE NO. 2009-047
ISSUED UNDER THE WATER RIGHTS ACT

LOCATION PLAN FOR CHRISTIE WELL

IN THE

CITY OF SELKIRK

RL 52, PARISH OF ST. CLEMENTS

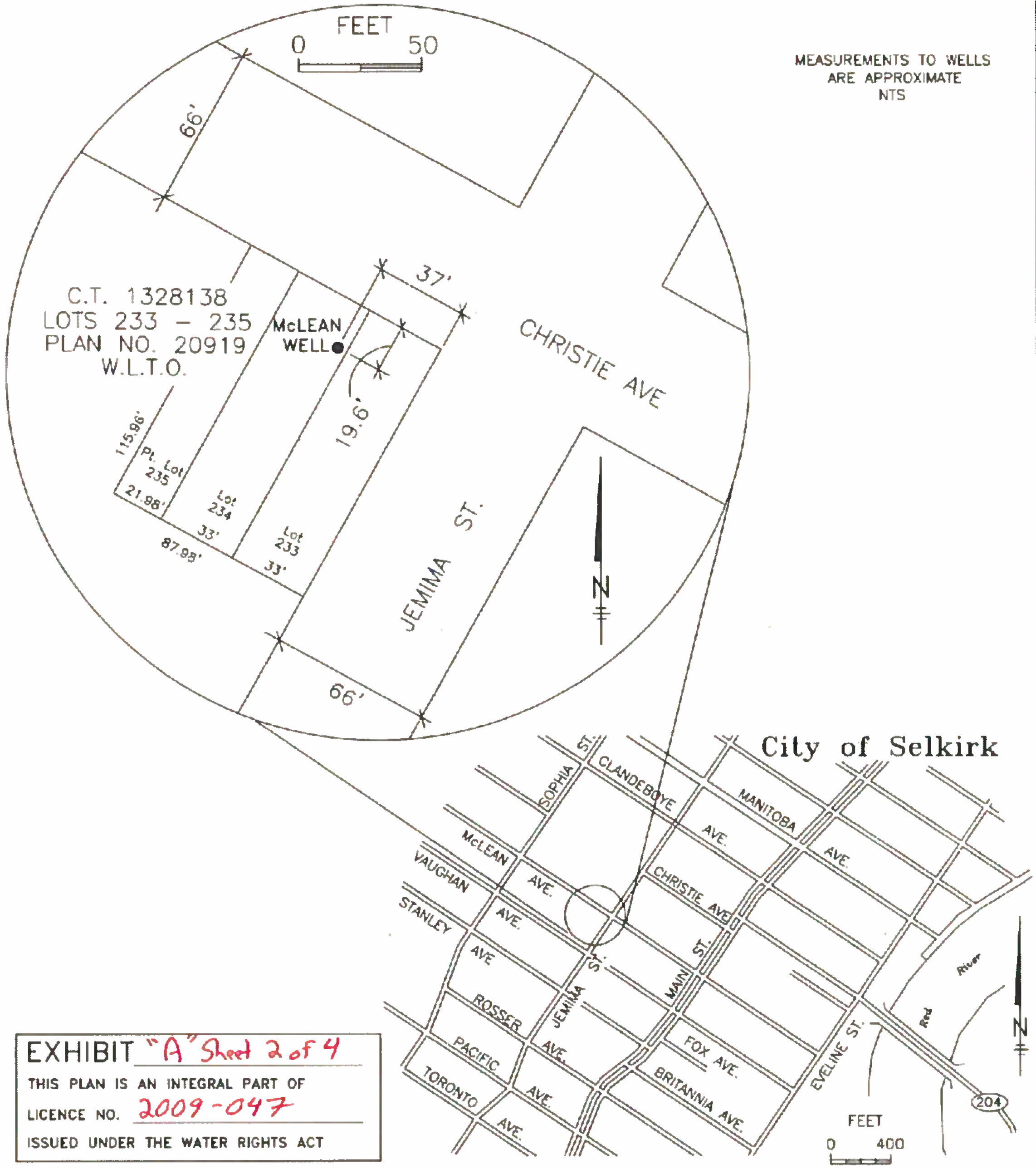


EXHIBIT "A" Sheet 2 of 4
THIS PLAN IS AN INTEGRAL PART OF
LICENCE NO. 2009-047
ISSUED UNDER THE WATER RIGHTS ACT

LOCATION PLAN FOR McLEAN WELL

IN THE
CITY OF SELKIRK
RL 51, PARISH OF ST. CLEMENTS

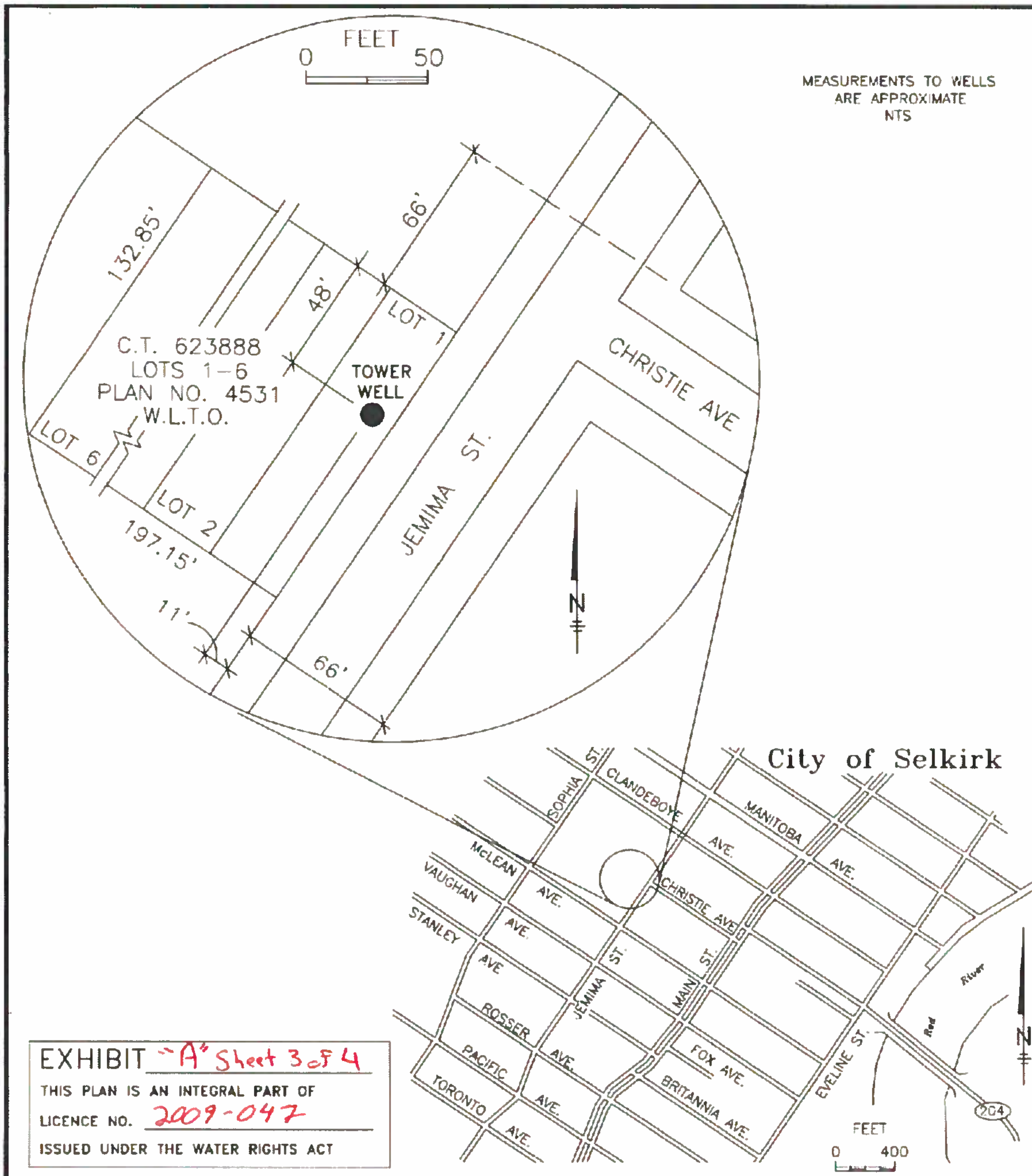


EXHIBIT "A" Sheet 3 of 4

THIS PLAN IS AN INTEGRAL PART OF

LICENCE NO. 2009-047

ISSUED UNDER THE WATER RIGHTS ACT

LOCATION PLAN FOR TOWER WELL

IN THE

CITY OF SELKIRK

RL 52, PARISH OF ST. CLEMENTS

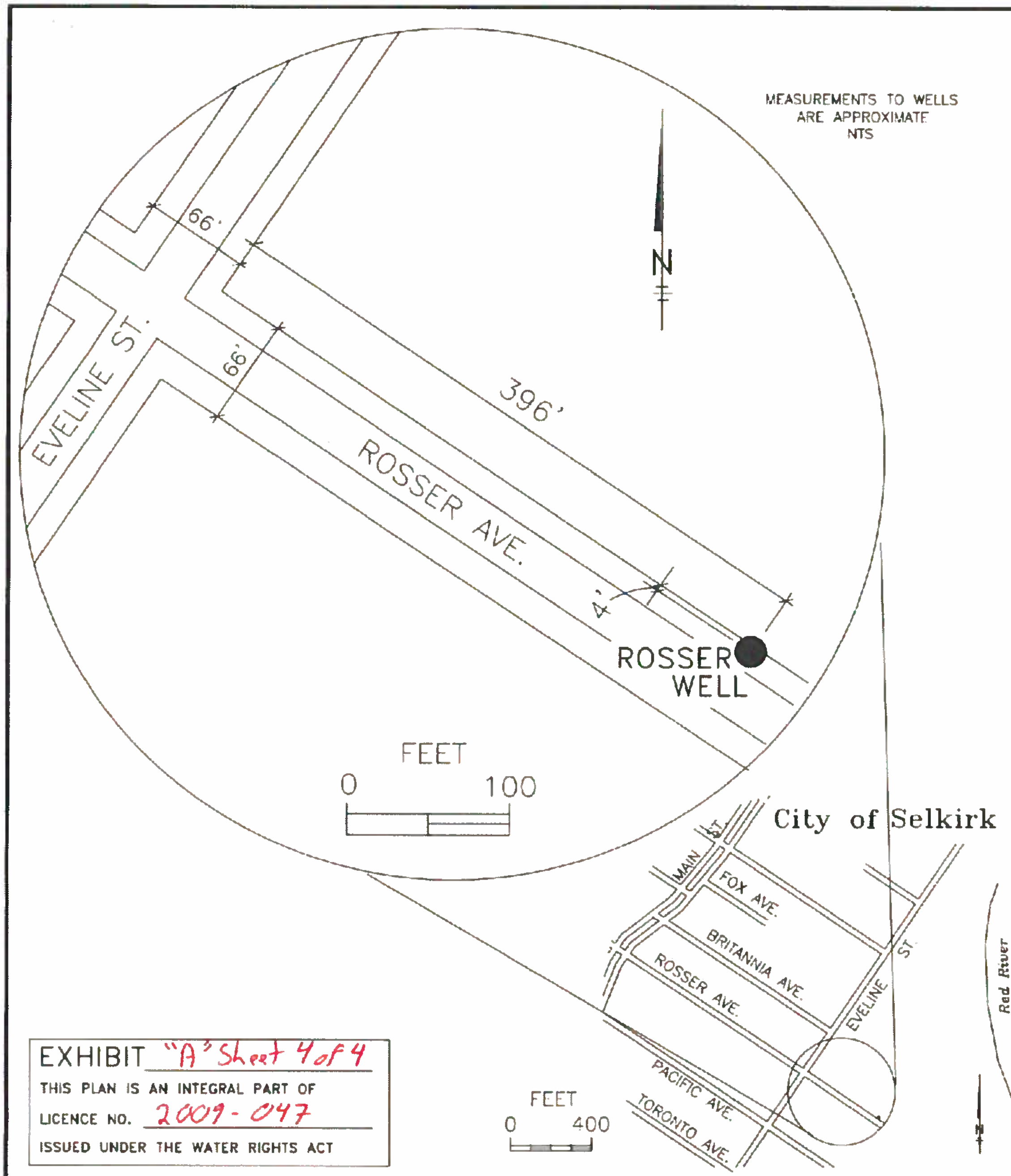


EXHIBIT "A" Sheet 4 of 4

THIS PLAN IS AN INTEGRAL PART OF

LICENCE NO. 2009-047

ISSUED UNDER THE WATER RIGHTS ACT

LOCATION PLAN FOR ROSSER WELL

IN THE

CITY OF SELKIRK

RL 46, PARISH OF ST. CLEMENTS

Appendix D

Groundwater Exploration Permit for the Current Project

Manitoba
Conservation and Water Stewardship

Water Use Licensing Section
Box 16, 200 Saulteaux Crescent
Winnipeg, Manitoba, Canada R3J 3W3
T 204-945-6118 F 204-945-7419
Rob.Matthews@gov.mb.ca

April 24, 2015

File: The City of Selkirk (-6)

Duane Nicol
Chief Administrative Officer
The City of Selkirk
200 Eaton Avenue
Selkirk MB R1A 0W6

Dear Mr. Nicol:

Attached is a **Groundwater Exploration Permit** issued in response to a letter received from Friesen Drillers Ltd. dated April 15, 2015, requesting authorization for the City of Selkirk to construct wells and conduct aquifer pump testing in **Sections 14 and 15 of Township 14 in Range 4E** within the Rural Municipality of St. Andrews, Manitoba for municipal purposes.

The Groundwater Exploration Permit authorizes The City of Selkirk to carry out exploration test drilling, construct well(s), and conduct aquifer pump testing. The purpose of the pump testing is to determine if sufficient water is available from the wells, and the aquifer, to support the project and to determine water level impacts on existing local wells and/or proposed project with an earlier precedence date associated with the proposed project. Please familiarize yourself with the terms and conditions of the Groundwater Exploration Permit.

A licensing decision on this project will be held pending submission of the required information. Please note that diversion of water without a Water Rights Licence or written authorization would constitute a violation of *The Water Rights Act* and may be subject to enforcement.

One important condition of any licence that may be issued for this project, in due course, is that a flow meter must be installed on the pipeline from the supply well(s), positioned to accurately measure instantaneous pumping rate and accumulative withdrawals.

In Mr. Bell's letter to us of April 15, 2015 he indicated that it is his understanding that the 2011 application submitted by (or on behalf of) the City of Selkirk expired 12 months later in 2012. This is not the case; the application has not expired and remains active.

Please contact the undersigned or Kylene Wiseman directly at 204-945-7424 should you have any questions regarding the requirements outlined in this letter and the attached permit or the water rights licensing aspects of this project.

Yours truly,

Rob Matthews
Manager
Water Use Licensing Section

Cc: J. Bell, Friesen Drillers Ltd.
D. Shwaluk, MWSB
D. Toews, Landmark Planning and Design
K. Wiseman, Water Use Licensing Section

Manitoba
Manitoba Water Stewardship
Water Use Licensing Section

FORM F

200 Saulteaux Crescent
Winnipeg, Manitoba
R3J 3W3

Groundwater Exploration Permit

Pursuant to The Water Rights Act

The City of Selkirk

is hereby permitted to construct a water well or wells on the following described lands to explore for groundwater:

in **14-14-4E and 15-14-4E** for **municipal purposes**, subject, however, to the following conditions:

1. The permittee must have legal access to the site where the exploration work and project wells are to be located.

2. Prior to undertaking any work or construction of any works authorized by this permit the permittee is required to retain the services of a hydrogeologist registered with Association of Professional Engineers and Geoscientists of Manitoba, who would be required to:
   - Plan and supervise the drilling of boreholes, test wells, production wells, monitoring wells and aquifer and well pump testing as authorized by this permit.
   - Conduct a 7 day aquifer pumping test on proposed production well.
   - Conduct a recovery test for a period equal to pump test or 90% recovery.
   - Install at least one pump test monitoring well.
   - Carry out an inventory of private and commercial wells within a 2.0 mile radius of the project well site. The inventory may need to be expanded based on the assessment of the expected area of water level drawdown impact resulting from future pumping.
   - Prepare and submit to the Water Use Licensing Section a technical report on the drilling of boreholes and wells, pump testing of wells, well inventory and water quality sampling. The report would contain, but not be limited to, such things as: well driller's reports for test wells, monitoring well and production wells, a plan showing the location of these wells on the property and/or GPS locations of the wells, an analysis of aquifer pumping and recovery tests, calculations of storativity and transmissivity, and a description of the amount of water level interference that would be expected to occur at existing local wells and proposed projects with an earlier precedence date that are located within an 1.0 mile radius of the project well site. The report would also indicate if any local wells are expected to be adversely affected by the proposed use of water and where these wells are located. In addition, two copies of the report shall be submitted, one hardcopy and one digital copy.

3. During any pumping tests that may be conducted, pumping must cease immediately if any local water supplies are negatively impacted as a result of the tests. The permittee is also responsible to correct any water supply problems or provide temporary water supply to anyone whose water supplies are negatively impacted as a result of the tests.

4. This permit expires within twelve (12) months of the date of issuance.

5. This permit is non-transferable or assignable to any other third party.

6. Please note that diversion of water without a Water Rights Licence or written authorization would constitute a violation of The Water Rights Act and may be subject to enforcement.

Issued at the City of Winnipeg in the Province of Manitoba, this 24th day of April, A.D. 2015

Rob M. Matheo

for The Honourable Minister of Water Stewardship

Manitoba
Conservation and Water Stewardship

Water Use Licensing Section
Box 16, 200 Saulteaux Crescent
Winnipeg, Manitoba, Canada R3J 3W3
T 204-945-6118 F 204-945-7419
Rob.Matthews@gov.mb.ca

June 3, 2014

File: The City of Selkirk -3

Daniel McDermid
Director of Operations
The City of Selkirk
739 Sophia Street,
Selkirk, Manitoba, R1A 2MI

Dear Mr. McDermid:

Attached herewith is a **Groundwater Exploration Permit** issued in response to your application registered on May 14, 2014 for a licence to construct wells and conduct a pumping test on Lot 6, Plan 12354 WLTO, more particularly described on Certificate of Title C90513 WLTO, for municipal purposes.

The Groundwater Exploration Permit authorizes The City of Selkirk to carry out exploration test drilling, construct supply well(s), and conduct aquifer pump testing. The purpose of the pump testing is to determine any changes to water is available from the well(s) and from the aquifer to support the project and to describe any changes to water level impacts on existing local wells and/or registered projects with earlier precedence dates than the proposed project. Please note that during testing, pumping must cease if any local water supplies are negatively impacted as a result of testing. The City of Selkirk would further be responsible to correct any water supply problems or provide temporary water supply to anyone whose water supplies are negatively impacted as a result of testing. Please familiarize yourself with the terms and conditions of the Groundwater Exploration Permit.

A licensing decision on this project will be held pending submission of the required information. Please note that diversion of water without a Water Rights Licence or written authorization would constitute a violation of *The Water Rights Act* and may be subject to enforcement.

One important condition of any licence that may be issued for this project, in due course, is that a water use monitoring device must be installed on the pipeline from the supply well(s), positioned to accurately measure instantaneous pumping rate and accumulative withdrawals.

Please contact Ronaldo Miranda directly at 204-945-6475 should you have any questions regarding the requirements outlined in this letter and the attached permits or the water rights licensing aspects of each project.

Yours truly,

ORIGINAL SIGNED BY:
ROB MATTHEWS

Rob Matthews
Manager
Water Use Licensing Section

Cc: Jeff Bell, P.Eng., Friesen Drillers Ltd.
Ronaldo Miranda, CWS-Winnipeg

Manitoba
Manitoba Conservation & Water Stewardship
Water Use Licensing Section

FORM F

200 Saulteaux Crescent
Winnipeg, Manitoba
R3J 3W3

Groundwater Exploration Permit

Pursuant to The Water Rights Act

The City of Selkirk

is hereby permitted to construct a water well or wells on the following described lands to explore for groundwater on Lot 6, Plan 12354 WLTO, more particularly described on CT C90513 WLTO, for **municipal** purposes, subject, however, to the following conditions:

1. The permittee must have legal access to the sites where the exploration work and project wells are to be located.

2. This Authorization is not transferable or assignable to any other party.

3. Prior to undertaking any work or construction of any works authorized by this permit the permittee is required to retain the services of a hydrogeologist registered with Association of Professional Engineers and Geoscientists of Manitoba, who would be required to:
   - Plan and supervise the drilling of boreholes, test wells, production wells, observation wells and well pump testing as authorized by this permit.
   - Conduct a constant rate pumping test on proposed production well(s) in accordance with Form H (attached), for a period of time as deemed necessary by the consulting hydrogeologist.
   - Conduct a recovery test for a period equal to pump test or 90% recovery.
   - Prepare and submit to the Water Use Licensing Section a technical report on drilling of boreholes and wells, pump testing of well, and water quality sampling. The report would contain, but not limited to, such things as: well driller's reports for test wells, production wells and observation wells; a plan showing the location of these wells on the property and/or GPS locations of the wells; an analysis of aquifer pumping tests; calculations of transmissivity and a description of any change to water level interference that would be expected to occur at existing local wells that are located within a 1000 m radius of the project well site. The report would also indicate if any local wells are expected to be adversely affected by the proposed use of water and where these wells are located. Two copies of the report shall be submitted, one hardcopy and one digital copy.

4. During any pumping tests that may be conducted, pumping must cease immediately if any local water supplies are negatively impacted as a result of the tests. The permittee is also responsible to correct any water supply problems or provide temporary water supply to anyone whose water supplies are negatively impacted as a result of the tests.

5. This permit expires within twelve (12) months of the date of issuance.

6. Please note that diversion of water without a Water Rights Licence or written authorization would constitute a violation of The Water Rights Act and may be subject to enforcement.

Issued at the City of Winnipeg in the Province of Manitoba, this 2nd day of June, A.D. 2014

for The Honourable Minister of Water Stewardship

Appendix E

City of Selkirk Drinking Water & Wastewater Master Plan (WSP, 2014)

CITY OF SELKIRK

DRINKING WATER & WASTEWATER MASTER PLAN (WWMP)

Project No: 131-22353-00

July 2014

Prepared for:

The City of Selkirk

1600 Buffalo Place
WINNIPEG, MB R3T 6B8
Phone: (204) 477-6650
Fax: (204) 474-2864

www.wspgroup.com

EXECUTIVE SUMMARY

WSP was retained by the City of Selkirk (Selkirk) to undertake a drinking water and wastewater master plan (WWMP). In order to be well placed to deal with the challenges of future development, Selkirk is taking the initiative to have prepared an engineering master plan for the drinking water and wastewater in the community.

Existing and estimated future residential, commercial, industrial and institutional water and sewer systems requirements have been identified in the study. Accounting for and building upon these findings, needs have been assessed and identified for existing development, new development, and other designated development areas.

Infrastructure needs, representing the gap between system capacity and demand, have been established in the study. Estimated capacities of the various key elements of the existing water and wastewater systems are tabulated in the report. When key elements for the system constrain the system as in the case of the drinking water supply wells or the combined sanitary collection sewer, they have been identified.

Capacity factors include equipment design maximum and peak flow rates. Equally important are demonstrable maximum and peak flow rates of those elements. Potential spare capacity represents the difference between design flow rates and those actually demonstrated or observed in the field as in the case of the hydraulic capacity of the dual train bioreactors at the wastewater treatment plant.

Potential sources of future demand have been identified and used to synthesize an estimate of future overall system demand on the water and wastewater systems. Estimated spare capacity when compared with current and future demand resulted in an estimated gap (inadequacy) or surplus (opportunity) as the case may be.

From the analysis results, managed improvements of existing infrastructure as in the sewer separation program and new system elements such as a proposed dedicated forcemain from the west-side residential/commercial lands of Selkirk directly to the wastewater treatment plant have been encouraged. Improvements implies existing infrastructure as being adaptable, to address current capacity or performance issues and to accommodate future growth and development.

Throughout the study the underlying assumption has been that water and wastewater systems are to be financially and environmentally sustainable, while moving toward full cost recovery. Utility rate recommendations included having the rates reflect utility investment needs intended to guide Selkirk with an appropriate cost recovery strategy. It is WSP’s opinion that utility rates, supporting water and wastewater system upgrades, are to be based on sound engineering assessments of facilities as opposed to a recent trend of having rates derived by accounting principles alone.

To the extent possible, the master plan report will provide a road map with respect to identified water and wastewater infrastructure capacity limitations. Recommended management measures for existing infrastructure, and when necessary, new infrastructure will be proposed together with a staging plan when appropriate that will address current and future planned developments.

Previously identified water and wastewater issues reviewed herein include:

- Inadequate (well) water supply capacity;
- The wastewater treatment plant age approaching forty-years;
- Combined sewer basement backups limiting proposed new development;
- Treated water storage volume is marginal in the context of current water supply concerns; and
- Aged water distribution and sewer collection piped infrastructure.

In an effort to facilitate a timely review of the Selkirk water supply needs, the water needs assessment was given precedence with the intended result that an engineering memorandum was presented to the Selkirk Council Water Task Force on April 1, 2014.

The following excerpts from the water supply memo are intended to demonstrate:

- The existing water supply for Selkirk *has diminished* in the existing wells *and continues to diminish*. Despite numerous attempts at redeveloping the wells, gains are never sustained for more than one year.
- Christie well, originally developed in 1967, has provided 46 years of service and is the most critical of the aging wells. *Christie delivers over half of the water supply; the risk of loss cannot be overstated*. Christie operates near capacity year round and failure is not a matter of if, it's a matter of when.
- Again related to the loss of Christie, *the current lack of supply redundancy impacts on fire protection*. At 55% of the water supply, having Christie out of service will diminish reservoir volumes leaving Selkirk's fire protection system vulnerable.
- Supply and installation of replacement pump equipment can take two to three months as in the recent case of McLean well. *Loss of Christie will certainly place Selkirk in emergency mode for water supply*. Water rationing can be assumed with the possibility of a boil water order should the loss of Christie occur during any part of the year, but peak summer supply period would be especially critical.

Recognizing an increase in future water demands over the 25 year planning horizon, our recommendation is for duplicate new supply wells each capable of supplying 60% of the 2038 total sustained maximum day flow volume of 7,525 m3 per day.

The City of Selkirk's historic population has expanded and contracted as illustrated by the Statistics Canada census results of 1971 to 2011. In an effort to normalize such fluctuations, an annual compounded growth rate (CGR) was calculated. Most recent data suggests the City is undergoing a growth phase, although this growth has not been sustained long enough to provide confidence that the historic growth trend will change. Accordingly, for the purposes of this study, the long term sustained historic annual growth rate was used as a median range for the 25 year population projections. Historic and projected populations for the City of Selkirk are tabulated in Table 2.1 and Table 2.2 respectively.

The term "water demand" refers to all the water requirements of the system including residential, commercial, industrial, institutional and unaccounted for water. Unaccounted for water is the difference between the volume of water produced at the water treatment plant and the volume of water billed. It includes system losses (i.e., leakage), incomplete billings due to meter inaccuracies, and nonrevenue uses such as flushing, watermain breaks, repairs, etc.

Water requirements data provided by Selkirk represented three data sources. Source water well records were available as total daily volumes, while distribution flow meter records were available in hourly flow rates which have been used to calculate total daily volumes. Metered utility water records were provided as quarterly volumes. These differing measurement metrics do provide some uncertainty, as such WSP has chosen to emphasis well and distribution records for projecting future demand.

When providing a supplementary drinking water supply, estimates of required replacement well capacity must take into account the potential for any combination of the proposed or current supply wells either failing, or requiring offline maintenance, on top of the assumed increase in water demands throughout the 25 year planning horizon.

With respect to future water demand and the industrial lands north of Greenwood Avenue; carrying a large water demand which may not materialize may be impractical. We are of course open to hearing from local planning people and city staff. The key planning factor is the type of industry that would be encouraged. Food processing for instance would represent "water-intensive" industry verses 'light' industry, or commercial [i.e. warehousing, distribution centres]. Selkirk planners could take a phased approach if they leave the door open to wetter land uses over the 25 year horizon.

Also with respect to future water demand and the industrial lands north of Greenwood Avenue. If a new well field is developed outside Selkirk, and if there is enough aquifer capacity, it is easy to add more wells over time. It is not as easy to add pipelines between the well field and the water treatment plant. Therefore, oversizing the supply pipeline should be considered by the planners to accommodate the prospective industrial demand. The same could apply with respect to distribution piping although fire flows will have a larger impact on water main pipe sizing than the industrial flows. In order of priority, water supply remains paramount. At some future date, and if predicted growth occurs, additional security in the form of distributed storage (satellite reservoir pump station) may be further considered.

The RM of St. Andrews was identified in the 2009 Water Model Update report by AECOM. North St. Andrews may still be a candidate for regionalization of a water system with Selkirk at some future date. It has been reported that the RM of St. Andrews, RM East St. Paul, and the RM of West St. Paul may collaborate on a regional drinking water strategy though nothing firm has been confirmed. Given the close proximity to Selkirk, the RM of St. Andrews residences, particularly those north of Hwy #44, would be convenient candidates to partner with Selkirk in pursuit of a long term drinking water strategy.

Late in 2011 and early 2012, Selkirk placed the newly constructed Plant #2 water treatment plant online. This long awaited step in the life of the Selkirk water treatment operations came with much anticipation and a number of missteps which have since mostly been corrected. Plant #2 is similar to Plant #1 in that both are lime softening processes. Plant #1 clarifier is no longer operational as the recarbonation unit has been taken out.

As WSP was reviewing water distribution records from 2010 to 2013 it became evident the maximum flow rates had diminished over this period. More specifically the spikes in the distribution flows had essentially stopped. Operations staff explained that recarbonation water that was previously drawn from the main reservoir distribution header is now drawn from the treatment plant clearwell. Further, in 2012 VFD drives were installed to the distribution pumps. The combined effect of recarbonation water upgrade and VFD pump drives has helped to moderate daily maximum distribution flow rates.

Previously the water tower reservoir, located at the water treatment plant site, maintained distribution pressures between 345 kPa (50 psi) and 360 kPa (52 psi). This pressure moderation role for the tower has generally been eliminated by the recent installation of variable frequency drives (VFD) to the distribution pumps. The tower reservoir remains as a backup against the possibility of utility power loss. However, the water treatment plant backup generator, installed in 1973, ensures water plant operations are maintained during loss of utility power.

Several studies regarding the City's water distribution network have been prepared by other consultants over the last two decades. The purpose of this study was not to conduct a comprehensive hydraulic evaluation, but to update data, recommendations, and conclusions from the previous studies to meet the City's needs and growth expectations.

The water network study was approached as follows:

- o Determine short and long term water demands, including potential development.
- o Using a WaterGEMS computerized model, simulate current and future water distribution networks, analysing the systems for restrictions and limitations.
- o Report on conclusions and recommendations.

All existing water demand data, pipe inventory, pipe configurations, pipe characteristics, and node elevations were retained from the AECOM model. The computer model was imported and updated using WaterGEMS V.8i (formerly WaterCAD). WaterGEMS software is one of the most widely used water distribution modeling software packages. The working model is an analytical tool to assess the performance of the existing water distribution system. Simulating real world conditions under maximum and peak flows provides insights into system capacities and limitations under current and estimated future demands.

There are several areas in the City where future water demands will impact the distribution network. These were identified in the AECOM report, but the detailed analysis of the derivation of the demands was not included in the scope of work for this report. However, since the demand information is required for the long term analysis of the distribution system, the following maximum day demand (MDD) data was inputted into the computer model:

- o Additional consumption at the Gerdau Ameristeel Steel Mill – 12 L/s
- o Additional RM of St. Andrews Demands – 0.7 L/s
- o Additional Lower Fort Garry Demands – 0.2 L/s

Peak hour demands, the current (2013) peak hour flows are assumed to total 118 L/s., and the future peak flows are estimated at 213 L/s. The model was run with the future peak flows distributed spatially throughout the future development areas, and with the assumption that all recommended upgrades have been implemented. The simulation revealed that with appropriate pumping at the treatment plant, the existing distribution network provided adequate system pressures at all locations.

Under peak day plus fire flow, several upgrades in the existing distribution system were proposed by AECOM in their 2009 report. The need for the upgrades were reviewed and it was determined that they are still applicable, although none have been implemented to date.

The current Manitoba Water Stewardship licence to use water for municipal purposes (No. 2009-047) mandates a maximum rate that shall not exceed 0.054 cubic metres per second and 2160 cubic decametres (1 dam3 = 1000 m3) annually. Based on the average water well combined total volumes from 2010 to 2013, Selkirk currently utilizes approximately 65% of the annual licenced water allotment leaving a comfortable buffer. With respect to maximum rate the 2010 to 2013 normalized maximums average 0.047 cubic metres per second. The rate represents approximately 88% of the licenced value leaving only a minimal buffer.

Security of the raw water supply requires immediate attention. Two initial wells with an assumed 250mm diameter casing, and pump rates that will provide for future upgrades, are proposed to be developed at the site north-west of Selkirk. A staged approach is recommended based upon extensive previous work completed since 1973, which has consistently identified the 14-14-4E site as a potentially suitable site for a supplementary water source (Rutilus, 1973 and others).

The first new well is assumed to provide a flow which delivers a capacity equivalent to the largest of the existing wells (Christie), in anticipation of its failure. The second new standby well at the same location is intended to also initially deliver the same flow rate, becoming a supplementary supply to meet growth in water demand in coming years.

While the ongoing sewer separation program has helped to minimize the risk of sewer backup, both Dillon and Tetra Tech (formerly Wardrop) have proposed to service new development west of the CPR rail line by dedicated lift stations and a forcemain. This is where they differ in approach. Tetra Tech recommended a forcemain directed to the wastewater treatment plant. Dillon by contrast has recommended a forcemain directed to the main lift station located at Dufferin Avenue near the Red River. WSP agrees with Tetra Tech in believing the most cost effective and robust solution is a forcemain directed to the wastewater treatment plant.

Regulatory pressure is coming to bear on North St. Andrews rural residential land owners (e.g. onsite water well, with wastewater septic field), those bordering the Red River in particular. The larger issue relates to phosphorus nutrients entering the Lake Winnipeg drainage catchment leading to eutrophication of Lake Winnipeg. There may be the possibility of servicing East St. Paul and St. Andrews by piping wastewater to the City of Winnipeg for treatment, leaving open the prospect for North St. Andrews to convey wastewater either south, or north to Selkirk.

The challenge with providing municipal wastewater servicing for these lands along the Red River is twofold. The distance to a treatment plant is great, and the parcels are linearly distributed along the River. There are servicing options but they need to be fully evaluated over the life cycle of the infrastructure. For instance, low pressure sewer (LPS) has become a low cost alternative to traditional gravity collection sewer. By distributing the pumping requirement to each landowner, the operating and maintenance costs for the system can be reduced for the municipality.

The difficulty with the LPS system comes when sewage enters the larger municipal collection sewer, for instance a lift station at Selkirk. The sewage has, by this time, become septic and contains a significant content of sulphates and H2S creating a highly acidic and corrosive environment within the receiving sewer system. Without effective design and operations, the maintenance costs are in fact transferred from the landowners to the receiving municipality in this scenario.

Combining two of the future servicing issues discussed above, servicing Selkirk lands west of the CPR rail line, and servicing North St. Andrews acreages, it is recommended to study the feasibility of diverting future North St. Andrews wastewater to west Selkirk to be co-mingled with fresh residential sewage. In this way the corrosive nature of the influent from North St. Andrews (e.g. low pressure sewer) can be mitigated by chemical or mechanical means in a controlled location before being conveyed by a new main lift station and dedicated forcemain directed to the Selkirk wastewater treatment plant.

Previous engineering studies reporting on the hydraulic capacity of the combined sewer used graphical figures depicting model simulation results of sewer surcharging and anticipated sewer backup. However there was not to be found in the reports, hydraulic model simulation output data, or tabulated model results comparing and contrasting installed pipe capacity compared with observed or estimated sanitary sewer flows.

Without quantitative hydraulic data, WSP was left relying on anecdotal interpretations of the sewer estimated remaining available capacity. To this end it was determined to provide a preliminary hydraulic analysis of the sanitary sewer using hand calculations and normalized flow rates.

Using a sanitary sewer drawing atlas sheet (AutoCAD) provided by Selkirk and applying Manning's formula, WSP was able to hand calculate design/theoretical pipe flow capacity and flow direction from pipe diameter, pipe material, and pipe slope for the entire collection sewer. Using an AutoCAD drawing depicting legal lot parcels and Google earth satellite images, it was possible to estimate the number of single and multi-family residences for each city block. Bottom up estimates of average and maximum dry weather sanitary flows were estimated for each block in Selkirk.

The analysis proceeded by applying wet weather inflow and infiltration more-or-less uniformly across Selkirk's developed lands east and west of the CPR rail line. Newer developments to the west with separate sanitary and land drainage sewer systems are exempt from this assessment. From the 2010, 2011, 2012 measured wastewater effluent daily flow volumes, it was possible to conclude an average daily dry weather volume, maximum daily dry weather volume, and wet weather flow volumes. Interestingly, applying the maximum dry weather plus maximum (2010 to 2012) daily inflow and infiltration volume as an average flow rate uniformly distributed across the Selkirk collection sewer suggests a system with spare hydraulic capacity throughout.

Selkirk reported a large number of basement sewer backups at the end of May 2010 when approximately 13,500 m3 of inflow and infiltration passed through the wastewater treatment plant. Later in 2010 during October, Selkirk reported approximately 17,000 m3 of inflow and infiltration had passed through the wastewater treatment plant, and no basement backups were reported. The basement backup findings, when later discussed with the operations staff, was explained to be the result of precipitation intensity being much greater during the May 2010 event when compared with the October 2010 event.

In an effort to further understand the distinction between the May 2010 and October 2010 wet weather, the Red River water elevations reported by Environment Canada at Selkirk was reviewed. The data demonstrates river water elevations at Selkirk to be 2.0 metres higher in April and May 2010 compared with October of that same year. The suggestion from this information is that the storm sewer outfalls must have been immersed during April and May 2010 creating tail-water conditions in the storm sewer.

In addition, it was discovered from the Selkirk stormwater sewer atlas sheets that one of the key storm outfall pipes on Queen Avenue is dramatically downsized from 1650mm diameter to 450mm diameter. There is no explanation at this time for the restriction which affects the final 130 metres of the storm sewer on Queen Avenue leading to the outfall at the Red River

It is assumed that the septic system nutrients that may be leaching to the adjacent Red River from North St. Andrews riverfront residences will be a primary stimulus in any decision to place North St. Andrews on a municipal water and wastewater system. To manage uncertainty surrounding possible rural demand, WSP has applied a 10% inflation factor to the Selkirk water and wastewater servicing needs to account for the estimated rural component. Owing to ongoing sewer separation efforts moving forward, it is assumed the wastewater treatment plant will retain hydraulic capacity allowing Selkirk to continue operating on a single treatment train.

In October 2013, Selkirk submitted a Notice of Alteration (NOA) proposing alterations to the wastewater treatment facility Environment Act (Manitoba) Licence 2265R. The NOA submission is warranted in the context of recent nutrient removal requirements in the Manitoba treated wastewater effluent regulations. As of April 2014 Manitoba Water Service Board has retained AECOM to prepare a functional design of a new wastewater treatment plant that will address current and future nutrient removal standards.

SUMMARY OF PROJECTED NEEDS OBSERVATIONS

Population growth projections are proposed based on best available information at this time including census data, known development, land ownership and zoning consideration. Recent population growth surges at Selkirk have occurred in the past and can be assumed to be part of the cyclic nature of Selkirk's growth.

Beginning with highest priority the most pressing needs are:

- Provide a supplementary water supply system as the replacement for Christie well, the largest of the four drinking water supply wells;
- Integral to the supplementary water supply, provide a conveyance pipeline from the proposed supplementary well field outside of Selkirk to the water treatment plant;
- Relocate the influent raw water flow meter at the water treatment plant;
- Implement rainfall stations / snow stations based on budgeting for 2015; together with wastewater plant flows; used to track sewer flow reductions from sewer separation efforts.
- Upgrade the final 130 metres of storm sewer pipe on Queen Avenue from 450mm diameter to 1650mm diameter leading to the Red River outfall.
- New Biological Nutrient Removal (BNR) wastewater treatment plant functional design. Manitoba Water Services Board has retained AECOM to complete the design.
- Restore backup power at the WWTP; and provide Dufferin lift station with backup power generation and a data link to the SCADA system at the WTP; and
- The next phase of the combined sewer separation program should consider the proposed stormwater trunk on Strathnaver Avenue and lateral collection sewer as a priority based on 2010 basement sewer backup records.

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1 INTRODUCTION

WSP (formally GENIVAR) was retained by the City of Selkirk (Selkirk) to undertake a drinking water and wastewater master plan (WWMP). Selkirk is located north of the Winnipeg Capital Region and provides a convenient gateway to the Interlake Region. Selkirk has recently experienced development pressures both residential and commercial. To manage these and other future development pressures, Selkirk is taking the initiative in preparing an engineering master plan for the drinking water and wastewater systems in the community.

In recent years, Selkirk's "mini-boom" has seen the development and construction of big box stores and a new 84-room hotel in the Selkirk Crossing retail power centre on the western outskirts of Selkirk. In addition, Water Tower Lands Development Project, a new multi-family development, is occurring adjacent to the water treatment plant.

Selkirk's aging water and wastewater systems present significant challenges. If sustained growth occurs, it will present challenges that include ensuring the drinking water and wastewater systems expand at a rate and capacity sufficient for accommodating population growth and new residential, commercial, industrial and institutional developments.

Manitoba's Department of Local Government has mandated Drinking Water and Wastewater Management Plans, to guide infrastructure planning in support of development. Many of these plans have been drafted by planners with minimal engineering input. As such, some municipalities have introduced supplemental engineering studies intended to provide the tools needed for future water and wastewater investments.

Increasingly, provincial support for settlement centre expansion is contingent upon the provision of solid engineering assessments demonstrating that existing infrastructure is adequate for accommodating growth and development. Conversely, municipalities would have plans in place for phased expansion of existing systems where necessary to accommodate the forecasted growth.

1.1 STUDY AREA

Selkirk is an urban centre located approximately 25 km north of Winnipeg, within the Red River Planning District (formerly Selkirk and District Planning Area). The Red River Planning District, incorporated June 11, 1977, regulates development over an area of approximately 1,580 sq.km. The District serves the RM's of St. Andrews, St. Clements, East St. Paul, West St. Paul, the City of Selkirk and the Village of Dunnottar.

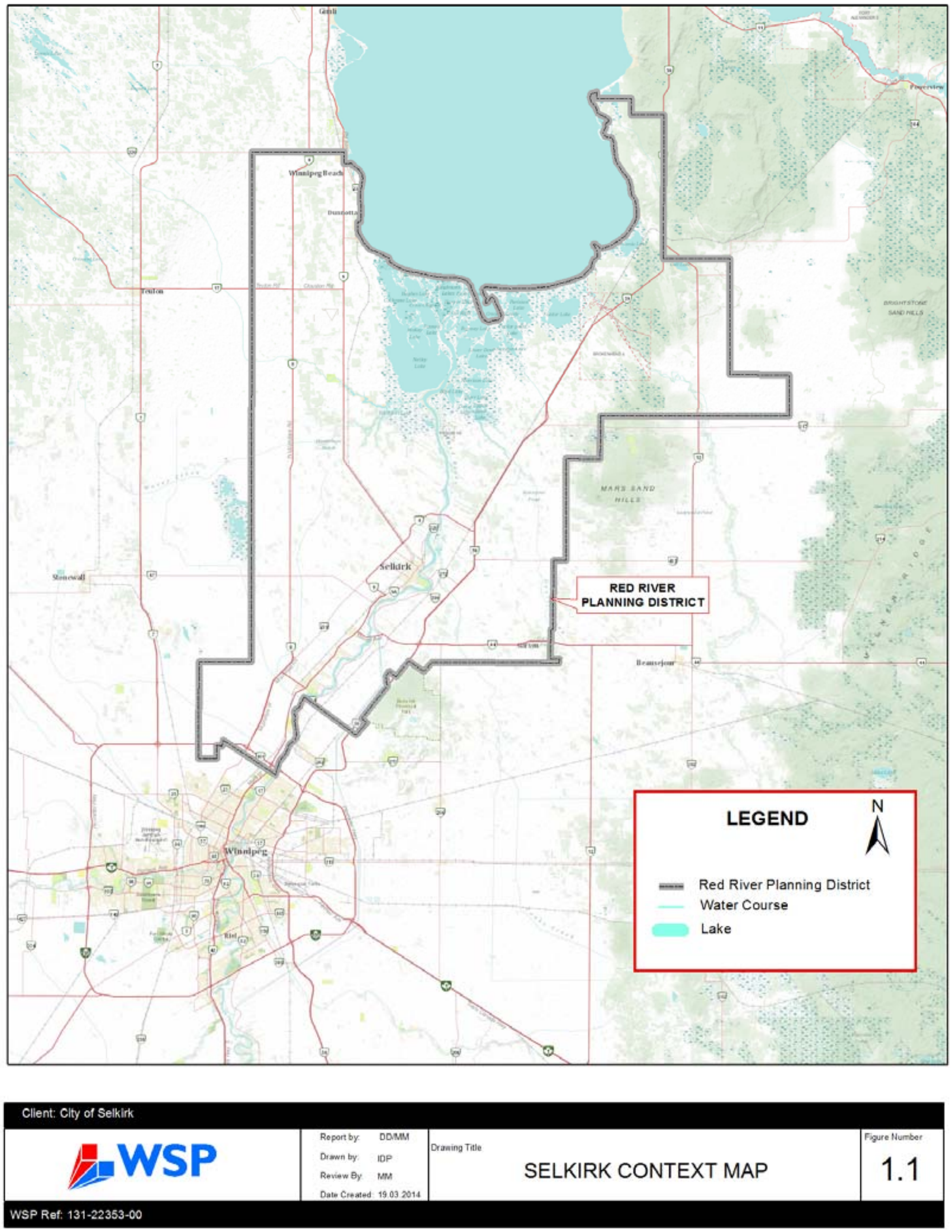


Figure 1-1: Study Context Map

Situated along the west side of the Red River, Selkirk supports a range of urban land uses including industrial, commercial, institutional, recreational and residential. Figure 1-1 identifies Selkirk within the context of the planning district, Red River and the

Interlake Region. Figure 1-2 represents the WWMP Study Boundary showing Selkirk and North St. Andrews.

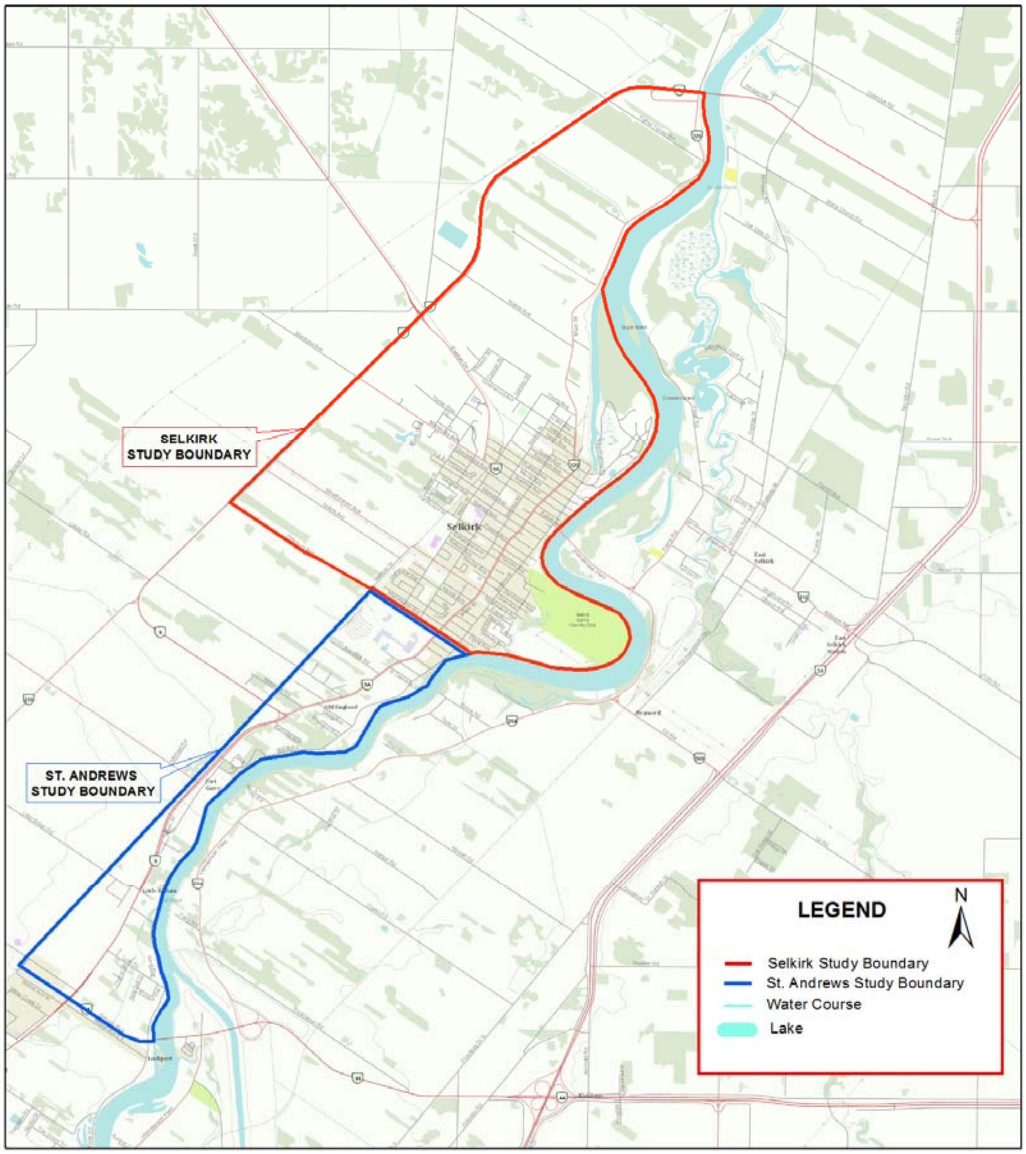
1.2 METHODOLOGY

WSP followed the basic framework for Drinking Water and Wastewater Management Plans as outlined in the Guide documents prepared by Manitoba Local Government. However, the Master Plan by WSP undertakes to provide more detail than appears in water and wastewater management plans crafted by planning consultants.

A number of issues have been well documented in the course of previous engineering studies completed in recent years. Herein, these have been reviewed in the context of development needs. The study has attempted to fill gaps, update older information and above all, develop a cohesive plan to address the City's long term drinking water and wastewater infrastructure needs.

Previously identified water and wastewater issues reviewed herein include:

- Inadequate (well) water supply capacity; potential solutions still considered valid include a supplemental water well supply outside the Selkirk city limits to the north-west.
- The wastewater treatment plant activated sludge process is approaching forty-years old; potential solutions revolve around upgrades to address nutrient removal. Alternatively a new wastewater treatment plant will be considered.
- Combined sewer capacity limiting new development from directing wastewater to the sewer mains; potential solutions include ongoing sewer separation, and a new forcemain between west development and the wastewater treatment plant.
- Treated water storage volume is marginal in the context of current water supply concerns; potential solutions include supplementary water supply well(s) with equal or greater capacity to the Christie well.
- Aged water distribution and sewer collection infrastructure; potential solutions include continuation of the replacement program considering condition and capacity needed to support development.



Client: City of Selkirk			
WSP	Report by: DD/MM Drawn by: IDP Review By: MM Date Created: 19.03.2014	SELKIRK WATER AND WASTEWATER MASTER PLAN BOUNDARY	Figure Number 1.2
WSP Ref: 131-22353-00			

Figure 1-2: Master Plan Boundary

2 EXISTING DRINKING WATER INFRASTRUCTURE AND CAPACITY

Commissioned in 2012 the new Water Plant #2 expansion is a modern version of the original lime softening treatment process. Previously, under the 1995 federal infrastructure initiative, additional wells and a 9 million litre reservoir were constructed. Despite much effort on the part of Selkirk to upgrade the water system, there remains concern about the age of key raw water supply wells. The water supply uncertainty in turn suggests reservoir storage may not suffice should Christie fail unexpectedly.

As was reported in the WSP 2006 report, the capacity of the Selkirk Plant #1 treatment train was sufficient to meet the City's current and future demands. However the treatment plant cannot achieve design capacity due to limitations of the carbonate aquifer within the Selkirk city limits where the four source wells exist. Plant #2 the new lime softening plant which came online in 2012 has approximately equal treatment capacity to Plant #1, yet the water supply bottleneck caps production at roughly half of the new Plant #2 treatment capacity.

The existing drinking water supply wells consist of three (3) raw water wells drilled to the lower limestone (carbonate) aquifer and one (1) drilled to the upper limestone aquifer. All raw water wells are located within the Selkirk city limits:

- Christie, lower aquifer, constructed 1968, redeveloped 1996 and 2006
- Mclean, lower aquifer, constructed 1959, redeveloped 1997, new pump 2006
- Rosser, lower aquifer, constructed 1987, redeveloped 1997, new pump 2004
- Tower, upper aquifer, constructed 1997, developed to upper aquifer

2.1 SOURCES OF WATER USE AND DEMAND

We have heard from the operations staff that the supply wells can produce a sustained rate of 42 L/s (previously the number has been reported as 47 L/s). Staff has also stated that the combined well supply has been decreasing at 2% annually. WSP analysis estimates the attrition of the wells at between 2% and 3% though the results will vary somewhat based on groundwater levels which are influenced by wet and dry precipitation years.

We know anecdotally that the success of the water distribution system hinges on the existing reservoir adjacent to the water treatment plant. By observing a SCADA data plot of reservoir level changes in response to the system water demand speaks volumes. Reservoir level recovery occurs over several days (one-week during summer peak) rather than hours. The recovery rate of the treated water reservoir volume is also evident from the 24/7 operation of Christie and Mclean wells. SCADA data suggests an increasing contribution from Tower well to the water supply. Rosser well is employed to a lesser degree while Mclean and Tower work together with Christie to provide the daily water supply with virtually no surplus capacity.

Analysis of the water distribution flow rates was challenged by two key factors. Outliers in the recorded peak values skewed the average values mandating the use of median values in an effort to normalize the hourly flows. As well, the normal peak summer water demand evident in 2010, 2011, and to a lesser degree 2012 is all but absent in 2013.

Analysis of the supply water well daily volume data agree with the water distribution findings at lower demand levels in 2012 and 2013. Selkirk operations staff has implemented a number of significant water conservation measures at the treatment plant which has provided benefits for the water production system.

WSP compared and contrasted the July 2010 to December 2011 supply water well and distribution flow rates as they appear to increase and decrease across the high and low demand seasons as would normally be expected. Normalizing the well data suggests the average supply water demand is 42 L/s with a maximum of 52 L/s. Normalizing the distribution flows provides an average 52 L/s with a maximum of 66 L/s.

With an average 10 L/s more distribution then production flows, that represents roughly 23% deficiency that has been mitigated by the existing reservoir. We have heard from the operations staff that a second filter is placed online at night to protect against process upsets (with the clarifier). This step it appears is to ensure the reservoir is able to recover which as stated previously requires several days.

At 52 L/s, the normalized average daily supply volume is 4,500 m^3. Given that the total reservoir capacity is 10,681 m^3 [clearwell (644 m^3), tower (946 m^3), buried (9,092 m^3)], there is little flexibility for losing treatment capacity without impacting on fire protection storage.

Anecdotally, we have heard from the operations staff that the water treatment Plant #2 clarifier is operating at “half capacity” suggesting that without the water supply restriction the plant could produce at approximately 80 L/s roughly equivalent to the future maximum flow demand.

Distribution flows from 2010 and 2011 SCADA data have outlier peak flows (110 L/s verse 65 L/s maximum) that are virtually absent in the 2012, 2013 data. The operations staff explained that the vertical turbine pumps will each generate about 60 L/s individually and roughly twice the flow when two pumps run together. Since the 2012 variable frequency drive (VFD) installation, it has been rare for a second distribution pump (second pump is not alarmed) to be required. Running the third distribution pump has not been required in recent memory (third pump is alarmed).

Previously, a history of low pressure was reported in the water distribution system. The operations staff indicated that since the VFD installation to the distribution pumps, the tower reservoir elevation stands fixed at between 36.0 m and 36.6 m indicating a stable distribution water pressure.

Sustained peak flows over several consecutive days were identified in the distribution flows from 2010 and 2011 SCADA data during May/June/July. When this observation was raised with operations staff, it was suggested the cause might be related to Selkirk Park pool filling. Subsequently, coordination with pool staff has improved such that fills and backwashing do not coincide with daily peak domestic demand.

With respect to current industrial water requirements the following has been established. Gerdau Ameristeel (formerly Manitoba Rolling Mills) is on their own well water supply for plant process needs. Only minor domestic water/wastewater servicing is required. It should be noted that the mill draws from the same aquifer as the current four Selkirk supply wells. During the annual two-week mill shutdown in July, there appears to be a net aquifer recharge observable in the Selkirk supply wells.

February 2012 SCADA data shows distribution water flows peaking numerous times which would not normally occur during winter months. The response from operations staff to this observation is that the likely cause was watermain repairs. The 2012 watermain repair record identifies February 27th as there being a watermain repair located on Phyllis Avenue at Jemima Street requiring 15 hours over two days to repair. Comparing the frequency of watermain repairs over the year 2010 to 2012 there appears to be a slight reduction in 2012 data possibly owing to the pressure moderating effect of VFD distribution pump drives.

SCADA data water distribution maximum flow values during 2010 and 2011 have dropped off noticeably in 2012 and remain low in 2013, suggesting one or more systemic changes. Operations staff indicated a change in the recarbonation process (pH adjustment). Taking water from the clear well rather than the large reservoir represents a daily 1,300 m^3/d (339,000 USGPD) net reduction in distribution demand. A second explanation suggests that utility rate changes, a 10% increase, which came into effect October 2011 has influenced water demand. Lastly, the distribution flow metre that was changed during this time period may be producing flow readings that are inconsistent with historic records.

2.2 WATER SUPPLY DETAILED ASSESSMENT

In an effort to facilitate a timely review of the Selkirk water supply needs, the water needs assessment was given precedence with the intended result that an engineering memorandum was presented to the Water Task Force on April 1, 2014. The findings reported to the task force on April 1, 2014 lead to the following summary of recommendations. The remainder of the engineering memo is provided in its entirety following the recommendations.

This engineering water supply section is intended to demonstrate:

- The existing water supply for Selkirk *has diminished* in the existing wells *and continues to diminish*. Despite numerous attempts at redeveloping the wells, gains are never sustained for more than one year.
- Christie well, originally developed in 1967, has provided 46 years of service and is the most critical of the aging wells. *Christie delivers over half of the water supply; the risk of loss cannot be overstated*. Christie operates near capacity year round and failure is not a matter of if, it's a matter of when.
- Again related to the loss of Christie, *the current lack of supply redundancy impacts on fire protection*. At 55% of the water supply, having Christie out of service will diminish reservoir volumes leaving Selkirk's fire protection system vulnerable.
- Supply and installation of replacement pump equipment can take two to three months as in the recent case of McLean well. *Loss of Christie will certainly place Selkirk in emergency mode for water supply*. Water rationing can be assumed with the possibility of a boil water order should the loss of Christie occur during any part of the year, but peak summer supply period would be especially critical.

Recognizing an increase in future water demands over the 25 year planning horizon, our recommendation is for duplicate new wells capable of each supplying 60% of the 2038 total sustained maximum day flow volume of 7,525 m^3 per day.

2.2.1 Historic and Projected Population

2.2.1.1 Historic Population

The City of Selkirk's historic population has expanded and contracted as illustrated by the Statistics Canada census results of 1971 to 2011.

Table 2.1: Historic Population

Year	Population Served	Compounded Growth Rate
1971	9,330	
1976	9,862	1.12%
1981	10,037	0.35%
1986	10,010	-0.05%
1991	9,815	-0.39%
1996	9,881	0.13%
2001	9,752	-0.26%
2006	9,553	-0.41%
2011	9,934	0.79%
Overall CGR 0.17%		

In an effort to normalize such fluctuations, an annual compounded growth rate (CGR) was calculated. Most recent data suggests the City is undergoing a growth phase, although this growth has not been sustained long enough to provide confidence that the historic growth trend will change. Accordingly, for the purposes of this study, the long term sustained historic annual growth rate was used as a median range for the 25 year population projections. Historic population for the City of Selkirk is tabulated in Table 2.1.

2.2.1.2 Projected Population

Applying the historic growth rate, population projections were calculated using PCensus by Tetrad Software (Vancouver, Canada) demographic analysis software to generate an appropriately evaluated population data set. This analysis complemented the aforementioned notion; that the current growth rate will not continue and the City will resume its historic growth trend in 2023. This calculated population forecast is illustrated below to 2023, with a 0.17% increase continued until the end of the planning horizon.

Table 2.2: Projected Population by Tetrad PCensus

	Year	Population Served
Tetrad Pcensus	2013	9,998
	2016	10,094
	2018	10,159
	2023	10,322
WSP	2028	10,488
	2033	10,657
	2038	10,829
	Overall Compounded Growth Rate 0.32%	

Population estimates based upon Table 2.2 were used as the basis to forecast the City's population and corresponding growth rates for the 25 year planning horizon. WSP (formerly GENIVAR) has concluded low, medium, and high growth rates to be 0.17%, 0.32% and 0.50%, respectively. Table 2.3 demonstrates the linear application of these growth rates providing for populations of 10,400, 10,829, and 11,366, respectively by the year 2038. For the purposes of this study, the medium population forecast has been used.

Table 2.3: Projected Populations for only the City of Selkirk

Year	Population (low)	Population (medium)	Population (high)
2013	9,968	9,998	10,034
2016	10,019	10,094	10,185
2018	10,053	10,159	10,287
2023	10,139	10,322	10,547
2028	10,225	10,488	10,813
2033	10,312	10,657	11,086
2038	10,400	10,829	11,366

2.2.2 Historical and Projected Water Demands

The term “water demand” refers to all the water requirements of the system including residential, commercial, industrial, institutional and unaccounted for water. Unaccounted for water is the difference between the volume of water produced at the water treatment plant and the volume of water billed. It includes system losses (i.e., leakage), incomplete billings due to meter inaccuracies, and nonrevenue uses such as flushing, watermain breaks, repairs, etc. Tabulated below are the historical and projected demands for the City taking into account the recent process upgrades at the water treatment plant, meter upgrades, etc.

Water requirements data provided by Selkirk represented three data sources. Source water well records were available as total daily volumes, while distribution flow meter records were available in hourly flow rates which have been used to calculate total daily volumes. Metered utility water records were provided as quarterly volumes. These differing measurement metrics do provide some uncertainty, as such WSP has chosen to emphasis well and distribution records for projecting future demand.

2.2.2.1 Historical Demand

The historical water demands are highlighted in Table 2.4. There are two main types of demands that are evaluated: average day demand (ADD), which is the total usage averaged over a one-year period and maximum day demand (MDD), which is the peak usage observed on any one day of the year.

Daily volume well records were normalized, reviewed for errors and anomalies, and tabulated. This data includes unaccounted for water. Given the variability in daily peaking of each well, monthly median values were summarized to evaluate demands and are considered a better representation of demand.

Distribution flow records were similarly analyzed to provide an ADD, as well as an MDD. Peaking factors observed for the distribution system were calculated and summarized.

2.2.2.1.1 Well Source Demand

The City’s ADD from the well sources since 2010 to the end of September 2013 ranged from 3,578 m^3 to 3,739 m^3 per day. Reviewing the peaking factors calculated below, it becomes clear that the Tower well is relied upon to supplement flows when consumption demand is high. This observation is further reinforced by Figure 2-1.

Peaking factors (ratio of maximum day to average day demand) for each well have been compared and contrasted. The Tower well peaking factor is unusually high. Operators report that the Tower well exhibits elevated levels of hardness and requires subsequent treatment adjustments when used. Therefore, its use is minimized to the extent possible and the last to be brought into service when demand is high.

Scrutinizing 2010 to 2013 individual well volumes on a daily basis provides single day observed system peaking factors. These peaking factors ranged from 1.62 to 1.85. Averaging these factors provides for a peaking factor of 1.71 (Table 2.5). This observed peaking factor is the basis for which projected maximum daily demands are calculated and is considered more representative of the system when compared to individual well maximums.

Table 2.4: Historical Average Day Well Demand

Individual Well Sources:	Christie	McLean	Rosser	Tower	Single Day Combined Peak Demand
2010					
Average Day Demand (m^3/day)	2,062	961	454	262	3,739
Individual Well Maximum Day Demand (m^3/day)	4,196	2,054	1,427	2,789	6,532
Peaking Factor (Max Day/Avg Day)	2.03	2.14	3.14	10.64	1.75
2011					
Average Day Demand (m^3/day)	2,046	868	454	353	3,721
Individual Well Maximum Day Demand (m^3/day)	3,538	1,812	1,466	3,206	6,891
Peaking Factor (Max Day/Avg Day)	1.73	2.09	3.23	9.08	1.85
2012					
Average Day Demand (m^3/day)	2,040	718	550	334	3,642
Individual Well Maximum Day Demand (m^3/day)	2,730	1,499	1,607	3,103	5,952
Peaking Factor (Max Day/Avg Day)	1.34	2.09	2.92	9.29	1.63
2013					
Average Day Demand (m^3/day)	1,908	658	712	299	3,578
Individual Well Maximum Day Demand (m^3/day)	2,661	933	1,583	2,894	5,780
Peaking Factor (Max Day/Avg Day)	1.39	1.42	2.22	9.67	1.62

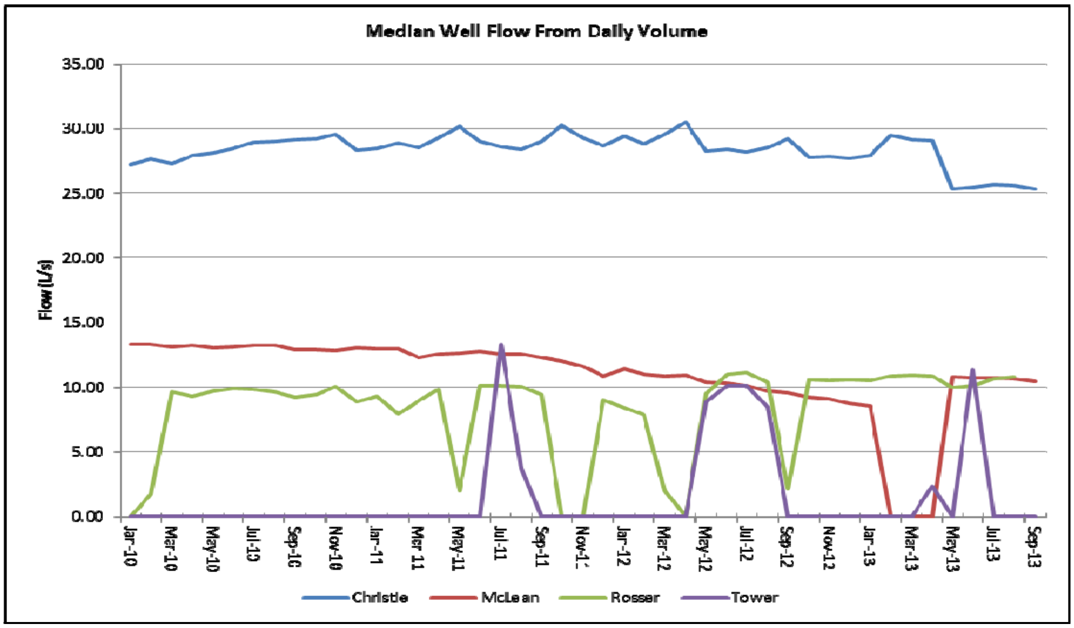


Figure 2-1: Median Well Flows as Calculated by Daily Volume Well Logs

Figure 2-1 illustrates the recorded variability in water supply from the Rosser and Tower wells, along with supply observed for Christie and McLean wells. The early 2013 replacement of the Mclean well pump can be observed in this Figure. Table 2.5 illustrates each well's relative contribution to the ADD, as well as the average observed peaking factor from 2010 to September 2013.

Table 2.5: Calculation of Water Supply Weighted Peaking Factors

Well Sources:	Christie	McLean	Rosser	Tower
2010				
Individual Well Peaking Factor (Max Day/Avg Day)	2.03	2.14	3.14	10.64
ADD Contribution	55%	26%	12%	7%
Observed Demand Peaking Factor	1.75			
2011				
Individual Well Peaking Factor (Max Day/Avg Day)	1.73	2.09	3.23	9.08
ADD Contribution	55%	23%	12%	9%
Observed Demand Peaking Factor	1.85			
2012				
Individual Well Peaking Factor (Max Day/Avg Day)	1.34	2.09	2.92	9.29
ADD Contribution	56%	20%	15%	9%
Observed Demand Peaking Factor	1.63			
2013				
Individual Well Peaking Factor (Max Day/Avg Day)	1.39	1.82	2.24	9.71
ADD Contribution	53%	18%	20%	8%
Observed Demand Peaking Factor	1.62			
Average Single Day Well Peaking Factor (Based on the maximum combined well demand observed on a single day)	1.71			

Table 2.6 illustrates the demand trends on a monthly basis. From 2010 to September 2013, it was observed that demand on the wells typically begins to rise as early as April and peaks in July, then declines from July to September. The lowest demands are observed in the winter months, November to March.

Table 2.6: Averaged Monthly Well Flows (L/s) as Calculated from Daily Volume Logs

Month	2010	2011	2012	2013	Average (L/s)	Relative Distribution
January	38	40	41	38	39	84%
February	41	41	39	35	39	83%
March	42	39	39	37	39	84%
April	43	42	39	38	40	86%
May	46	42	45	41	43	93%
June	48	47	47	43	46	99%
July	45	51	48	43	47	100%
August	45	49	44	42	45	96%
September	45	41	41	40	42	89%
October	44	43	42		43	91%
November	42	39	41		41	87%
December	39	40	39		39	83%
					-	
Minimum	38	39	39	35	**39**	
Average	43	43	42	40	**42**	
Maximum	48	51	48	43	**47**	
Median	43	42	41	40	**41**	

2.2.2.1.2 Distribution System Demand

Distribution demand has changed appreciably over the short time between 2010 and 2013; in particular the installation of variable frequency drives has moderated the distribution pump operation. Additional demand improvements include reclaiming the plant's backwash water, as well as approximately 1,000 m^3 per day of water is now drawn from the clearwell and is no longer drawn from the distribution network for re-carbonation purposes (since 2012). Coordination has improved with respect to the Selkirk Park Pool filling operations. Specifically, the volume required to fill the pool approximately equates to two days average water demand. Operations have organized initial pool filling, as well as recurring refill throughout the season, to minimize the overall demand on the water treatment plant during the peak season.

Distribution system demand was calculated based on hourly flows, in which hourly distribution volumes have been calculated. Daily average and maximum volumes were extrapolated from hourly records. The records have been thoroughly reviewed for consistency, errors, and outliers. Table 2.7 was calculated by tabulating hourly medians by month to normalize data and to obtain a representative average day demand and maximum day demand. The water treatment plant's supervisory control and data acquisition (SCADA) system was installed in 2010 with the new water plant. As such, it is limited to providing data from February 2010 to September 2013. This three year time frame is the basis for comparison throughout this report. The normalized average peaking factor observed for the distribution system is calculated in Table 2.7.

Table 2.7: Calculation of Distribution Data Peaking Factors

Median Distribution Flow and Yearly Peaking Factors	
2010	
Average Day Demand (m^3/day)	4,541
Maximum Day Demand (m^3/day)	5,898
Peaking Factor (Max Day/Avg Day)	1.30
2011	
Average Day Demand (m^3/day)	4,407
Maximum Day Demand (m^3/day)	6,273
Peaking Factor (Max Day/Avg Day)	1.42
2012	
Average Day Demand (m^3/day)	3,568
Maximum Day Demand (m^3/day)	5,530
Peaking Factor (Max Day/Avg Day)	1.55
2013	
Average Day Demand (m^3/day)	3,037
Maximum Day Demand (m^3/day)	4,566
Peaking Factor (Max Day/Avg Day)	1.50
Average Observed Peaking Factor	1.44

2.2.2.2 Per Capita Demands

Average annual per capita demands were calculated based on three sets of data. First, a system demand was calculated based on the entire system's water demand, which encompasses all water entering the City's treatment system. This is based upon daily well records. Second, demand at the water treatment plant from the distribution system was calculated based upon hourly flows observed at the plant. Lastly, usage was also calculated based on historical meter billings. These data do not include unaccounted for water and are measured on a quarterly basis. All three calculation methods act to confirm data quality, provide alternatives to compare results, and offer precision and accuracy to forecasting.

2.2.2.2.1 Well Supply Demand

Per capita daily demands including unaccounted for water are presented in Table 2.8. These data are based on the average well supply, as presented in Table 2.4, and the historical population as presented in Table 2.1. The average per capita demand on the wells from 2010 to September 2013 was 369 litres per person per day. This data is based upon well production records, as such; these numbers include all water drawn from the well source by the water treatment plant.

Table 2.8: Historical Per Capita Demands Based on Well Supply

Year	ADD (m^3/d)	Population (Medium)	Well Per Capita Demand (L/c/d)
2010	3,739	9,895	378
2011	3,721	9,934	375
2012	3,642	9,966	365
2013	3,578	9,998	358
Average	3,670		369

2.2.2.2.2 Water Treatment Plant Demand

The per capita demand as calculated from the water treatment plant distribution data is tabulated in Table 2.9. These data are based on average day demands presented in Table 2.7, and the historical population, as presented in Table 2.1. The average per capita distribution demand was observed to be 391 litres per capita per day.

Table 2.9: Per Capita Demand Based on Flows from the Water Treatment Plant

Year	ADD (m^3/d)	Population (Medium)	Distribution Per Capita Demand (L/c/d)
2010	4,541	9,895	459
2011	4,407	9,934	444
2012	3,568	9,966	358
2013	3,037	9,998	304
Average	3,888		391
2012/13 Average	3,303		331

Note that the average water treatment plant per capita demand appears to be slightly greater than what was observed from the supply wells for the same 2010 to 2013 period. This difference may be a result of replacing older flow meters with new flow meters which were installed in 2012. Further to 2012 changes, water required for the re-carbonation treatment process is now drawn from the clearwell (unmetered source), as opposed to a finished water source (metered). These are considered substantial changes to the water demand as observed at the water treatment plant. As such, years 2012 and 2013 are considered better representatives of current demand. The average per capita demand for these two years is 331 litres per capita per day.

2.2.2.2.3 Metered Demand

Annual per capita day demands based on the metered domestic customer base were calculated, which excludes unaccounted for water, and is tabulated as Table 2.10. The average per capita domestic demand over the same period was 173 litres per capita per day. In addition, the annual per capita day demands of the entire metered customer base (residential, commercial, industrial and institutional) are tabulated as Table 2.11. The average per capita entire metered customer base demand over the same period was 279 litres per capita per day. The City has reported that the industrial sector had their meters replaced in 2012 with second generation meters better suited to measure low flows. These data are based on City billing data and the historical population, as presented in Table 2.1. As metered data is only available on a quarterly basis, data for 2013 is considered incomplete and thus not included.

Table 2.10: Per Capita Demands Based on Historical Billing Data for Domestic Connections

Year	Domestic Metered Volume	ADD (m^3/d)	Population (Medium)	Number of Accounts	Per Capita Demand (L/c/d)
2010	613,619	1,681	9,895	2,872	170
2011	623,355	1,708	9,934	2,890	172
2012	647,780	1,775	9,966	2,914	178
Average	628,251	1,721		2,892	173

Table 2.11: Per Capita Demands Based on Historical Billing Data all Connections

Year	Total Metered Data	ADD (m^3/d)	Population (Medium)	Number of Accounts	Per Capita Demand (L/c/d)
2010	945,865	2,591	9,895	3,239	262
2011	1,008,143	2,762	9,934	3,260	278
2012	1,081,490	2,963	9,966	3,197	297
Average	1,011,833	2,772		3,232	279

The City also bills the water treatment plant and Gerdau Ameristeel fixed volumes of 284 m^3 and 2,044 m^3 each quarter, respectively. The origin of these fixed billed volumes was not specified, though it is anticipated to have originally been set by Council as an equivalent to a levy or tax for utility purposes in effect at the time. These values are excluded from the metered data set presented.

2.2.3 Projected Water Demand

2.2.3.1 Supply Demand, Including Unaccounted for Water

Estimates of future water demand were developed based on historic consumption and population forecasts presented in earlier sections. Current 2013 estimates are based on the current population data. Projected daily water demands are developed by multiplying the estimated gross per capita usage by the forecasted population for a given year. The projected demands presented in this memorandum do not consider additional water conservation beyond what the City is already achieving, and thus actual future amounts expected may be less.

Table 2.12 presents the projected demands for water based on well records. These projections are based on an average gross per capita water use of 369 litres per capita per day, as calculated in Table 2.8 above. The maximum day demand was multiplied by the average single day well peaking factor of 1.71, found in Table 2.5, to calculate the projected maximum daily demand. Resulting maximum daily demand projections ranged from a current maximum demand of 6,316 m^3 to 6,841 m^3 per day in 2038.

Table 2.12: Projected Total Water Demands, Including Unaccounted for Water

Year	Population	Projected Average Day Demands (m^3/day)	Projected Max Day Demands (m^3/day)
2013	9,998	3,689	6,316
2018	10,159	3,748	6,418
2023	10,322	3,808	6,521
2028	10,488	3,869	6,626
2033	10,657	3,932	6,733
2038	10,829	3,995	6,841

Table 2.13 calculates the projected water demand on the water treatment plant based upon the projected medium population found in Table 2.3, the 2012-2013 average demand of 331 litres per capita per day (Table 2.9) and the distribution peaking factor of 1.44 as calculated in Table 2.7. This demand represents treated water leaving the water treatment plant intended for system distribution. Water such as water main breaks, pipe leaks, flushing, etc. are included in these projections. Resulting maximum daily demand projections ranged from a current maximum demand of 4,777 m^3 to 5,174 m^3 per day in 2038.

Table 2.13: Projected Demand on the Water Plant, Excluding Unaccounted for Water

Year	Distribution ADD (m^3/day)	Distribution MDD (m^3/day)
2013	3,308	4,777
2018	3,362	4,854
2023	3,415	4,932
2028	3,470	5,011
2033	3,526	5,092
2038	3,583	5,174

2.2.3.2 Supply Demand, Excluding Unaccounted for Water

Table 2.14 illustrates the projected demands from the domestic customer base, and then recalculated for the entire customer base (Table 2.15). These projections are based on the domestic base average per capita water use of 173 litres per day and the total customer base average per capita water use of 279 litres per day, as calculated in Table 2.10 and Table 2.11 above.

The average day demands were multiplied by the water treatment plant distribution peaking factor of 1.44 (Table 2.7), to calculate projected maximum day demand. This calculation thus assumes that the metered demand peak is similar to water treatment plant supply peak. The resulting maximum day demand projections for the entire metered customer base ranged from a current demand of 4,029 m^3 per day up to 4,364 m^3 per day in 2038.

Table 2.14: Projected Water Demands for Water Domestic Customer Base

Year	Projected Domestic Metered Demand (m^3/day)	Projected Max Day Metered Demand (m^3/day)
2013	1,733	2,502
2018	1,761	2,542
2023	1,789	2,583
2028	1,818	2,624
2033	1,847	2,667
2038	1,877	2,710

Table 2.15: Projected Water Demands for Water Total Customer Base

Year	Project Metered Demand (m^3/day)	Projected Max Day (m^3/day)
2013	2,790	4,029
2018	2,835	4,094
2023	2,881	4,159
2028	2,927	4,226
2033	2,974	4,294
2038	3,022	4,364

Given the variability observed within the distribution data set (recent changes at the plant, meter changes, etc.) and low periodicity of the historical meter billing data, the well record data were selected to size future demands for the City, and for projecting new water source well flows.

2.2.4 Projected Demand Summary for Source Wells

Table 2.16 tabulates the projected future demands, including a 10% additional allowance for rural usage from 2013 to 2038. Litre per second flows are based on a 20 hour operational day as per conservative design practice (a 20% increase). A per capita demand of 369 L/capita/day (Table 2.8) and a peaking factor of 1.71 was used (Table 2.5).

Table 2.16: Future Demand for Supply Water Wells

Year	Population	Future Demand (City of Selkirk)				Future Demand (City of Selkirk and Additional Rural Demand)			
		ADD		MDD		ADD		MDD	
		m^3	L/s	m^3	L/s	m^3	L/s	m^3	L/s
2013	9,998	3,689	51	6,316	88	4,058	56	6,947	96
2018	10,159	3,748	52	6,417	89	4,123	57	7,059	98
2023	10,322	3,808	53	6,520	91	4,189	58	7,172	100
2028	10,488	3,869	54	6,625	92	4,256	59	7,288	101
2033	10,657	3,932	55	6,732	93	4,325	60	7,405	103
2038	10,829	3,995	55	6,840	95	4,395	61	7,525	105

2.2.5 Water Supply Summary

An approximate 1.3% attrition rate in source well capacity has been observed and documented in 1997 and 2006 reports. Recently, attrition of 2% was observed when comparing 2006 and 2012-2013 data (Table 2.17). Water treatment plant operator's note similarly observed water well attrition rates. The average observed sustainable well production rate from 2010 to 2013 is calculated as 42 litres per second, as reported in Table 2.6.

Table 2.17: Sustainable Well Production Rates Under Normal Groundwater Conditions

Year	Well Characteristic	Christie	McLean	Rosser	Tower	Total Flow
2006	Sustainable Production (L/s)	22	13	8	5	47
2013	Sustainable Production (L/s)	21	9	7	5	42

Table 2.18: Forecasted Well Supply Capacity (applying 2006-2013 attrition)

	Year	Population (Medium)	Total Sustainable Well Production Rate (L/s)	Forecasted Average Well Usage (L/s)	Average Remaining Well Capacity (L/s)
Recorded	2006		47		
	2010	9,895	44	43	1
	2011	9,934	43	43	1
	2012	9,966	43	42	1
Estimated	2013	9,998	42	42	0
	2018	10,159	38	43	-5
	2023	10,322	35	44	-9
	2028	10,488	31	44	-13
	2033	10,657	28	45	-17
	2038	10,829	24	46	-22

The above table applies a linear trend in the flow reduction observed in 2006 and in 2013. This rate is reduction forecasted to the end of the planning horizon. Forecasted average well demand is based solely on 369 litres per capita per day and forecasted medium population data. These results are highly sensitive to several variables, including changes in populations, demands, water levels, non-linear attrition, etc., in addition to the likelihood that the existing well casings will fail prior to the end of the planning horizon.

Table 2.18 provides a concise review of forecasted demands on the well supply, given the previously established sustainable rates associated with the wells. The total sustainable well production rates were estimated by a linear correlation between 2006 and 2013 values, and contrasted against the previously established average day demands. Values illustrated are conservative; though demonstrate that the current total well supply is currently not meeting demand without a backup source. Furthermore, if no changes to well infrastructure occur, the forecast estimates that approximately 50% of the demand could be met.

WSP employs the water industry standard definition of firm capacity as the pumping capacity to meet the maximum day demand with the largest duty pump out of service.

Given the data highlighted throughout, there is a clear water system vulnerability. All current wells are critical to the City's water supply, and should any well fail, the result could be disastrous. The following concerns have been previously reported by Steve Wiecek, P. Eng. (W. L. Gibbons & Associates), which further emphasize this memorandums identified issues considered to be a priority to address.

- In part due to age, as well as demand, well capacities are declining. Even with redevelopment efforts, capacities are diminishing.
- Well capacities are highly dependent upon groundwater recharge, which limit sustainable well production to approximately 47 litres per second within the City footprint under normal groundwater conditions (WSP, 2006).
- Current 2013 sustainable well production is estimated at 42 litres per second.
- A single well, Christie, provides approximately 55% of the volume to the water treatment plant per year. Failure of this well will result in the City having less than 50% of its water available.
- In the event that any well casing fails, drilling a new well can range from two weeks to two months or more. Redundancy is paramount.
- There is no backup water source to the City of Selkirk's water treatment system; every well must operate to meet current peak demands.
- Rosser well is located within the Red River flood plain and thus could not be available due to flooding in the area.
- Extensive well redevelopment will require that a well be taken offline. No well can be offline for a substantial amount of time due to demand to maintain pumping capacity, thus negating redevelopment efforts and further emphasizing the need for an additional, sizeable, well.

o The four wells currently are located within City limits. The urban setting is prone to potential sources of contamination (accidental or not). While there are thick, low permeability soils separating the surface from the aquifer and providing some degree of protection, the risk of contamination to the groundwater still exists.

2.2.5.1 Meeting Future Water Demand

Estimates of required replacement well capacity must take into account the potential for any combination of the proposed or current supply wells either failing, or requiring offline maintenance, in addition to recognizing an increase in water demands throughout the 25 year planning horizon.

Five comparison scenarios have been generated to compare potential replacements of the aging well infrastructure. Table 2.19 is solely based on 2013 demands and well capacities using recorded individual well contributions (Table 2.5) and historic flow rates (Table 2.6). As previously noted, all values are highly sensitive to groundwater elevations.

Table 2.19: Comparison Scenarios Using Observed 2013 Well Contributions

Replacement Scenarios	Description	2013 Required Sustainable Supply Flow (L/s)	Required Peaking Supply Flow (L/s)
A	Single well 100% redundancy to providing sufficient supply to remove existing wells from service as needed.	42	72
B	Christie well replacement. As Christie provides approximately 55% of the current supply, providing for redundancy will relieve demand on the remaining wells, in addition to satisfying demands.	23	39
C	McLean and Rosser well supply replacement. As these wells exhibit reduced flows and are anticipated to fail within the planning horizon, this demand is considered the minimum flows required of a new well.	15	26
D	Christie, McLean and Rosser well replacement. This supply would immediately replace the demand of all aging supply sources, while also reducing demands and attrition rates on the existing wells.	38	66
E	An alternative supply which targets replacing 75% of the total demand required, as opposed to replacing 3 of the 4 physical wells (excluding Tower well). The elevated peak demand may not be practical.	32	54

With respect to future water demand and the industrial lands north of Greenwood Avenue; carrying a large water demand which may not materialize may be impractical. We are of course open to input from local planning people and city staff. The key planning factor is the type of industry that would be encouraged. Food processing for instance would represent “water-intensive” industry verses ‘light’ industry, or commercial (i.e. warehousing, distribution centres). Selkirk planners could take a phased approach if they leave the door open to wetter land uses over the 25 year horizon.

Phasing might require another well in perhaps 10 years but not change the short term needs. When capacity is added, it will get used up more quickly if residential, rural and industrial uses all grow simultaneously but one or more of these uses may not materialise at all. The master plan identifies strategies if certain things happen, if certain growth rates materialise.

Regarding proposed future developments on the North Greenwood industrial lands. When a supplementary water supply is developed outside Selkirk, it is easy enough to add more wells as demand warrants. It is not as easy to add pipelines, as such; the supply pipeline could be oversized to accommodate the prospective industrial demand. The same could apply with respect to distribution piping although fire flows will have a larger impact on water main pipe sizing than the industrial flows. In order of priority water supply remains paramount. At some future date, and if predicted growth occurs, additional security in the form of distributed storage (e.g. satellite reservoir pump station at the west side of Selkirk) may be further considered.

2.2.5.2 Recommendations for Well Replacement

A staged approach is recommended based upon extensive previous work completed since 1973, which has consistently identified the 14-14-4E site north-west of Selkirk as a potentially suitable site for a supplementary water source (Rutilus, 1973 and others). Two initial wells with an assumed 250mm diameter casing, and pump rates that will provide for future upgrades, are proposed to be developed at the site. The first new well is to provide a flow which delivers a capacity equivalent to the largest of the existing wells (Christie), in anticipation of its failure. The second new well is intended to also initially deliver the same flow rate, though acting as either an alternate or in a stand-by supplementary supply function to meet growth in water demand in coming years.

Table 2.20 below is intended to demonstrate that each of the recommended new wells would provide 60% of the 105 L/s (63 L/s) projected 2038 total sustained flow rate. The total sustained maximum day flow volume is 7,525 m^3 (see Table 2.16).

Table 2.20: Well Replacement Recommendations

2038 MDD Volume	2030 MDD Flow (20hr)	Well 1	Well 2
7525 m^3	105 L/s	63 L/s	63 L/s

The initial assumption is an 8 kilometre pipeline (300mm diameter) would convey this flow to the water plant. Over time, the water demand will be determined with emphasis on the growth of potential water demand in neighbouring municipalities. As this occurs, progressively larger pumps could be installed to provide necessary redundancy.

2.3 WATER USE AND CONSERVATION MEASURES

The Selkirk Park pool operates during the summer months, typically from May to August. At times, the filling and backwashing of the large pool has challenged the water distribution network by placing a significant demand on the treated water network. Operations staff has indicated that the pool requires 8.2 million litres (1.8 M IMPGal) of treated water to fill. The initial fill for the summer season requires approximately 8 days at roughly 1 million litres per day.

The volume of treated water required to fill the pool equates to approximately two days average water demand. Operations staff has worked with management at the pool to better coordinate the initial pool fill as well as recurring refill and backwashes throughout the summer season. These efforts have served to minimize overall demand on the water treatment plant during the summer peak demand. Operations staff has estimated that over the normal summer, the total volume of water for backwashing and pool fills require 20 million litres of treated water.

Water treatment plant conservation measures have been significant in breadth and scope especially since bringing Plant #2 online in 2012. The only remaining processes which use distribution water are the lime slaker, polymer mixing tank and the housekeeping water for the lime dewatering equipment.

Water conservation measures for the plant include recycling spent filter backwash water back to a dedicated sump. From the sump, the water is pumped to the raw water inlet pipe upstream of the clarifier. It has been pointed out that owing to the groundwater source and the lime softening treatment process, this repurposing of filter backwash water was available to Selkirk. Water used for filter backwashing is drawn by dedicated pumps from the clearwell and not directly from the distribution network.

The sample water drawn from process piping in the plant for an assortment of online analyzers, when spent, is plumbed to the same sump which receives the filter backwash water. One other significant water conservation measure is the recarbonation process water source. In conjunction with bringing Plant #2 online, Selkirk discontinued using water from the distribution network. Currently recarbonation water for Plant #2 is drawn from the clearwell. This improvement helps to normalize distribution water pumping and also measured distribution water volumes.

2.3.1 Selkirk Residential, Commercial, Institutional Demand

Several drinking water network reports have been produced for Selkirk. AECOM 2009 is the most recent of these reports which estimate future water demand and the impact on the existing water distribution infrastructure. Some design assumptions have been revised from earlier reports as described below with the exception of the 369 L/c/d water demand which continues to be applied for future residential developments. WSP has built future 25 year water demand projections to the year 2038 upon earlier work by AECOM 2009 as found in Table 2.21.

Table 2.21: New Water Demand Estimates

Development Type/Location	2025 MDD*	2025 Fire Flow*	2028 MDD**	2028 Fire Flow**	2038 MDD	2038 Fire Flow
Commercial, West end Manitoba Ave.	n/a	4,353 L/min at 331 kPa	4 L/min	10,950 L/min	4 L/min	10,950 L/min
Industrial, north of Greenwood Ave.***	2,800 L/min	n/a	1,750 L/min	10,000 L/min	1,750 L/min	10,000 L/min
Residential, west of CPR mainline****	1,800 L/min	4,000 L/min at 138 kPa	1,082 L/min	4,000 L/min	420 L/min	4,000 L/min
Gerdau (former MRM) Steel Mill	720 L/min	n/a	720 L/min	10,000 L/min	16 L/min	n/a
Lower Fort Garry Historic Site	n/a	n/a	11 L/min	4,000 L/min	11 L/min	n/a
RM of St. Andrews	n/a	n/a	44 L/min	4,000 L/min	600 L/min	n/a

Note: 20 year projection EarthTech 2005*
*Note**: 20 year projection AECOM 2009*
*Note***: 70 lot developments proposed*
*Note****: Capacity for 1800 lot development (e.g. 20% roads & green space)*
Note: L/min units used to match FUS tables

2.3.2 Adjacent Rural Municipality Water Demand

Previous reports by AECOM 2005 and WSP 2006 make reference to the RM of St. Clements as potentially requiring treated water from Selkirk. In the years 2011/12 the RM of St. Clements established a groundwater source, reservoir and pumping station at East Selkirk. As such, it is our understanding that the RM of St. Clements is no longer interested in purchasing treated water from Selkirk.

The RM of St. Andrews was also discussed in previous reports by AECOM and WSP. St. Andrews may still be a candidate for regionalization of a water system with Selkirk at some future date. It has been reported that the RM of St. Andrews, RM East St. Paul, and the RM of West St. Paul may collaborate on a regional water system though nothing firm has been confirmed. Given the close proximity to Selkirk, the RM of St. Andrews residences, particularly those north of Hwy #44, would be potential candidates to partner in the pursuit of a long term drinking water strategy.

As a matter of due diligence, in formulating future water demand for Selkirk, WSP has increased the estimated future demand by a factor of 10% in an effort to approximate the rural drinking water demand over the 25 year design horizon.

2.4 SOURCE WELLS

Table 2.22 presents well production rates reported by WSP in 2006. The reported values represent a reduction from the 1997 production rates reported by AECOM. A qualified hydrogeologist has previously reported on the natural attrition in Selkirk's well production attributing this to the carbonate aquifer characteristics in general. Another contributing factor, that has been reported, is operated supply wells near the well's hydraulic capacity.

As an aside, it has been observed by operations staff at Selkirk that approximately 4.55 MLD (1.0 IMPGPD) of raw water is drawn from the same carbonate aquifer by steel industry Gerdau Ameristeel (formerly Manitoba Rolling Mills). This volume of water is approximately equivalent to the average daily treated water demand for Selkirk. Although there are no confirmed data, when the rolling mills take a two week summer shutdown each year in July, it is understood that the carbonate aquifer experiences a partial recovery.

The total production capacity reported in Table 2.22 and Table 2.23 assumes all wells are pumping and fully operational. Redundancy needs to be accommodated, today and for the future, to provide a level of operational security. WSP employs the definition Firm Capacity as shown in the table to represent one pump assigned to standby duty. More specifically, Firm Capacity is defined as the pumping capacity to meet the maximum day demand with the largest duty pump is out of service.

Table 2.22: Raw Water Well 2006 Production Rates

Well	Sustainable Production Rates 2006	
Christie Well	24 L/s	380 USGPM
McLean Well	10 L/s	160 USGPM
Rosser Well	7 L/s	110 USGPM
Tower Well	8 L/s	130 USGPM
Total Production Rate	49 L/s	780 USGPM
Total Production Capacity	4.23 MLD	1.11 MGD
Approximate Firm Capacity	2.16 MLD	0.57 MGD
Current Average Day Demand	3.98 MLD	1.05 MGD
Current Maximum Day Demand	6.36 MLD	1.68 MGD

Operations staff at the water plant have observed an attrition rate of approximately 2.0% year over year for the raw water wells. This contrasts with a 1.3% attrition rate observed between the 1997 and 2006 reports. It is fair to say the lower attrition rate is related to attempts at redevelopment of the wells. Operations staff have indicated that within one year following redevelopment, the wells return to the previous diminished flow rate.

Table 2.23: Raw Water Well Current 2013 Production Rates

Well	Sustainable Production Rates 2013	
Christie Well	21 L/s	330 USGPM
McLean Well	9 L/s	140 USGPM
Rosser Well	7 L/s	110 USGPM
Tower Well	5 L/s	80 USGPM
Total Production Rate	42 L/s	660 USGPM
Total Production Capacity	3.63 MLD	0.96 MGD
Approximate Firm Capacity	1.81 MLD	0.48 MGD
Current Average Day Demand	3.69 MLD	0.97 MGD
Current Maximum Day Demand	6.32 MLD	1.67 MGD

Note: Metric/Imperial units reflect water treatment plant historic data records

A tri-level government funded well capping program was conducted by Selkirk to protect the water supply aquifer. The program ran approximately five years from 2004 to 2008. Funds dried up and Selkirk discontinued the well capping program about five year ago.

2.5 LIME SOFTENING WATER TREATMENT PLANT

Late in 2011 and early 2012, Selkirk placed the newly constructed Plant #2 online. This long awaited step in the life of the Selkirk water treatment operations came with much anticipation and a number of missteps which have since mostly been corrected. Plant #2 is similar to Plant #1 in that both are lime softening processes. New filters, clarifier, and recarbonation provide for near complete redundancy in the water treatment operations.

Among the documented missteps were the lack of sampling ports in the new clarifier, the lime slaker equipment which did not deliver slake lime and the raw water flow meter installed in the most unconventional location. Since Plant #2 was brought online, the Plant #1 lime slaker has been repurposed and plumbed so that lime may be supplied to the Plant #2 clarifier. Sampling ports have been retrofitted to the Plant #2 clarifier, though the improvised plumbing unfortunately adds to plant cleanup.

The WSP 2006 report describes the need for repair/replacement of Plant #1 steel tankage. At the time the tankage was observed to be worn through in locations. With

Plant #2 online, Selkirk is now able to complete the needed Plant #1 repairs, building the work into the capital works budget. As in the past, January or February (the lowest demand period), is selected to dewater and desludge the clarifier. One full day is required to complete the work and bring the plant back into service.

One of the essential elements that came with the new Plant #2 treatment train is a SCADA system. The operations staff has always had a good maintenance program but with the help of SCADA, their maintenance program can be even better. The capacity to monitor and trend important process operations continuously will undoubtedly be helpful for plant operations staff. This ability to observe real time, or to trend the data provides a powerful diagnostic tool for the operators. Process upsets or even the onset of a mechanical failure can potentially be diagnosed using SCADA.

As WSP was reviewing water distribution records from 2010 to 2013 it became evident the maximum flow rates had diminished over this period. More specifically the spikes in the distribution flows had essentially stopped. Operations staff explained that recarbonation water that was previously drawn from the main reservoir distribution header is now drawn from the treatment plant clearwell. In 2012 VFD drives were installed for the distribution pumps. The combined effect of recarbonation water change (1,300 m^3/day reduction in treated water demand) and VFD pump drives has helped to moderate daily maximum flow rates. Anecdotally, operations have indicated the second distribution pump is required much less frequently.

Table 2.24: Water Treatment Plant Key Unit Processes

Unit Process	Rated Capacity	Current Demand	Future Demand Est.	Surplus Capacity Est.
Lime Slaker	454 kg/hr	85 kg/hr	~95 kg/hr	360 kg/hr
Clarifier #1	Clarifier #1, removed from service.			
Clarifier #2	477 m^3/h	227 m^3/h	250 m^3/h	227 m^3/h
Recarbonation #1	Recarbonation #1, removed from service.			
Recarbonation #2	23 kg/hr	7-11 kg/hr	9-13 kg/hr	10 kg/hr
Filtration #1	Filtration #1, removed from service.			
Filtration #2	477 m^3/h	227 m^3/h	250 m^3/h	227 m^3/h
Disinfection	23 kg/day	7-11 kg/day	9-13 kg/day	10 kg/day
Lime Dewatering	Landfill Use	35-55 tonne/wk	45-65 tonne/wk	Landfill Use

The treatment facility located at McLean Avenue and Jemima Street includes total reservoir capacity of 10,682 m^3 consisting of the 644 m^3 clearwell, 946 m^3 tower reservoir, and 9,092 m^3 buried reservoir. The clearwell serves multiple roles. Two 15 Hp transfer pumps in the clearwell convey water to the buried reservoir based on water level in the buried reservoir. The clearwell, provides backwash water using one 60 Hp transfer pump. As well, the clearwell provides treated water for the recarbonation process.

The overall water treatment plant capacity as displayed in Table 2.24 is considered equal to the capacity of the clarifier. For the lime softening plant at Selkirk, the recarbonation, filtration and disinfection are designed and built to match the clarifier capacity. Cochrane (2006) described the Infilco Accelator (Clarifier #1) as having a design rating of 477 m^3/h (2,100 USGPM). Operations staff at the water plant have indicated that the new Plant #2 Clarifier has approximately the same capacity as the original Clarifier #1.

Cochrane (2006) further described the 176 m^2 clarifier surface area with a theoretical 2.7 m/hr upflow rate. Raw water supply at the time limited the upflow rate to 1.1 m/hr or roughly 40% of the design rating. This bodes well with Operations staff at the water plant assessment that Clarifier #2 is operating at roughly 35% of design flow rate.

Since Plant #2 (Clarifier #2, Recarbonation #2, Filtration #2) came online in 2012, Plant #1 has been virtually retired. In fact, Plant #2 is operated completely independent of Plant #1, with the possible exception of the lime slaker. The new lime slaker has not operated correctly from the beginning. For the time being, the Plant #1 slaker is piped to feed lime to the Plant #2 clarifier.

The lime slaker capacity is understood to be 454 kg/h (1,000 lb/hr) and is operating currently at 85 kg/hr (180 lb/hr). Assuming a 10% production increase in the future the lime slaker demand could increase to approximately 95 kg/hr (200 lb/hr) leaving spare capacity of 360 kg/hr (800 lb/hr).

Clarifier capacity is a function of raw water supply and lime sludge wasting rate. By this definition Plant #2 produces treated water at the same rate as Plant #1 when it was operational. Clarifier #1 has been slated for long-term repairs that are not yet budgeted. As such, Plant #1 (Clarifier #1, Recarbonation #1, Filtration #1) are understood to be removed from service, and completely independent from Plant #2.

Recarbonation rates are 7 to 11 kg/hr (15 to 25 lb/hr) of CO_2 based on current rotameter settings considered to be 50% of the rotameter capacity. Disinfection Chlorine rates are estimated at 7 to 11 kg/day (15 to 25 lb/day) based on current rotameter settings considered to be 50% of the rotameter capacity.

The winter and summer lime dewatering work runs 14 to 18 hours per week respectively. Both of the available units are operated 5 to 6 hours per day, three days per week. Based on a lime haul truck weight from several years ago, it is assumed 35 to 55 tonnes is hauled to the landfill on a typical week. Currently there is no tipping fee charge as the dewatered lime is used for day cover which helps to control a rat population. If tipping fees are instated, operational staff believes disposal costs will jump significantly.

Previously the water tower reservoir, located at the water treatment plant site, maintained distribution pressures between 345 kPa (50 psi) and 360 kPa (52 psi). This pressure moderation role for the tower has generally been eliminated by the recent installation of variable frequency drives (VFD) to the distribution pumps. The tower reservoir remains as a backup against the possibility utility power loss. However, the water treatment plant installed a backup generator to maintain operations during loss of utility power.

The generator set at the water plant is designed to operate the slaker, clarifier sludge pumps, filters, polymer pumps, fifty percent of the lighting, one boiler, air make up units in the new building, plant PLC controls, two reservoir distribution pumps, two transfer pumps, backwash waste pumps, CO_2 feed system, and chlorine feed system.

Fire protection flows to the water distribution network are provided by a dedicated engine driven vertical turbine Peerless high flow rate pump. The engine is natural gas fueled and the engine must be activated manually by the operator on call. The design flow rate for the pump is 190 L/s (3,000 USGPM).

2.6 TREATED WATER STORAGE

The water treatment facility, located at McLean Avenue and Jemima Street, includes total reservoir capacity of **10,682 m^3**.as follows:

- Tower, 945 m^3
- Clear well, 645 m^3
- Buried, 9,092 m^3

The required total treated water storage defined using the Ministry of the Environment for Ontario (MOE) criteria is defined by the formula below. The Ontario formula has been adopted by Manitoba Water Services Board. Fire protection storage is given by the most conservative of the MOE and the Fire Underwriters Survey (FUS) recommended fire storage.

Storage = A + B + C

Where: A = Fire Storage (FUS 1999 Water Supply for Public Fire Protection)

B = Equalization Storage (25% of maximum day demand); and

C = Emergency Storage (25% of A + B)

Required Storage in 2013 = **5,345 m^3**

Where: A = 2,700 m^3 (15,000 L/min x 3 hours)

B = 1,575 m^3 (2010-13 data 25% x 73 L/s x 24 hours); and

C = 1,070 m^3

Required Storage in 2038 = **5,510 m^3**

Where: A = 2,700 m^3 (15,000 L/min x 3 hours)

B = 1,708 m^3 (25% x 79 L/s x 24 hours); and

C = 1,102 m^3

The difficulties in this instance with Emergency Storage are the underlying assumptions. The assumptions relate to a mechanical failure in the water treatment plant for instance. The assumption requires that a replacement part could readily be located and replaced within a 24 hour period.

In the case of Selkirk, the larger issue is that Christie well provides 55% of the raw water supply and is also the longest serving supply well (1968). In the event Christie fails abruptly, pulling/replacing a pump or drilling a new well could be assumed to require at a minimum several months or more. Under a scenario with Christie well out of service, there is no meaningful amount of emergency storage volume to mitigate the loss. Redundant supply is the only meaningful alternative to increasing Emergency Storage.

2.7 PIPED WATER DISTRIBUTION AND FIRE PROTECTION SYSTEM

Several studies regarding the City's water distribution network have been prepared by other consultants over the last two decades. The purpose of this study was not to conduct a comprehensive hydraulic evaluation, but to update data, recommendations, and conclusions from the previous studies to meet the City's needs and growth expectations.

A report prepared by AECOM titled City of Selkirk – Water Model Update, dated April 9, 2009 and the computer model associated with the report, were used as the basis for the analysis conducted in this report. This study is required to evaluate the capacity of the existing water network components and to update recommendations and proposed upgrades to the existing system to accommodate estimated future residential, commercial, and industrial development over the 25 year horizon of the master plan.

The water network study was approached as follows:

- o Determine short and long term water demands, including potential development.
- o Using a WaterGEMS computerized model, simulate current and future water distribution networks, analysing the systems for restrictions and limitations.
- o Report on conclusions and recommendations.

Modern computer modeling systems operate very rapidly allowing for an efficient system analysis. The supply and distribution of water through the looped distribution network cannot be manually computed with the efficiency of the computer model. In addition, the working model can be used to review alternate "what-if-scenarios" before attempting to expand the water network in response to new demands on the system.

All existing water demand data, pipe inventory, pipe configurations, pipe characteristics, and node elevations were retained from the AECOM model. The computer model was imported and updated using WaterGEMS V.8i (formerly WaterCAD). WaterGEMS software is one of the most widely used water distribution modeling software packages. The working model is an analytical tool to assess the performance of the existing water distribution system. Simulating real world conditions under maximum and peak flows provides insights into system capacities and limitations under current and estimated future demands.

In addition, the distribution system was analysed at maximum day demand plus fire flow demand conditions, at a pressure of 360kPa (52 psi) at the plant. Observed system limitations identified during the model analysis are addressed in the study recommendations. Upgrade alternatives, developed from the analysis recommendations, and presented in later sections will ensure adequate flows are available to meet the future demands from development and population growth.

2.7.1 Distribution Network

The City's water distribution network, tabulated in Table 2.25, consists of over 60 km of pipe with sizes ranging from 100mm to 500mm, with over 60% being 150mm. Approximately 6.7 km of this piping is older cast iron, approximately 41.6 km being asbestos cement, and the remainder is newer PVC. The inventory of pipes used in the model is as follows:

Table 2.25: Selkirk Water Pipe Inventory (metres)

Material	100	150	200	250	300	400	500	Totals
Cast Iron	386	5,291	1,019	0	0	0	0	6,696
Asbestos Cement	69	27,816	3,301	8,388	1,516	574	0	41,664
PVC	0	5,632	2,739	3,370	1,241	0	0	12,982
Steel	0	0	0	0	0	0	23	23
Totals	455	38,739	7,059	11,758	2,757	574	23	61,365

2.7.2 System Demands

A detailed review of the City's entire water consumption records and historical usage was conducted as part of this larger study. However, the individual water demands for each model node for the existing system was duplicated from AECOM's 2009 report, and updated peaking factors were implemented.

The following system demands were used for the evaluation of the existing distribution system:

- Average daily demand (ADD) – 47 L/s
- Maximum daily demand (MDD) (1.71 peaking factor x ADD) – 80 L/s
- Peak hour demand (PHD) (2.5 peaking factor x ADD) – 118 L/s

The distribution network review began with the system's capability of accommodate existing system demands. In addition, several areas identified as expansion nodes in the community were also to be reviewed as part of this study. The following sections describe each area individually, and indicate the water demands that will be associated to them.

Residential Expansion West of Railway Street

The City has indicated that residential expansion will continue west of Railway Street. Ultimately, the future development will be bounded by Manitoba Avenue and Strathnaver Avenue on the north and south, and Railway Street and commercial development along PTH No. 9 on the east and west. A feasibility study prepared by Dillon Consulting in 2004 indicated that the area was approximately 192 ha (475 acres) and would include a mixture of single family and multi-family lots (for a total of 1082 family units), schools, and green spaces. For the purpose of this study, we assumed a population density of 2.3 persons per single family home, and 2 persons per each multi-family, and a per capita water consumption of 369 litres/person/day. This calculates to an ADD demand of 12.6 L/s, and a MDD demand of 21.5 L/s.

Commercial Development at Manitoba Avenue West and PTH No. 9

The commercial development activity in this area has been steady for the last several years. However, with the development being primarily big box stores, the water demand is quite low. AECOM's 2009 report estimated a MDD of only 0.07 L/s for the 20 year horizon. Although the domestic demand is low, this area is important in regards to the analysis of the distribution system since it is not looped into the rest of the City's system. Fire flow requirements become significant, and this is addressed in more detail in a later section.

Industrial Development North of Greenwood Avenue

A large parcel of land is designated for industrial development north of Greenwood Avenue, west of Main Street, south of Walker Avenue, and east of the commercial development along PTH No. 9. A concept plan of the area prepared by Lombard North Group proposes a layout that will accommodate approximately 106 industrial lots. It is difficult to predict the type of industry that will occupy any of the given lots, and therefore it is equally difficult to predict water demands. In AECOM's 2009 report, they assumed that to be conservative, all development was assumed to be heavy industrial, which would yield a water demand of 35,000 L/ha/day. As industrial operations typically operate 24 hours a day, ADD will equal MDD and PHD. Their 20 year forecast for the area, based on the foregoing, estimated a domestic water demand of 29 L/s.

Additional Community Growth

There are several other areas in the City where future water demands will impact the distribution system. These were identified in the AECOM report, but the detailed analysis of the derivation of the demands was not included in the scope of work for this report. However, since the demand information is required for the long term analysis of the distribution system, the following MDD data was inputted into the computer model:

- Additional consumption at the Gerdau Ameristeel Steel Mill – 12 L/s
- Additional RM of St. Andrews Demands – 0.7 L/s
- Additional Lower Fort Garry Demands – 0.2 L/s

A conceptual layout of the water distribution extensions to the above areas is indicated in Figure 2-2.

Figure 2-2: Water Distribution Extension Concept

Extensions were conceptualized for the three future developments identified, and water demands were distributed among the model nodes. For the three additional community growth areas, the demands were added to the nearest existing model node.

Based on the above assumptions, Table 2.26 outlines the total present and future water demands for the City of Selkirk.

Table 2.26: Current and Estimated Future Domestic Water Demands

Year	Average Demand (L/s)	Peak Day Demand (L/s)	Peak Hour Demand (L/s)
2013	47	80	118
2038	85	145	213

Note: The difference in 2038 values when compared with Table 2.16 is the water model study observed development of the entire track of lands zoned for residential development in west Selkirk.

2.7.3 Fire Flow Requirements

The quantity of water needed for fire protection depends upon the type and density of development in an area. Fire protection systems also include requirements for duration of fire flow, residual pressure at the closest hydrant and network looping. The Fire Underwriter Survey (FUS) booklet “Water Supply for Public Fire Protection” was reviewed as a guideline for evaluating the water distribution system in Selkirk.

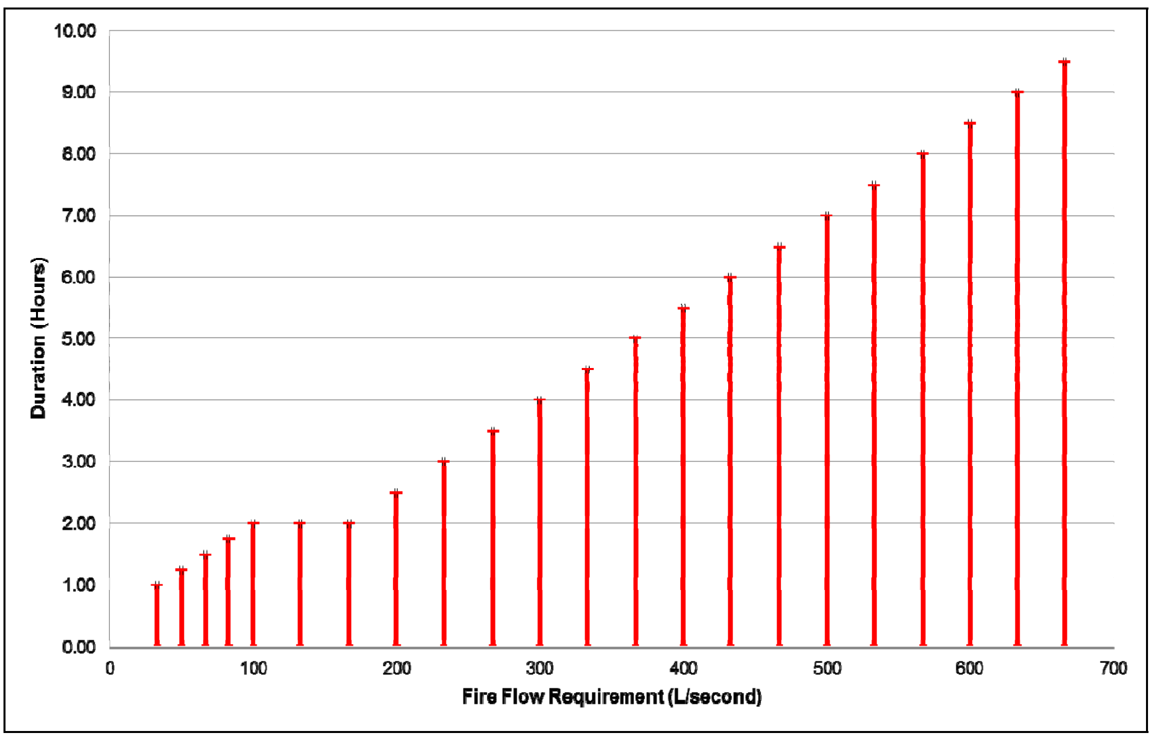


Figure 2-3: Required Duration of Fire Flow (Fire Underwriters Survey)

The FUS guidelines consider a system adequate if it can deliver the necessary fire flow at any point in the distribution system for the applicable time period as specified in Figure 2-3, “Required Duration of Fire Flow”, while the system is experiencing peak day demands.

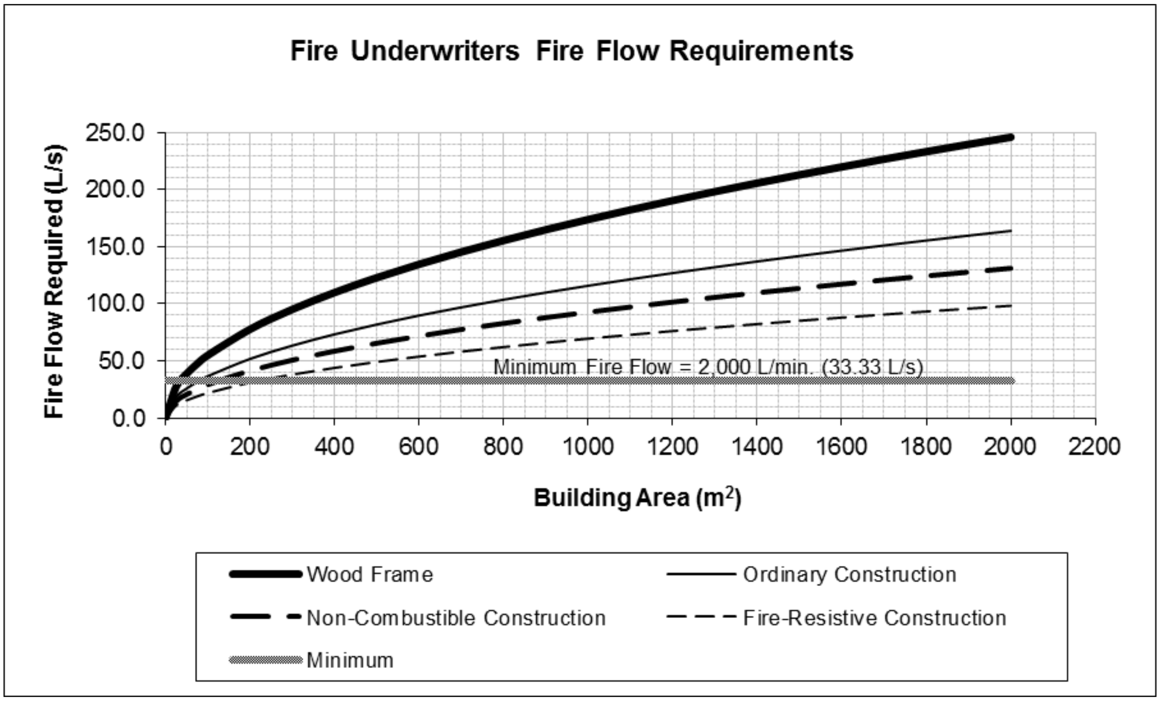


Figure 2-4: Fire Flow Requirements by Building Construction Type

AECOM indicated in their report that FUS audited Selkirk’s detailed fire flow In terms of supply, the principal requirement to be considered is the ability to deliver water in sufficient quantity permitting fire department pumpers to obtain an adequate supply from hydrants. To overcome friction loss in the hydrant branch, hydrant and suction hose, a minimum residual water pressure of 140 kPa (20 psi) in the street main is required during the flow.

The Office of the Fire Commissioner and Insurance Underwriters recommend fire protection based on the type of buildings to be protected. The FUS – Water Supply for Public Fire Protection provides a formula to estimate the fire flow required for a given fire area:

$$F = 220\,C\sqrt{A}$$

F = fire flow in litres per minute

C = coefficient related to type of construction, 0.6 – 1.5

A = total floor area in square metres

In order to develop some idea as to fire protection requirements for various buildings and areas of Selkirk, the FUS methods were used to estimate approximate quantities for several of the larger facilities. Figure 2-4 illustrates the relationships between building area and required fire flow for various types of building construction.

This information is a guideline and based on assumptions regarding construction type, footprint area, number of stories, fire resistance factors, etc. The estimates herein are for the purpose of providing preliminary observations only, in order to provide some insight into the system capabilities for fire protection water supply.

FUS has provided detailed fire flow requirements for various locations around the City, based on the type of development area and building construction. Unfortunately, that detailed information was not available for this review. Fire flow data, as indicated in the AECOM Water System Update report, has been used herein for our assessment. FUS submitted documentation to the City of Selkirk in 2012 that their fire flow classification had not changed; it did not indicate fire flow requirements for individual areas. As well, the 2015 budget provides for FUS assessment of the City fire protection network.

The fire flow parameters used to evaluate the distribution system were to run the computer model to confirm that under MDD conditions, with fire flow demands at various scenario locations, there would be a minimum residual pressure of 140 kPa (20 psi) at any model node.

2.8 THE HYDRAULIC MODEL

The network model for the City of Selkirk was imported into WaterGEMS V.8i (formerly WaterCAD), developed by Haestad Methods. This software solves hydraulic networks in a graphical environment. The original WaterCAD model was compiled by AECOM and revised in 2009. The model was upgraded for the purpose of this study.

2.8.1 Model Construction

The water distribution information included in the original model contained information on watermain sizes, material, interconnections, and reservoir configurations. Any unnecessary nodes were removed in order to simplify the model. Nodes were assigned elevations.

Water demands were included in the original model by assigning individual estimated demands to the various model nodes. All demands have been distributed geographically by performing an accounting of spatial density.

Water treatment plant and reservoir operational data was gathered and included, where necessary, in the model. The pumps at the water treatment plant have been replaced with “reservoirs”, which are WaterGEMS objects that simulate an endless supply of water at a constant head. This allows testing of various scenarios for the piping system to be completed without the complication of changing distribution pumps. It was assumed that the pumps in the reservoir would be capable of delivering the required fire flow, plus the future peak day domestic flows, at a pressure of 360 kPa (52 psi) at the plant.

2.8.2 Field Testing and Model Calibration

The Water CAD model provided by AECOM was calibrated in 2008 using field data. The field testing included hydrant testing and hydraulic (C-value) estimates. As verifying the calibration of the model was not included in the scope of work for the current study, all existing demands and C-Value tests from the AECOM report were assumed valid and used for the current study.

2.9 SYSTEM ANALYSIS

The original objectives of the water distribution system modeling were to create a calibrated steady state model to:

- Determine short term and long term water demands, including potential for development.
- Identify system restrictions and limitations for current and future water distribution networks.
- Recommend cost effective solutions or upgrades to meet the future water supply needs of the City.

The system has been tested for two demand scenarios. The first, peak hour demand, applies the demands predicted using the peak hour flows indicated in Table 2.26. The first scenario objective was to verify that under these operating conditions, there would be a minimum residual pressure of 275 kPa (40 psi) everywhere in the system.

The second scenario tested demands including peak day demands with fire flows. Similar to the peak hour testing, this scenario was also tested with all recommended upgrades implemented and future extensions completed.

2.10 PEAK HOUR DEMANDS

As described previously, the current (2013) peak hour flows are assumed to total 118 L/s, and the future peak flows are estimated at 213 L/s. The model was run with the future peak flows distributed spatially throughout the future development areas, and with the assumption that all recommended upgrades have been implemented. The simulation revealed that with appropriate pumping at the treatment plant, the existing distribution network provided adequate system pressures at all locations.

2.11 PEAK DAY WITH FIRE FLOWS

The software allows the user to simultaneously test nodal demands with fire demands. This is done by assigning the demands to the nodes while systematically determining the available fire flow for each system node in turn. For this study, the available fire flow was inputted at each node while simultaneously providing the peak day demand spread appropriately across the system nodes. Fire flows at the model node locations were determined using FUS, however as previously mentioned, the details of how they were determined at each location by FUS is not available. The operating strategy of the pumps at the treatment plant is such that sufficient pumping capacity would be available to supply the maximum fire flows of 288 L/s plus future peak day demands of 134 L/s at a plant pressure of 360 kPa (52 psi).

Table 2.27: Recommended Upgrades (AECOM 2009) All Future Extensions

No.	Node	Location	Recommended Fire Flow (L/s)	Available Fire Flow (L/s)	Deficiency (L/s)
1	J-11	Centennial Ave. & Barbara Bay	137	205	0
2	J-25	Mercy St. South of West Grove Bay	213	306	0
3	J-42	Manchester Ave. & Main St.	228	202	26
4	J-53	Grain Ave. & Main St.	183	273	0
5	J-79	Dorchester Ave. East of Eveline St.	78	256	0
6	J-110	Manitoba Ave. West of Annie St.	137	410	0
7	J-122	Sophia St. South of Stanley Ave.	228	283	0
8	J-162	Sophia St. & Queen Ave.	198	203	0
9	J-188	Greenwood Ave. West of Mercy St.	288	313	0
10	J-199	Manitoba Ave. btwn Main St. & Eveline St.	183	260	0
11	J-171	Eveline St. & Superior Ave.	167	257	0
12	J-62	Eveline St. & Heap Ave.	67	69	0
13	J-10619	Future - Manitoba Ave. West Commercial	183	180	3
14	J-10614	Future - Residential West of Railway	213	234	0
15	J-10581	Future - Greenwood Ave. Industrial	167	168	0
16	J-10575	Future - Gerdau Ameristeel Expansion	167	67	100
17	J-10576	Future - Lower Fort Garry	67	37	29
18	J-10577	Future - RM of St. Andrews	67	120	0

Several upgrades in the existing distribution system were proposed by AECOM in their 2009 report. The need for the upgrades were reviewed and it was determined that they are still applicable, although none have been implemented to date. These upgrades are discussed further in this report.

As earlier indicated, FUS had identified fire flow requirements at various locations in the City based on existing site conditions, but it is not known with certainty what flows they would recommend in the new expansion areas. For the residential area west of Railway Street, the conceptual layout is identified to accommodate mainly single and multi-family housing, which will generally have a relatively lower level of fire protection when compared to commercial or industrial areas. However, it is also identified that schools will be located in this area, which typically require a higher level of fire protection.

Although the higher level is required only at the school, it is unknown where the schools will be located, and therefore it would be prudent to conceptualize a water system that would have the appropriate fire flows, regardless of where the schools are located. To determine the fire flow requirements for a school in this area, the fire flow requirements were reviewed in the vicinity of existing schools in the community. The highest fire flows at an existing school was found to be 213 L/s. Therefore, it would be prudent to conceptually design a system to accommodate this flow rate value.

The commercial development at Manitoba Avenue West and PTH No. 9 had a FUS recommended fire flow of 183 L/s, as indicated in the AECOM report. Since the nature of future development is not likely to change from what is currently being developed, this fire flow will be assumed to be sufficient for any extensions.

The industrial development north of Greenwood Avenue had a proposed fire flow of 167 L/s, as indicated in the AECOM report. A review of other commercial and business areas in the City had similar FUS recommended fire flows of 167 L/s, so this figure will also be used for the analysis of the water distribution system in this area.

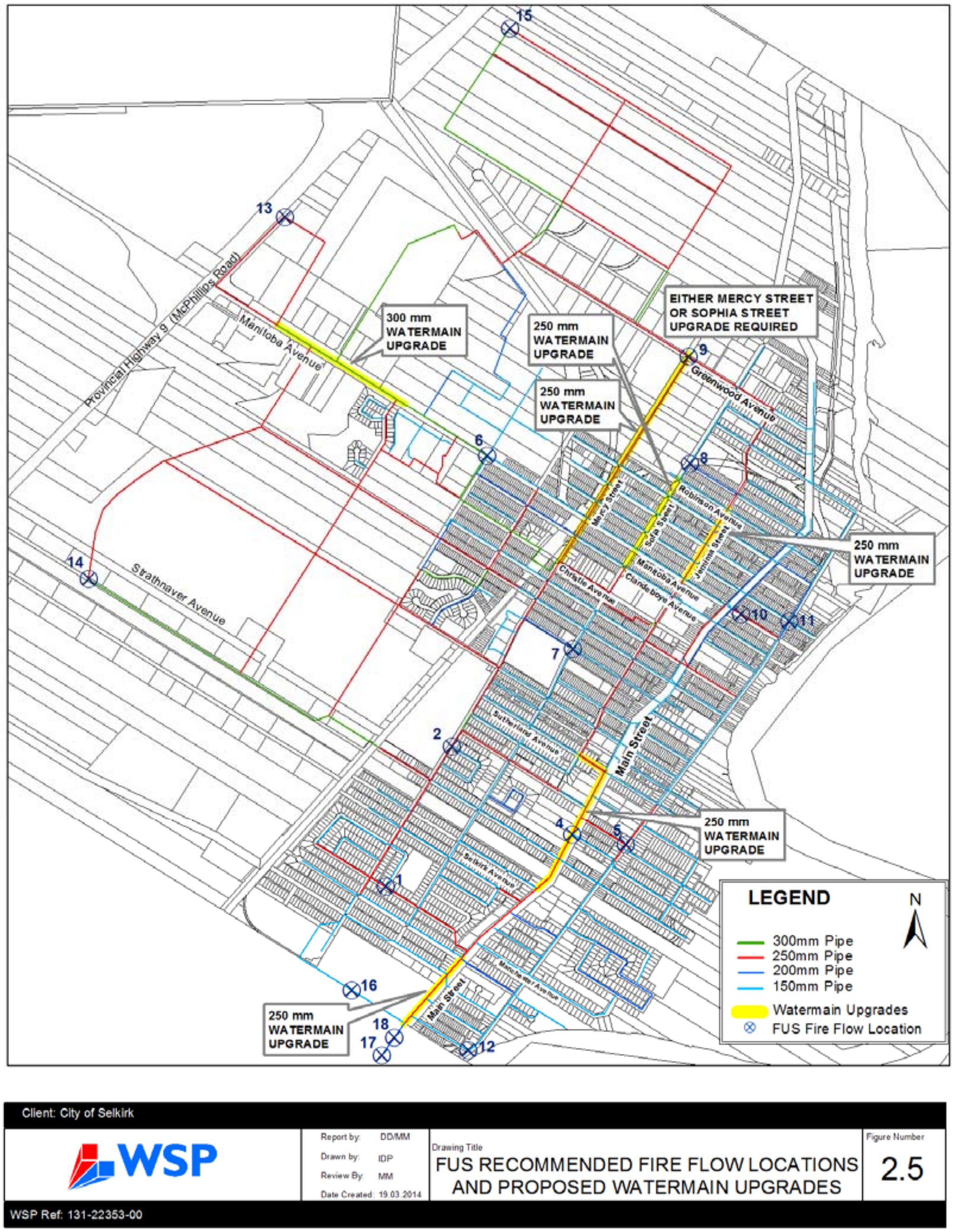


Figure 2-5: FUS Recommended Fire Flow Locations and Proposed Watermain Upgrades

For the purposes of this study, the model was developed to assume that the upgrades identified in the AECOM 2009 report had been completed, extensions for all future developments identified in the report were installed, future MDD demands indicated in Table 2.26 were assigned, and simulations were run with fire flow demands at various locations. Several iterations were attempted in order to develop a future scenario that met the requirements, yet utilized a minimum pipe size. Connections to various locations on the existing system were also modelled in order to maximize the advantages of looping in order to improve the hydraulic flows.

The recommended FUS fire flows, as well as the available fire flows as determined by the computer simulations, are indicated in Table 2.27 for various locations in the Community. Figure 2-5 shows the locations of various FUS recommended fire flows.

Table 2.28: Recommended Upgrades (WSP 2014) All Future Extensions

No.	Node	Location	Recommended Fire Flow (L/s)	Available Fire Flow (L/s)	Deficiency (L/s)
1	J-11	Centennial Ave. & Barbara Bay	137	206	0
2	J-25	Mercy St. South of West Grove Bay	213	308	0
3	J-42	Manchester Ave. & Main St.	228	203	25
4	J-53	Grain Ave. & Main St.	183	274	0
5	J-79	Dorchester Ave. East of Eveline St.	78	257	0
6	J-110	Manitoba Ave. West of Annie St.	137	411	0
7	J-122	Sophia St. South of Stanley Ave.	228	285	0
8	J-162	Sophia St. & Queen Ave.	198	252	0
9	J-188	Greenwood Ave. West of Mercy St.	288	278	10
10	J-199	Manitoba Ave. btwn Main St. & Eveline St.	183	265	0
11	J-171	Eveline St. & Superior Ave.	167	261	0
12	J-62	Eveline St. & Heap Ave.	67	69	0
13	J-10619	Future - Manitoba Ave. West Commercial	183	179	4
14	J-10614	Future - Residential West of Railway	213	234	0
15	J-10581	Future - Greenwood Ave. Industrial	167	164	3
16	J-10575	Future - Gerdau Ameristeel Expansion	167	67	100
17	J-10576	Future - Lower Fort Garry	67	37	29
18	J-10577	Future - RM of St. Andrews	67	120	0

A second model scenario was prepared, and again assumes all future extensions identified in 2.7.2 were installed, as well as the upgrades identified in the AECOM 2009 report, except that the upgrade of the watermain on Mercy Street is replaced by the upgrade of the watermain on Sophia Street. Further descriptions of the recommended upgrades are provided in 2.12 of this report. Future MDD demands, and fire flow demand simulations, for this scenario are indicated in Table 2.28.

With all recommended upgrades (both options) and all future extensions completed, the above tables indicate that recommended fire flows are achieved at all locations except the minor deficiencies at the following locations:

- Greenwood Ave. West of Mercy Street
- Manitoba Avenue West Commercial
- Greenwood Avenue Industrial

However, the deficiencies at these locations are less than 5% of the design flow, and should be considered acceptable.

The intersection of Manchester and Main does not meet the recommended fire flow, but could if the size of the watermain from the water treatment plant to this area was increased to 300mm. However, although it is deficient, there is still an available fire flow of 202 L/s, which is greater than what is recommended in industrial areas, and still 89% of the recommended fire flow. Without the background information to back-up the FUS recommendation, it is difficult to justify the expense of upgrading to a 300mm waterline for the upgraded fire flow.

The Gerdau mill is also less than the recommended value, however previous reports indicate the mill is presently providing its own fire protection, so the value of upgrading the City's system for this location will require further investigation.

The recommended Lower Fort Garry site drinking water service is a 2.5 km unidirectional water line, possibly with chlorine top up system. Fire protection at the site, if mandated by Parks Canada, must be provided by an onsite reservoir and pumps. Using water from the water service, the onsite fire protection "level of service" would have to be verified before sizing a suitable reservoir and pumps.

2.12 SYSTEM UPGRADES

The analysis indicates that the majority of the distribution system infrastructure is adequate to support present and future domestic and fire flow demands if recommended upgrades are implemented. The AECOM 2009 report recommended a number of upgrades, and these were reviewed as part of this report. The timing of the implementation of the improvements will determine their priority and is further outlined. Upgrading priorities are based solely on the criteria of meeting fire flow demands, and are not based on the condition, age, or pipe material of other areas of the distribution system.

2.12.1 Short Term Recommended Upgrades

There were a number of locations in the community that were identified in the AECOM 2009 report that were deficient in accommodating recommended fire flows, even under present conditions. Therefore, since fire flows would be further diminished by future additional domestic demands, it would be reasonable to bring the system into conformance under existing conditions before upgrading any areas to accommodate future flows. The following locations have been identified in Table 2.29 as short term priorities with regards to upgrades:

Table 2.29: Recommended Short Term Upgrades

No.	Location	Diameter (mm)	Approximate Length (m)
1	Mercy St. - Christie Ave. to Greenwood	250	1,105
2	Sophia St. - Clandeboye Ave. to Greenwood Ave.	250	475
3	Jemima St. - Manitoba Ave. to Robinson Ave.	250	385
4	Main St. - Sutherland to Selkirk	250	625
5	Sutherland Ave. - Jemima St. to Main St.	250	140

The Mercy Street or the Sophia Street upgrades will provide the same results with regards to increasing fire flows, so therefore only one is required. A summary of the available fire flows comparing the two upgrades are provided in Table 2.27 and Table 2.28. Although the Sophia Street upgrade is substantially shorter, the condition of the Mercy Street watermain should be evaluated (it may be due for renewal) before a selection is determined.

2.12.2 Medium Term Recommended Upgrades

There is only one upgrade recommended for the medium term, which is on Main Street in the south east quadrant of the community. Not only will the upgrade improve fire flows for the existing distribution system in the area, but it is also required to assist with accommodating future demands from Lower Fort Garry, the R.M. of St. Andrews, and the Gerdau Ameristeel Expansion. The upgrade is indicated in Table 2.30 below:

Table 2.30: Recommended Medium Term Upgrades

No.	Location	Diameter (mm)	Approximate Length (m)
1	Main St. - Heap Ave. to Manchester Ave.	250	345

2.12.3 Long Term Recommended Upgrades

The commercial area at the west limit of Manitoba Avenue is presently deficient in meeting the recommended fire flows; however it does meet 90% of the requirement. Upgrading in this area will require the replacement of relatively new watermains.

Because of the new mains, and the fact that it is close to meeting the required fire flows, upgrading is recommended for only the long term. However, the priority could rise if future commercial development proceeds in this area in an accelerated manner. The upgrades are indicated in Table 2.31 below. Figure 2-5 shows the recommended watermain upgrades

Table 2.31: Recommended Long Term Upgrades

No.	Location	Diameter (mm)	Approximate Length (m)
1	Manitoba Ave.– Purvis Blvd. to W. of Steel Town Ford	300	320
2	Manitoba Ave. - Steel Town Ford to west limit	300	350

2.13 WATER LICENSING AND REGULATIONS

The current Manitoba Water Stewardship licence to use water for municipal purposes (No. 2009-047) mandates a maximum rate that shall not exceed 0.054 cubic metres per second and 2160 cubic decametres (1 dam^3 = 1000 m^3) annually. Based on the average water well combined total volumes from 2010 to 2013, Selkirk currently utilizes approximately 65% of the annual licenced water allotment leaving a comfortable buffer. With respect to maximum rate the 2010 to 2013 normalized maximums average 0.047 cubic metres per second. The rate represents approximately 88% of the licenced value leaving only a minimal buffer.

2.14 SUMMARY OF DRINKING WATER SYSTEM OBSERVATIONS

Security of the raw water supply requires immediate attention. Two initial wells with an assumed 250mm diameter casing, and pump rates that will provide for future upgrades, are proposed to be developed at the site north-west of Selkirk. A staged approach is recommended based upon extensive previous work completed since 1973, which has consistently identified the 14-14-4E site as a potentially suitable site for a supplementary water source (Rutilus, 1973 and others).

The first new well is assumed to provide a flow which delivers a capacity equivalent to the largest of the existing wells (Christie), in anticipation of its failure. The second new standby well at the same location is intended to also initially deliver the same flow rate, becoming a supplementary supply to meet growth in water demand in coming years.

Water treatment plant observations based on several visits with operations staff suggest the water plant has been working effectively, with respect to the Plant #2 lime softening treatment process. Although in principle Plant #2 is the same process as Plant #1 (e.g. polymer and lime slake addition to the raw water, gravity clarification, carbonation, filtration, disinfection, and storage) differences in geometry and construction materials result in marginal differences that have been more or less worked out since Plant #2 came online early in 2012.

Earlier adjustments to the Plant #2 operations involved implementation of clarifier sampling ports that had been missed during the design/construction phase. As well, the new lime slaker was not plumbed correctly and has not operated from the beginning. As such, the Plant #1 slaker had been piped to supply Plant #2 slaker. In the coming months, the new slaker will be relocated with the intention of replacing the original lime slaker equipment.

Another observation is the influent raw water flow meter installation, as can be viewed in Figure 2-6. Conventional knowledge requires that flow meters not be placed at high points in process piping to avoid the influence of air pockets. To ensure uniform “full bore” flow through the flow meter, there is to be a minimum of 5 pipe diameters upstream and 2 pipe diameters downstream of straight pipe run. Figure 2-6 demonstrates the installed flow meter violates both of these important rules thereby casting doubt on the metered raw water flow readings. Operationally, staff is required to climb a tall step ladder to access the flow meter which is unnecessarily hazardous. Ideally, the flow meter should be repositioned to the vertical influent pipe (right side of the left photo) at approximately chest height for the operators.

Figure 2-6 Water Plant Raw Water Influent Meter

Figure 2-7 Water Plant Treated Water Distribution Meter

Another observation is the distribution water, as can be viewed in Figure 2-7, flow meter installation. In this case the flow meter is on a vertical straight run of the pump discharge pipe header. The problem is that the readout panel for the flow meter (which can be easily, and conveniently located) has been installed low to the ground and inverted viewed in Figure 2-7 making it difficult and potentially unsafe for the operations staff. Ideally, the readout panel would be remotely attached to the adjacent wall with all connecting wiring safely and neatly installed.

Following a review and analysis of the City of Selkirk's water distribution system, it has been found that the system is adequate for handling future expected domestic peak hour demands. For the most part, fire flows would also be adequate in accordance with the Fire Underwriters Survey, providing certain upgrades are made to the distribution system. These upgrades would bring most of the system up to FUS standards. Some of the other locations may be made compliant through individual building improvements, or booster pumps.

The existing water distribution model simulation review addressed the watermain system's ability to accommodate future growth in the community. Overall, the review findings are positive, with some upgrade requirements necessary to accommodate future demands. The upgrades presented are simply to provide the recommended fire flows to certain areas of the City for FUS recommended fire protection.

2.14.1 Identified Water System Shortcomings, Supply, Storage, Distribution

Recognizing an increase in future water demands over the 25 year planning horizon, our recommendation is for duplicate new supply wells capable of each supplying 60% of the 2038 total sustained maximum day flow volume of 7,525 m^3 per day.

3 EXISTING SEWER INFRASTRUCTURE AND CAPACITY

The sanitary collection sewer dates back to the early 1900's and was constructed as a combined sewer, which was a decision common to many early western Canadian communities. The original combined sanitary sewer, which receives both sanitary wastewater and land drainage stormwater, operated without a municipal treatment plant until the 1970's. A majority of the current sanitary lift stations and the wastewater treatment plant was established during the 1970's. The wastewater treatment plant and main Dufferin lift station came into being during the mid-1970's.

Decades later the decision not to separate sanitary and storm drainage flows has plagued communities and taxed the collection sewer and treatment facilities to their limits and beyond. As a result, in many cases new developments are prevented from going forward by regulators until the collection and treatment systems are capable of handling the extreme wet weather flows, before approval is granted to bring new developments online. It should be noted that newer developments (since the 1990's) are mandated to implement separate sanitary and drainage sewer systems which dramatically reduces the impact on the original combined sewers.

More or less in parallel, regulators have become increasingly aware of total nutrient loading to the environment and surface water courses. Although the agricultural industry is arguably the largest contributor of nitrogen and phosphorus to our streams and rivers, municipalities are being tasked by provincial and federal regulators to remove virtually all traces of ammonia nitrogen and phosphorus from treated wastewater effluent streams. This requirement comes at a great cost often placing a large financial burden on small to medium sized communities.

It has been reported by Dillon (2004) and Tetra Tech (1974) that the sanitary collection sewer in Selkirk was originally designed and built to accommodate lands between the CPR rail line and the Red River. In addition, Tetra Tech undertook a sewer relief study in 1993. The study of the combined sewer recommended a staged sewer separation program which Tetra Tech updated in 2001.

While the ongoing sewer separation program has helped to minimize the risk of sewer backup, both Dillon and Tetra Tech have proposed to service new development west of the CPR rail line by dedicated lift stations and forcemain. This is where they differ in approach. Tetra Tech recommended a forcemain directed to the wastewater treatment plant. Dillon by contrast has recommended a forcemain directed to the main lift station located at Dufferin Avenue near the Red River.

AECOM 2010 reported the largest historic wastewater flow recorded as 40.4 ML/day. The entire sanitary collection sewer drains to the main Dufferin lift station. The Dufferin station conveys wastewater to the treatment plant through a 600mm diameter forcemain. As such the Dufferin station controls the wastewater flow received by the treatment plant. Collection sewer flows in excess of the station capacity are diverted, unmeasured, to the Red River by an overflow mechanism.

On the occasions that the two 60 Hp pumps are operating together at the Dufferin station, the firm capacity reported by AECOM 2010 is 30.1 ML/day. It should be noted the pumps are programed as a duplex system with the third pump considered as backup. The duplex system requires that the third pump can only be operated manually if required.

Truck haul septage has been received by the WWTF over the years and in different formats. Originally, strategic manholes within the collection sewer in the proximity to Dufferin station were selected to receive septage. Public complaints about perceived discharging of sewage to the Red River prompted discontinuation of this practice.

Subsequently, the construction of a septage receiving station (SRS) in 1997 at the WWTF allowed for the delivery of both municipal septage, and leachate from the BFI landfill. Septage was received up until the year 2002 at the SRS. Leachate deliveries continued until July 2008 when the BFI leachate agreement was discontinued. Over the life of the SRS it was concluded that the leachate strength upset the activated sludge process. In addition, an assortment of septage deliveries contained materials which disrupted pumping at the septage station.

Truck haul septage from the RM of St. Clements and RM of St. Andrews was accepted at the decant lagoons (located west of the treatment plant across Hwy#4) between 2002 and 2007 when this was discontinued. From 2008 until the present, only septic waste originating in Selkirk can be dumped at the decant lagoons. Truck haul septage is on an honour based system with haulers charged on a full truck load irrespective of the actual septage volume.

3.1 SANITARY COLLECTION SEWER SYSTEM

As has been described elsewhere in the report, the treatment plant is not currently set up to treat wastewater under loss of utility power. In addition, Dufferin lift station does not have backup power. In effect, the collection sewer serves as storage during loss of utility power. This is a strategic decision on the part of Selkirk presumably to avoid incurring unnecessary costs. However, in the event of simultaneous power outage and elevated water levels in the Red River, things can become a little complicated as is briefly described below.

Table 3.1: Existing Lift Station (all duplex operation)

Station	Number of Pumps	Wet/Dry Sump	Area [ha]	Year Constructed	Upgrades
Heap (Includes Daerwood)	2 - 20 Hp	Wet	99	1974	Panel - 2012; Pump 1 - 2007; Pump 2 - 1999
Greenwood	2 - 20 Hp	Wet	23	1969	Refurbished 2013
Daerwood	2 - 3.9 Hp	Wet	5	1994	PLC replaced 2004
Annie	2 - 3.0 Hp	Wet	8	2006	n/a
Woodlands	2 - 5.0 Hp	Wet	32	1978	Pumps - 1999; Piping - 2010
Dufferin (Total System)	3 - 60 Hp	Dry	479	1976	Flood Protection 2009

The collection sewer includes approximately 53 kilometres of sewer pipe, the six lift stations listed in Table 3.1 but also three gated high level overflows to the Red River. The overflows are managed by way of weir gates that control sewer elevations to ensure all sewer flows except a portion of extreme wet weather flows are conveyed to the wastewater treatment plant. The gates are used to manage high river water levels preventing inundation of the collection sewer. In the event of elevated river levels, operations staff will raise the weir gates (#21 Morris Ave., #22 Heap Ave., and #23 Britannia Ave.) to prevent river water from entering the collection sewer. When heavy rains occur together with high river levels, wet weather flows create the potential for basement sewer backup. Under these extreme conditions the weir gates must be lowered to balance hydraulic loading. Operations staff has the capacity to provide mobile backup power at Dufferin lift station under emergency situations.

Owing to the original combined sewer in many parts of Selkirk, basement flooding during intense rain events continues to be an operational focus as discussed in the following combined sewer analysis section. The City is currently working to improve conditions through their sewer separation program, and a separate program to flush and camera the sanitary sewer with emphasis on the older sections of the collection sewer for which there is no as built records.

Currently the land drainage sewer (not part of the current study) comprises approximately 32 kilometres of pipe ranging in diameter from 250mm up to 1650mm, five storage pond facilities, and small number of drainage pump stations. The ponds and much of the larger diameter drainage system were installed as part of more recent commercial or residential development or as a retrofit to existing areas that did not have effective drainage. As stated previously, the land drainage sewer is gradually expanding as part of the ongoing phased sanitary sewer separation program. The current sewer separation program represents approximately 5,200 metres of a multi-year staged installation of new dedicated drainage sewer or sewer separation providing needed relief for segments of the sanitary sewer.

Table 3.2 represents installed pipe lengths compiled by Selkirk for the sanitary collection sewer.

Table 3.2: Sanitary Collection Sewer Pipe Lengths

District	100 to 250 mm diameter	300 to 450 mm diameter	600 to 900 mm diameter	Total Length [metres]
Annie	566	100	0	666
Britannia	5,232	7,306	1,411	13,949
Daerwood	1,845	0	0	1,845
Greenwood	449	2,361	0	2,810
Heap	4,475	4,267	241	8,983
Morris	12,446	7,962	2,317	22,725
Woodlands	1,945	83	0	2,028
Total	26,958	22,079	3,969	53,006

3.2 COMBINED SEWER HYDRAULIC ANALYSIS

Numerous engineering studies have reported on the Selkirk sanitary combined sewer. Selkirk has been steadily separating the combined sewer in recent years to gradually eliminate stormwater cross-connections with the sanitary sewer. Using data including AutoCAD drawings of the sewer networks and recent basement backup records, observations can be made that thirteen cross-connections currently exist between the drainage and sanitary sewers. Many of these cross connections will be eliminated as part of the sewer separation efforts.

Previous engineering studies, reporting on the hydraulic capacity of the combined sewer used graphical figures depicting model simulation results of sewer surcharging and anticipated sewer backup. Unfortunately, hydraulic model simulation output data, or detailed model results comparing theoretical and actual pipe capacity were not included in the available reports.

Without quantitative hydraulic data, WSP was left relying on anecdotal interpretations of the sewer performance and estimating remaining available capacity. To this end it was determined to provide a preliminary hydraulic analysis of the sanitary sewer using the following methodology.

Using a sanitary sewer drawing atlas sheet (AutoCAD) provided by Selkirk and applying Manning's formula, WSP was able to hand calculate design/theoretical pipe flow capacity and flow direction from pipe diameter, pipe material, and pipe slope for the entire collection sewer. Using an AutoCAD drawing depicting legal lot parcels and Google earth satellite images, it was possible to estimate the number of single and multi-family residences for each city block. Bottom up estimates of average and maximum dry weather sanitary flows were estimated for each block in Selkirk.

The analysis proceeded by applying a conservative 300 L/c/d (wastewater plant data suggests 275 L/c/d) average wastewater generation and 2.3 persons per single family residence. Multi-family apartment building units and seniors apartments were factored down both in flow rate and persons per unit. Institutional buildings such as seniors lodging were factored up to account for increase flow rates due to laundry and kitchen facilities. From these assumptions, it was possible to estimate total average flow rate for each city block. Maximum flow rate was estimated by applying a 1.7 multiplier derived from separate analysis of the water demand. Commercial lands were factored in by applying an average of 0.46 L/s/ha (Alberta Environment standards and guidelines). Unlike residential diurnal patterns producing daily average and maximum flows, commercial contributions remained as averages flow rates for the analysis. Figure 3-1 represents spare sewer capacity under maximum dry weather flow conditions.

The analysis continued by applying wet weather inflow and infiltration more-or-less uniformly across Selkirk developed lands east and west of the CPR rail line. Newer developments to the west with separate sanitary and land drainage sewer systems are exempt from this assessment. From the 2010, 2011, 2012 measured wastewater effluent daily flow volumes, it was concluded an average daily volume of 2,750 m^3/d, a maximum daily volume of 4,500 m^3/d, and a wet weather flow volume of 21,450 m^3/d. This equates to approximately 16,950 m^3/d of sanitary sewer inflow and infiltration during a wet weather event.

The area described as developed Selkirk represents approximately 416 ha of developed commercial and residential lands. Applying observed inflow and infiltration at 16,900 m^3/d, an average of 0.50 L/s/ha flow rate can be deduced. Applying roughly 5.06 ha as equal to two typical city blocks it can be assumed that 2.5 L/s of additional flow (on top of maximum wastewater flow) should be applied on average across each two blocks of city residential lands.

Interestingly, applying the maximum (2010 to 2012) daily inflow and infiltration volume as an average flow rate uniformly distributed across the Selkirk collection sewer suggests a system with spare hydraulic capacity throughout. At this point WSP collected data from Selkirk on reported 2010 basement sewer backups. Selkirk reported a large number of basement sewer backups at the end of May 2010 when approximately 13,500 m^3 of inflow and infiltration passed through the wastewater treatment plant. Later in 2010 during October, Selkirk reported approximately 16,950 m^3/d of inflow and infiltration had passed through the wastewater treatment plant, and no basement backups were reported.

The basement backup findings, when later discussed with the operations staff, was explained to be the result of precipitation intensity being much greater during the May 2010 event when compared with the October 2010 event. To further confound the analysis, hourly rain gauge data is unavailable to compare and contrast the 2010 rainfall events. As well, operations staff advised that the weir outfall releases to the river, in excess of the sewer capacity, are not tracked or measured. In other words, any measurable mass balance of the combined sewer network is virtually impossible at this time.

Having concluded that the preliminary hydraulic analysis of the combined sewer could not yield meaningful results, what remained was to observe the reported sewer backups in the context of the sewer separation program. Two areas stand out for the number of reported backups in May 2010 Figure 3-2. These locations became the focus of the 2011 sewer separation works. They include Agnes Street, McLean Avenue, and Vaughan Avenue west of the CPR rail line; and Jemima Street, Dufferin Avenue, Robson Avenue, and Queen Avenue in the north. Prior to the 2011 sewer separation works, pumping wet weather flows to area ditches was a common practice in these two areas.

The area with the next largest number of 2010 reported basement backups is represented by the developments bounded by Manchester Avenue to the south, Main Street to the east, Pacific to the north, and the CPR rail line to the west. The sewer separation plan recommends a large diameter stormwater trunk on Strathnaver Avenue to pick up new land drainage sewer to the north and south (essentially the bounded lands above). It is therefore recommended that these specific sewer separation works be completed as soon as the funding can be secured.

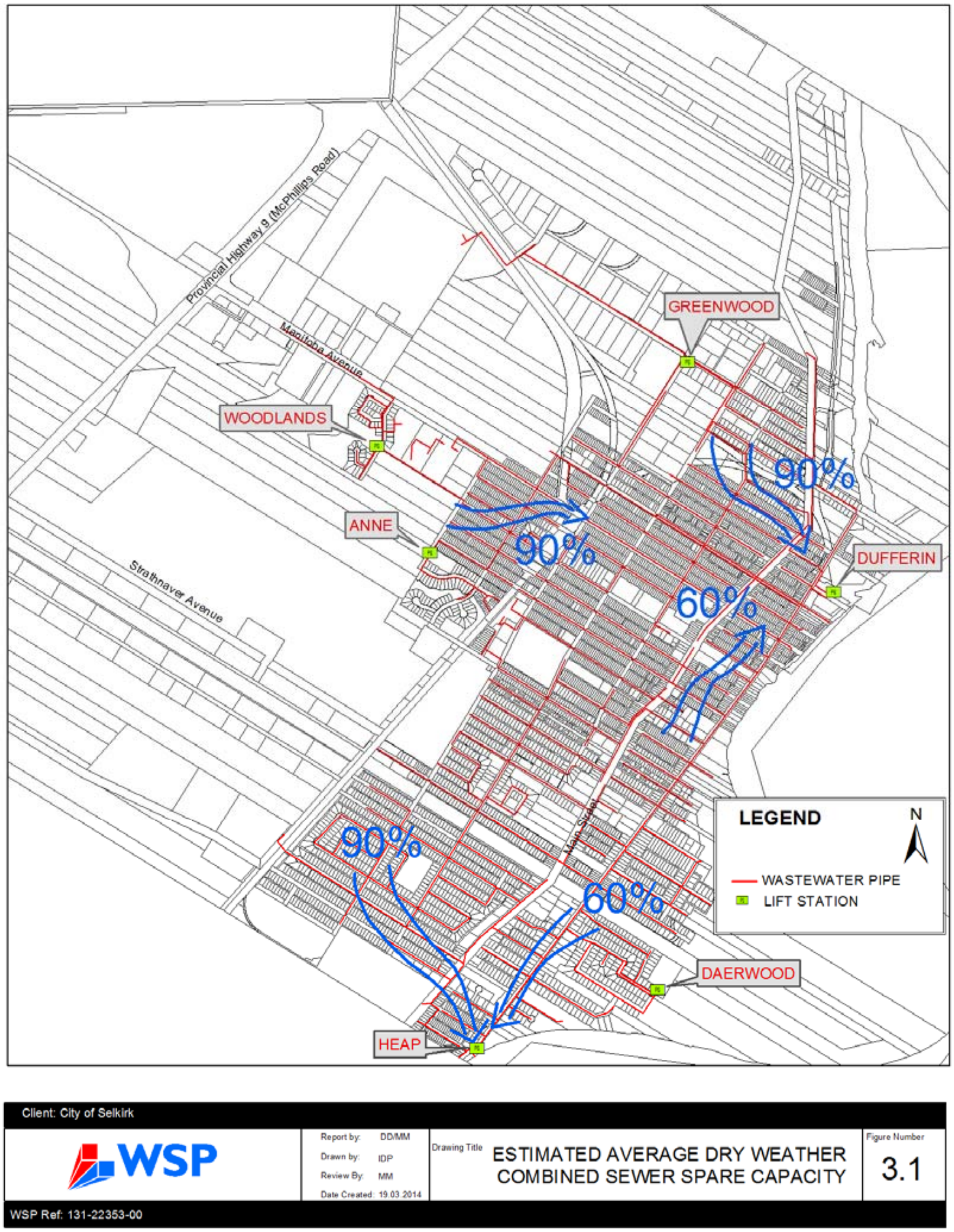


Figure 3-1: Estimated Average Dry Weather Combined Sewer Spare Capacity

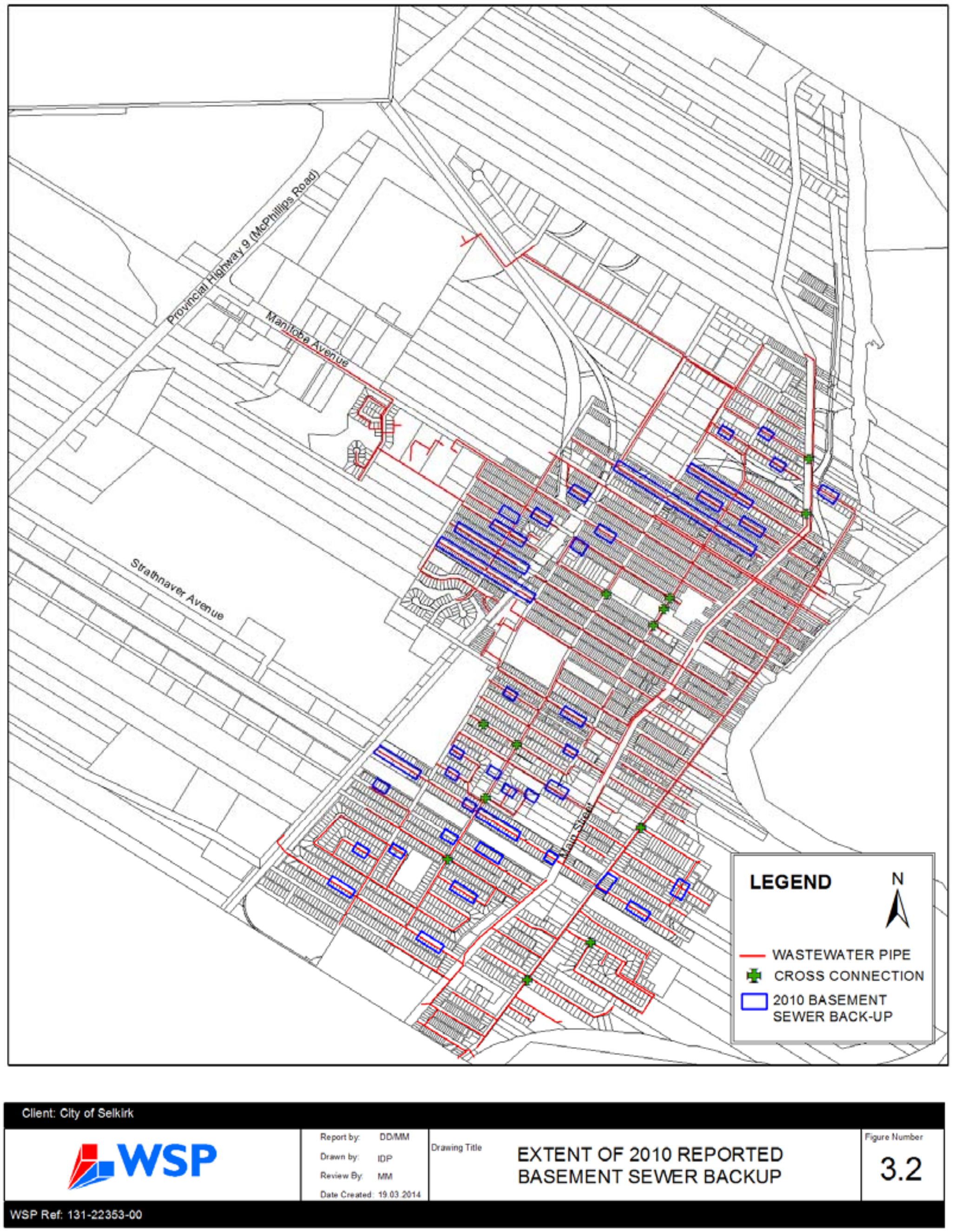


Figure 3-2: Extent of 2010 Reported Basement Sewer Backups

In an effort to further understand the distinction between the May 2010 and October 2010 wet weather as viewed through the wastewater treatment plant flows. Why is it that so many basement sewer backups occurred in May with none reported in October when roughly 25% more flow was recorded passing through the treatment plant? Two factors may hold the answer.

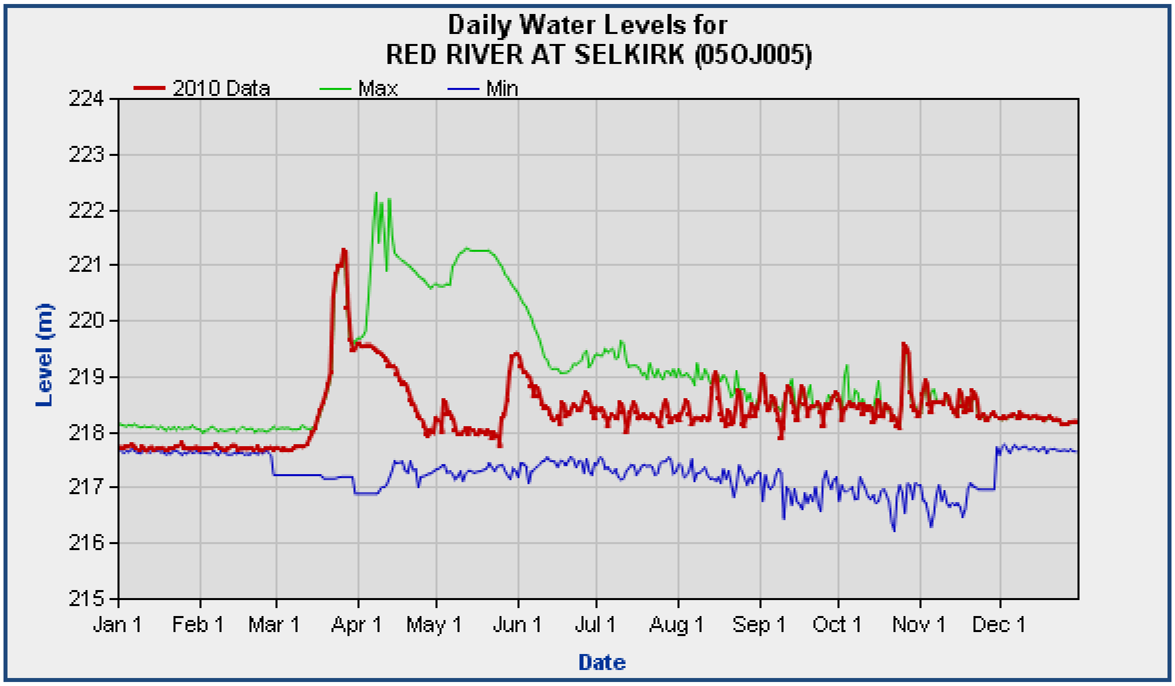


Figure 3-3: Red River Historic Water Levels at Selkirk

Red River water elevations as documented in Figure 3-3 including 2010, demonstrates river water elevations as much as 2.0 metres higher in April and May 2010 compared with October of that same year. The suggestion from this information is that the storm sewer outfalls must have been immersed during April and May 2010 creating tail-water conditions in the storm sewer. Tail water outfall conditions can be less effective at discharging flow compared with the alternative “free outfall” conditions.

In addition, it was discovered from the Selkirk stormwater sewer atlas sheets that one of the key storm outfall pipes on Queen Avenue is dramatically downsized from 1650mm diameter to 450mm diameter. There is no explanation at this time for the restriction which affects the final 130 metres of the storm sewer on Queen Avenue leading to the outfall at the Red River.

3.3 SOURCES OF WASTEWATER HYDRAULIC AND ORGANIC LOADING

Wastewater hydraulic, organic and nutrient loading can be assumed currently to come only from the City of Selkirk but will potentially expand in the future. Over the 25-year design horizon of the study, expansion could represent approximately 430 North St. Andrews residential lots north of Hwy #44 between Hwy #9 and the Red River. It should be noted that at the proposed medium growth rate, the Selkirk population is estimated to grew by 831 to 10,829. By comparison should North St. Andrews be serviced in its entirety the additional population equivalent could be as large as 1,075 persons assuming 2.5 persons per residence or approximately 10% of the projected 2038 Selkirk population.

Historic wastewater flow volumes provided by Selkirk from the past four years suggest a per capita wastewater hydraulic load of 275 L/c/d. This average dry weather flow excludes extraneous flows from inflow and infiltration. Utility water rate records have been reviewed by WSP to establish the per capita water demand at 369 L/c/d. This value agrees with the estimated dry weather wastewater value factored per municipal practice. Municipal engineering practice typically assigns 75% to 80% of the daily water use volume as an estimate for daily dry weather wastewater volume.

MMM, CH2M Hill and the local planning district have each estimated rural population growth within the RM of St. Andrews and with it the potential need for wastewater connections to the City of Selkirk. The RM's available developable lands could potentially be fully utilized over the design horizon of the study. From the planning district report, the most likely scenario is the North St. Andrews lands could eventually be integrated into the Selkirk water and wastewater system.

It is assumed that the septic system nutrients leaching to the adjacent Red River from older North St. Andrews riverfront lands will be a primary stimulus in any decision to place North St. Andrews on a municipal water and wastewater system. To manage uncertainty surrounding possible rural demand, WSP has applied a 10% inflation factor to the Selkirk water and wastewater servicing needs to account for the estimated rural component. Owing to ongoing sewer separation efforts moving forward, it is assumed the wastewater treatment plant will retain hydraulic capacity allowing Selkirk to continue operating on a single treatment train. Construction of the proposed aeration and nutrient removal wastewater plant improvements will certainly bode well for the treatment capacity.

MMM, reporting on the work of J.R. Cousin 2005, states that the Lower Fort Garry Historic Site operating season runs five months from May to September (153 days). During a typical season the historic site attendance approaches 40,000 or 260 persons per day on average. Cousin used water consumption records to estimate wastewater flow rates at 36 L/c/d noting a factor of 3.4 between the average and maximum day flow rates. Cousin further applied infiltration at 3.3 m^3/d during the operating season. It has been reported that the existing wastewater treatment plant at the historic site is nearing the end of its design life.

Table 3.3: Sewer Hydraulic Loading Estimates

	Selkirk [2010 WWTP data]; [Sewer Separation Completed 2038]		RM St. Andrews [Average MDF by 2038]		Lower Fort Garry Historic site [MMM/Cousin factors]	
Year	2013	2038	2013	2038	2013	2038
Population	9,998	10,829	0	1,075	0	300
Avg. L/c/d	275	275	0	275	0	36
Avg. DWF, m^3/d	2,750	2,975	0	295	0	11
Max. Day Factor	1.64	1.64	0	1.64	0	3.40
Avg. MDF, m^3/d	4,500	4,880	0	485	0	37
WWTP Max. Bypass m^3/d	4,800	4,600	0	0	0	0
WWTP Max. Treated m^3/d	16,600	15,500	0	0	0	0
Estimated Max. Infiltration, m^3/d	16,900	15,220	0	48.5	0	3.3
Total Wet Weather Flow, m^3/d	21,400	20,100	0	533.5	0	40.3

Table 3.4: Sewer Organic Loading Estimates

	Selkirk		RM St. Andrews		Lower Fort Garry Historic Site	
Year	2013	2038	2013	2038	2013	2038
Population	9,998	10,829	0	1,075	0	300
BOD_5 kg/d	800	866	0	87	0	26
TSS kg/d	900	975	0	97	0	29
TKN kg/d	140	152	0	15	0	5
NH_3-N kg/d	80	87	0	9	0	3
TP kg/d	30	32	0	3	0	1

Based on the projected hydraulic loading provided in Table 3.3, the corresponding population based projected organic and nutrient loading defined as biological oxygen demand (BOD_5), total suspended solids (TSS), total organic nitrogen (TKN), ammonia nitrogen (NH_3-N), and total phosphorus (TP) are presented in Table 3.4.

3.4 WASTEWATER TREATMENT FACILITY (WWTF)

The core of the Selkirk sewer infrastructure is the activated sludge wastewater treatment plant located approximately 1.5 km north of Selkirk along Breezy Point Road (PTH#320). The treatment plant was constructed in 1976 and comprises two parallel activated sludge treatment trains. Under current wastewater flows, regulated effluent quality is achieved using a single train. As such, the second treatment train currently provides standby capacity and treatment redundancy.

The 3 hectare site provides sufficient space for the treatment plant building which houses the complete treatment plant, including the recent UV expansion. Pre-treatment effluent is conveyed by gravity channel flow to the activated sludge influent where it undergoes rapid mixing and aeration by dual 75 Hp surface aerators. Each treatment train includes dedicated surface aerators. Flow capacity for the unit processes are tabulated in Table 3.5.

Table 3.5: Wastewater Treatment Plant Key Unit Processes

Unit Process	Rated Capacity	Current Demand	Future Demand Est.	Surplus Capacity Est.
Headworks (6mm) Screen	34.0 MLD	16.6 MLD	15.5 MLD	18.5 MLD
Headworks Grit Chamber	34.0 MLD	16.6 MLD	15.5 MLD	18.5 MLD
Bioreactor #1	17.0 MLD	16.6 MLD	15.5 MLD	1.5 MLD
Clarifier #1	17.0 MLD	16.6 MLD	15.5 MLD	1.5 MLD
Bioreactor #2	17.0 MLD		Standby As Required	
Clarifier #2	17.0 MLD		Standby AS Required	
UV Disinfection Channel #1	17.0 MLD	16.6 MLD	15.5 MLD	1.5 MLD
UV Disinfection Channel #2	17.0 MLD		Standby As Required	

Subsequent to the original construction, the treatment plant has undergone upgrades which include a twinning of the pipeline to the sludge lagoons, located 1.4 km west of the treatment plant. The twinning provides for dedicated supernatant return to the plant headworks. In 2006 the disinfection process was upgraded to ultraviolet (UV) and in recent years the headworks have been upgraded to 6mm screens and the grit removal was also upgraded including classification and separation.

The generator set at the sewage treatment plant is designed to run emergency lighting, ambient heating system, exhaust fans, and plant controls. Backup power generation is not operational for the plant at this time. This condition is not considered imperative given that the main Dufferin lift station has no backup generator and will not convey sewage in the event of a significant power outage. The lack of backup power generation at the treatment plant and main lift station is a significant deficiency.

The existing dual train extended aeration wastewater treatment plant capacity is between 17 (single train) and 34 (dual train) million litres per day (MLD). Data reviewed by WSP representing 2010 to 2013 flows suggests wet weather flows received by the wastewater plant to be in the order of 21 MLD. Wet weather flow has been noted in other reports to be limited to the capacity of the main Dufferin lift station at 34 ML/day (duplex operation). Wet weather flows in excess of the collection sewer capacity are discharged to the river at one of the three existing weir outfalls #12 Morris Ave., #22 Heap Ave., and #23 Britannia Ave. Wet weather flows in excess of Dufferin lift station capacity are diverted to the Red River.

3.5 FUTURE NUTRIENT REMOVAL CONSIDERATIONS

In October 2013, Selkirk submitted a Notice of Alteration (NOA) proposing alterations to the wastewater treatment facility Environment Act (Manitoba) Licence 2265R. The NOA submission is warranted in the context of recent nutrient removal requirements in the Manitoba treated wastewater effluent regulations. The specific alterations are proposed to replace the aeration equipment and add chemical dosing equipment to one of the two existing aeration basins. As of April 2014 Manitoba Water Service Board has retained AECOM to prepare a functional design of a new wastewater treatment plant that will address current and future nutrient removal standards.

Mixing and dissolved oxygen needs are currently provided for by a set of two 75 Hp mechanical mixers for each of the two aeration basins. Mechanical mixers that once satisfied treatment requirements at many wastewater plants are now being replaced by advanced fine bubble diffusers and aeration equipment. This is one of the two proposed NOA alterations for the Selkirk aeration basin. The resulting improved dissolved oxygen control, if implemented, will improve nitrification effectively reducing treated effluent total nitrogen to current and future regulated levels. The aeration basin, if implemented, will be fitted with new chemical dosing equipment for applying coagulant, polymer or a combination of both. The object of the NOA chemical dosing is to reduce the treated effluent phosphorus to current and future regulated levels.

3.6 SEWER LICENSING AND REGULATIONS

The Environment Act (Manitoba) Licence 2265R for the wastewater treatment facility (WWTF) contains reporting protocols and a number of clauses with operational specifications, limits, terms and conditions. Several of the key clauses are identified here for convenience.

Clause 13 sets hydraulic and organic limits for the WWTF. The hydraulic loading is not to exceed 17,000 m^3 over any 24 hour period. The organic load is not to exceed 1,530 kg of BOD_5 over any 24 hour period. Measured daily maximum effluent flows, excluding UV bypass channel, for the WWTF are 15,550 m^3, 12,100 m^3, and 11,200 m^3 for the years 2010, 2011, and 2012 respectively. Ongoing staged sewer separation work is anticipated to lower extraneous flows to the collection sewer over the 25 year design horizon of this study as indicated in Table 3.3.

Based on historic wastewater sampling, an average BOD_5 of 140 mg/L and a current average annual daily sewage volume of 4,000 m^3/d the estimated organic load is 800 kg/day, significantly below the regulated value. An estimated future organic load can be estimated using a projected population and an industry standard of 0.080 kg/c/d as BOD_5 which is marginally larger than the current calculated value of 0.056 kg/c/d BOD_5. Therefore, applying 10,829 as the 2038 population estimated using the medium growth rate. From this data we calculate 866 kg/day BOD_5 by 2038 which falls well within the current regulated organic load for Selkirk.

Clause 17 sets treated effluent quality limits for the WWTF. The effluent BOD_5 is not to exceed 30 mg/L, TSS is not to exceed 30 mg/L, and fecal coliform in the effluent indicated by the MPN index is not to exceed 200 per 100 millilitres. As well, total coliform in the effluent indicated by the MPN index is not to exceed 1,500 per 100 millilitres.

The Selkirk operations staff has collected water quality data at the wastewater treatment plant for some time. In recent years the data has become more standardized with the operating licence requirements. From the laboratory data WSP was able to review 2010 to 2013 data.

Table 3.6: WWTF Typical 2013 Water Quality

	Influent, mg/L		Effluent, mg/L					
	BOD_5	TSS	BOD_5	TSS	NH_3-N	TN	TP	Coliform
Maximum	575	828	53	24	2.71	28	5.9	150
Average	166	124	8	9	0.81	18	3.5	35
Medium	166	94	6	8	0.42	18	3.4	23
Minimum	14	30	6	5	0.02	4	1.5	4

Recent wastewater sampling data results affords a good snap shot of recent plant performance, as described in Table 3.6. Not shown in the table but observed from the data and corresponding spring rain events, the influent BOD_5 and TSS falls to approximately 35 mg/L and 25 mg/L respectively. It is understood that the lower water temperatures of the dilute stormwater, especially during spring melt, has the effect of moderating wastewater treatment biological activity.

3.7 SUMMARY OF SEWER SYSTEM OBSERVATIONS

As reported by Tetra Tech (1974, 2001) and Dillon (2004) the collection sewer, associated lift stations and wastewater treatment plant were primarily designed and built to service the lands between the CPR rail line and Red River. The reports which WSP has reviewed from these consultants provide little in detailed hydraulic analysis for the collection sewer. The reports provide figures representing sections of sewer that have been modeled. Portions of the combined sewer are depicted in the figures as either being surcharged or resulting in basement flooding under selected design storms as estimated by the modeling.

Unfortunately without the quantitative analytical results, either tabulated in the report or as model output files, it is possible only to qualitatively comment on spare capacity of the combined sewer system. Dillon for example made use of antidotal evidence from speaking with operations or engineering staff at Selkirk. With the staged sewer separation program well underway, several more years will be required to fully implement the sewer separation recommended by Tetra Tech based on their comprehensive 1993 study. These efforts at sewer separation are to be encouraged and supported by Selkirk council.

In speaking with the operations staff, it was explained that each year there is a budget to flush and camera existing sanitary sewer. The main thrust of the program is older pipe from the original sewer installation for which there are no as built drawings and little is known about the pipe or the general condition of the sewer. Suffice to say when distressed sewer pipe is discovered as part of the flushing and camera work, renewal work is scheduled and budget allocated as soon as possible.

The Selkirk sanitary sewer drains to Dufferin lift station to the north-east which happens to be located in the flood plain of the Red River. The lift station has been “flood proofed” with electrical and controls moved to an upper mezzanine level and an earthen berm has been constructed in response to recent flood threats posed by high river water levels. Dufferin lift station is a triplex pump station which operates in duplex mode with the third pump available as backup. Pumping during power outages is not supported as backup power is not available. Lack of a backup to utility power is considered a significant deficiency.

Owing mostly to the quantity of combined sewer in the older areas of Selkirk, the three emergency overflow weirs identified earlier in the report will remain vital to the system operations. As the sewer separation program proceeds, in the coming years, it can be assumed the emergency overflow weirs will be used less frequently. Selkirk has indicated they have not yet bench marked the sewer separation efforts to quantify the net reduction in stormwater. There are a number of methods to benchmark the combined sewer though the least demanding would be to effectively track precipitation intensity against measured flow rates at the treatment plant. The 2015 budget includes rainfall station / snow station implementation.

3.7.1 Identified Sewer System Shortcomings, Collection, Pumping, Treatment

Probably the largest shortcoming of the existing combined sewer is the uncertainty with respect to accommodating new residential development west of the CPR rail line and south of Manitoba Avenue. It has been observed that landowners are frequently requesting from Selkirk Planners if development will be allowed on these lands and what is the capacity for the existing water and wastewater infrastructure to accept new development needs.

Table 3.7: Estimate Range New Single Family Homes

Future Residential [25 year horizon]	single family high range	units	Future Residential [25 year horizon]	single family low range	units
Gross Area	655	acre	Gross Area	655	acre
less roads, storm ponds, and parks	131	20%	less roads, storm ponds, and parks	197	30%
Net Area	524	acre	Net Area	459	acre
factor	3.5	homes/acre	factor	3.5	homes/acre
Projection	1,834	homes	Projection	1,605	homes

Using current planning assumptions for population density, roads, schools, and green space it can be surmised that between 1600 and 1800 homes can be accommodated by these lands as demonstrated with Table 3.7. By comparison the WSP 25 year estimate for growth suggests in the order of 400 single family residential units are required at the medium growth rate.

In addition to the single and multi-family residential units proposed or currently under construction at Selkirk, there is the long term prospect of 430 additional residential units representing North St. Andrews that could potentially be serviced by the Selkirk infrastructure within the 25 year horizon of the current study.

Taken individually the combined sewer limitations, and the short-to-medium internal Selkirk development growth, and the long term external requirements of North St. Andrews and Lower Fort Garry don't necessarily provide cause for concern. Taken together, the picture is quite different suggesting a cohesive plan would serve Selkirk today and in the future.

Despite gains with the sewer separation efforts, WSP would not recommend a new sewage forcemain from West Selkirk to the main Dufferin lift station as was recommended by Dillon 2004. Conversely the more robust solution in the author's opinion is the dedicated sewage forcemain from West Selkirk to the sewage treatment plant. With regard to the north Greenwood industrial lands, a second dedicated forcemain could be roughed in at the same time for future industrial needs.

Alternatively, the new main lift station and forcemain intended for the west residential and commercial lands could be positioned centrally to pick up residential, commercial and industrial domestic wastewater flows. One important advantage of establishing a new main lift station and forcemain for the West Selkirk area is that it lends itself to picking up North St. Andrews wastewater flows directly as opposed to the more circuitous route through the larger Selkirk wastewater collection network.

The anticipated future high cost of constructing new piped sewer infrastructure through the existing areas of Selkirk may not have been fully conceived by Dillon in 2004. By directing a new forcemain(s) northward through sparsely developed lands to the wastewater treatment plant, the cost would be lower compared with the Dufferin alternative. Of equal importance, planning for this forcemain solution would also provide a preliminary solution for conveying the North St. Andrews sewage west and north through Selkirk west of the CPR rail line avoiding altogether the older area of Selkirk and the main Dufferin lift station.

All except one of the seven installed lift stations are intended to remain idle during a power outage. The inherent risk with the combined sewer system as mentioned earlier in the report is the probability that an intense rain event will occur concurrently with high river levels which requires closing of the three outfall weirs. Under this scenario (which hasn't occurred in recent memory) sections of the combined sewer will surcharge potentially resulting in wide spread basement sewer backups.

The wastewater treatment plant will undergo a functional design in coming months. Manitoba Water Services Board has retained AECOM to complete the design of a new Biological Nutrient Removal (BNR) wastewater treatment plant. The functional design will address current and future treated effluent nutrient standards. Recommendations will reflect continued tightening of municipal treated effluent standards in response to provincial efforts to control eutrophication of Lake Winnipeg.

4 PROJECTED NEEDS AND CONSIDERATIONS

The key considerations related to projected drinking water and wastewater infrastructure needs include the basic residential and commercial growth rate anticipated within Selkirk, and the rural growth forecasted by the Red River Planning District (RRPD) formerly Selkirk and District Planning Area (SDPA).

A review of historic census records for Selkirk suggests a growth spike during the recent census 2006 to 2011 interval. Sustainability of the growth spike is discussed in the section on population growth. With respect to rural population growth potential, the findings by RRPD in their October 2010 report is discussed in the section on district policies.

On the infrastructure needs, the inherent risk from not having a redundant water supply cannot be overstated. Selkirk's water supply risk has only recently been recognized by city council and the Water Task Force. Although the issue has been longstanding, it appears the necessary funds will become available through the Manitoba Water Services Board to correct the issue beginning in 2014.

While the ongoing sewer separation program has helped to minimize the risk of sewer backup, both Dillon and Tetra Tech have proposed to service new development west of the CPR rail line by dedicated lift stations and forcemain. This is where they differ in approach. Tetra Tech recommended a forcemain directed to the wastewater treatment plant. Dillon by contrast has recommended a forcemain directed to the main lift station located at Dufferin Avenue near the Red River. WSP agrees with Tetra Tech (formerly Tetra Tech) in believing the most cost effective and robust solution is a forcemain directed to the wastewater treatment plant.

Combining two of the future servicing issues discussed, servicing Selkirk lands west of the CPR rail line, and servicing North St. Andrews acreages, it is recommended that the feasibility be studied of diverting future North St. Andrews wastewater to west Selkirk to be co-mingled with fresh residential sewage. In this way, the corrosive nature of the influent from North St. Andrews (e.g. low pressure sewer, LPS) can be mitigated by chemical or mechanical means in a controlled location before being conveyed by a new main lift station and dedicated forcemain direct to the Selkirk wastewater treatment plant.

4.1 PLANNING DISTRICT AND SELKIRK PLAN POLICIES

The Selkirk and District Development Plan By-law 190/08 highlights concerning wastewater are expanded upon in the report by SDPA from October 2010 titled Selkirk and District Planning Area Wastewater Servicing Plan. Even though the report focuses on wastewater, the overriding public health issue from unconstrained rural development applies equally to drinking water needs within the district.

The geographic area described in the RRPD report is a subset of the Red River Corridor focused on the commutershed between the City of Winnipeg and Selkirk. Regionalization plans for the wastewater infrastructure in the commutershed has been driven recently by environmental issues related to unconstrained rural development. The principal municipalities in the commutershed are the RM West St. Paul, RM St. Andrews, and RM St. Clements.

In most regards, the RM of St. Clements has chosen to go it alone with respect to drinking water and wastewater treatment. In 2011-2012 the RM constructed a treatment plant, reservoir and truck fill based on a local raw well water source. The water treatment plant is located adjacent to the RM offices in the community of East Selkirk. As well, the mechanical treatment plant at Lockport is scheduled for replacement and a new lagoon construction project is currently underway for East Selkirk.

The remaining municipalities within the commutershed have experienced development pressures largely in West St. Paul and to a lesser degree in St Andrews. Several small plants within West St. Paul are dedicated to service rural developments of 50 to 150 homes. It has been reported that these treatment plants operate unregulated. St. Andrews has no municipally operated systems. It has however the Lower Fort Garry National Historic Park Site, Larter's Golf Course, and St. Andrews School each with their own onsite wastewater treatment. Highway Gardens Mobile Home Park, Lockport School, and St. Andrews Airport all are serviced by small independent wastewater facilities.

Population projections for the RRPD show an increase of 20,000 people to the year 2030. This growth is anticipated to be dispersed with more concentration in the proximity to the City of Winnipeg. The commutershed has been projected to attract 15,486 (77%) of the total representing an average 2.42% growth rate. Outside the commutershed, average population growth is forecasted to be 1.42% to 2030.

The RM West St. Paul and the RM St. Andrews have agreed to a regional wastewater treatment plant project valued at $14.7 million. The partnership will service approximately 9,000 people and will require the decommissioning of the smaller unregulated wastewater treatment plants in West St. Paul. There may be the possibility of piping the wastewater to the City of Winnipeg for treatment. In either case, subset of the commutershed to be serviced will start outside the Winnipeg north perimeter, and extend north to PTH #44.

The area defined between PTH #44 and the City of Selkirk, described here as North St. Andrews could be serviced for wastewater by either extending north to Selkirk or south to the proposed regional wastewater system, Figure 1-2. To date wastewater lines have been extended from Selkirk south to Mapleton Lane Life Lease condominiums.

Specific to Selkirk, the March 2005 report by AECOM describes a proposed water service south from Selkirk to the Lower Fort Garry National Historic Park Site. Suffice to say, should water service be extended to the Park it would be cost effective to also install a sanitary forcemain and upgrade or replace the Park's existing lift station.

The A report goes on to analyze three other growth nodes within the Selkirk city limits one each for residential, commercial, and industrial. The commercial development is currently actively growing at the west end of Manitoba Avenue. Businesses in the commercial area include existing and proposed big box stores and a large hotel currently under construction.

The industrial growth node represents lands that have been zoned accordingly for future expansion north of Greenwood Avenue in the north-west quadrant. The future residential growth node located south and east of the new commercial lands is proposed to accommodate 1,800 subdivision lots. The lands are contained by Manitoba Avenue to the north, Railway Street to the east, Strathnaver Avenue to the south, and commercial lands to the west.

4.2 TWENTY-FIVE (25) YEAR PROJECTED POPULATION GROWTH

Recent growth pressure within the City of Selkirk is exemplified by the robust commercial development in the north-west of the city and also by the multi-family development currently under construction on Sofia Street adjacent to the water treatment plant. The Water Tower Lands Development will be a new mid-range to high-end, multi-unit residential complex with community green space, new public walking trails, and a playground.

Despite evidence of a jump in development, there is reason to temper caution with optimism when discussing the sustainability of the current growth trend. WSP reviewed historic census population data and contrasted this against future population growth projections provided by the online census tool PCensus Pro Online. For the years 1971 to 2011 (40 years) the census data, Table 2.1, shows an irregular population growth and contraction representing an overall 0.17% compounded annual growth rate. The three most recent census periods show two negative growth periods followed by the most recent 0.79% growth between 2006 and 2011.

PCensus Pro Online as a business outsources the projection analysis to a third party business Environics Analytics. The tableau of algorithms used by this business can be provided upon request. The 10 year estimated growth to the year 2023 provided by PCensus begins with the current optimistic growth rate and gradually moderates the growth down to 0.17% by year 10 essentially reflecting the historic record. As such the average residential growth rate can be assumed to be 0.50% to the year 2023.

As such, it was determined to provide low-medium-high range population growth averaged over the 25 year design horizon to the year 2038. The three population growth rate values selected are 0.17%, 0.32%, and 0.50% representing the low, medium, and high growth rates respectively found in Table 2.3.

At the medium range, the population can be anticipated to grow from the 2011 value of 9,934 to 10,829 in the year 2038. Statistics Canada 2011 Census has identified the persons per census unit to be 2.3 representing 4,319 homes in 2011. WSP has carried the 2.3 persons per unit assumption forward in Table 4.1 which would equate to 4,708 homes in the year 2038 for a net gain of 389 homes. This value of approximately 400 single family units represents roughly 25% of the assumed 1,600 units suggested for the west Selkirk residential lands.

Table 4.1: Projected Single Family Units for only the City of Selkirk

Year	Homes (low)	Homes (medium)	Homes (high)
2013	4,334	4,347	4,363
2016	4,356	4,389	4,428
2018	4,371	4,417	4,473
2023	4,408	4,488	4,586
2028	4,446	4,560	4,701
2033	4,483	4,633	4,820
2038	4,522	4,708	4,942

Given the uncertainty with respect to the RM St. Andrews and future servicing needs, WSP approached Selkirk asking the client their wishes related to accommodating future water demand from the St. Andrews. It has been assumed that the future drinking water and wastewater infrastructure planning will consider this uncertainty by increasing the demand values by 10% to address potentially servicing north St. Andrews in the future.

4.3 PROJECTED LAND USE PATTERNS FOR THE 25 YEAR HORIZON

For the master plan study, the City of Selkirk Economic and Community Development Division was approached to learn of plans by developers, known to Selkirk, with the intention to build on lands either zoned or proposed to be zoned as residential, commercial, and industrial lands. This is when it came to our attention that Selkirk had commissioned Lombard North Group to provide an updated concept plan for the north Greenwood industrial lands. The Selkirk planner emphasized that the plan area was marginally larger (approximately 10%) than a previous version, and very much conceptual. Put another way, should a substantial developer wish to establish a wide-ranging industrial park on the lands, the concept scheme could easily be altered, especially if the developer intended to pay all or a large portion of the required utility infrastructure.

With respect to lands west of the CPR rail line, and south of Manitoba Avenue zoned residential, there has long been conceptual plans dating back to 1997 updated in 2002 and again in 2004. In recent months, landowners have been approaching the Selkirk Economic Development offices inquiring on building multi-family development on the lands. As well, land owners have approached the Red River Planning District about requirements for developing the residential lands, and have been directed to WSP for engineering services.

The west Manitoba Avenue commercial lands also known as the “Selkirk Crossing” power centre has become a hotbed of development in recent years including several big box retail stores. More recently, was the announcement of Canalta Hotels new 84-room hotel under construction in the power centre. WSP inquired from Selkirk if the water demand for the commercial lands had changed subsequent to the 2008 AECOM water model report. Selkirk indicated the water demand values remain the same as they did for the AECOM report.

Within Selkirk on lands that might be considered the city core, a new multi-family infill development has popped up. The Water Tower Lands Development involves the conversion of the site bounded by Sophia, Clandeboye, McLean and Jemima into a new multi-use development complex of residential units. Developing the Water Tower lands will help meet a growing demand for affordable housing while making site improvements that will create a distinct benefit for the community.

4.4 FUTURE WATER INFRASTRUCTURE REQUIREMENTS

4.4.1 Water Supply Requirements

The water supply recommended strategy is a staged approach built upon the 1973 Rutilus study which identified the 14-14-4E site as a potentially suitable for a supplementary water supply. The first well is to be developed with a 250mm inside diameter well casing. The casing diameter will need to be confirmed against physical dimensions of typical vertical turbine submersible well pumps to ensure a future upgrade path. The understanding is the supplementary supply would replace the largest of the existing wells (Christie) when it fails.

Under the recommended strategy a minimum 300mm diameter supply main pipeline would convey the water to the water plant. The supply main diameter will need to be confirmed against hydraulic requirements, anticipated residential, commercial, and industrial development. While changing out submersible vertical turbine pumps is relatively straightforward, by comparison upgrading pipelines can be complicated and therefore the initial design and construction requires a longer time horizon.

A second well and submersible vertical turbine pump, to achieve full redundancy, is further recommended as part of the initial design and construction. Initially the redundancy serves as a guard against both Christie and the new well failing simultaneously. Over time as development grows, and water requirements grow with it, the matter of North St. Andrews servicing will become better defined. A gradual transition from current wells to the new supplementary supply outside the city limits will provide a much needed level of security to the Selkirk potable water system.

Actual pumping capacity of each existing well won't be known without field testing which is not in the scope for this current study. However, it's reasonable to assume that the wells (at least Christie and McLean) are being operated at or just below capacity to maintain quality and stay within the regulated flow rate. Therefore the tabulated data from this study may in fact be a good indicator of what the wells can supply. As has been pointed out, Christie and McLean run virtually twenty-four hours per day, seven days per week.

4.4.2 Water Storage, Distribution Requirements

From Section 2.6, available treated water storage bodes well compared with estimated storage requirements using the Ontario Ministry of the Environment formulation. The formulation calculates approximately 5,500 m^3 required storage compared with over 10,600 m^3 available storage. Of course the underlying assumptions cast the apparent surplus storage in a different light. The assumption of a 24 hour down time from a mechanical failure in the water treatment plant and having ready access to replacement parts is in question because of uncertainty with the water supply. Water supply redundancy needs to be implemented before the water storage can be declared adequate.

The hydraulic water network analysis indicates that the majority of the distribution system infrastructure is adequate to support present and future domestic and fire flow demands if recommended upgrades are implemented. Short, medium, and long term upgrades are recommended in Section 2.6 the timing of which are dependent on needs as follows. Implementation of the improvements will be based solely on the criteria of meeting fire flow demands, and are not based on the condition, age, or pipe material of other areas of the distribution system.

4.5 FUTURE SEWER INFRASTRUCTURE REQUIREMENTS

4.5.1 Sewer Collection and Pumping

Selkirk has already commissioned consulting engineers to assess the combined collection sewer and recommend a sewer separation (e.g. divert stormwater to new drainage sewer thereby removing it from the sanitary sewer) strategy. In fact, Selkirk has completed several phases of the separation strategy, with expectations to continue with annual improvements.

Despite efforts at separating drainage from sanitary sewer flows, the existing collection sewer may for some time be susceptible to intense rainfall events such as that which produced a large number of basement backups in May and June of 2010. This is the case because a quantity of the original sump pump drain connections and sewer cross connections will continue to exist. As well, the effects of global warming have been arguably producing shorter more intense (not necessarily more volume) rainfall events across North America.

Notwithstanding the benefits from the combined sewer separation program, efforts will need to be made, in the short to medium term, which will capture wastewater generated by future developments west of the CPR rail line. These wastewater flows will be conveyed, not to the existing sewer network but to an alternate sewer network complete with appropriately designed lift stations. The new network, west of the CPR rail line, will include at least one main lift station and forcemain capable of conveying future west-end sanitary sewer flows (expandable to receive North St. Andrews wastewater flows) directly to the wastewater treatment plant. The new flows would combine at the wastewater treatment plant with Dufferin lift station flows.

Combining two of the future servicing issues discussed above, servicing Selkirk lands west of the CPR rail line, and servicing North St. Andrews acreages, it is recommended that the feasibility of diverting future North St. Andrews wastewater to west Selkirk to be co-mingled with fresh residential sewage. The co-mingled wastewater is to be conveyed by new main lift station and dedicated forcemain directed to the Selkirk wastewater treatment plant.

The current collection sewer discharges to five wet well type duplex lift stations, tabulated in Table 4.2. A sixth station, Dufferin the main lift station, stands out because of the dry pit configuration and the three installed 60 Hp submersible pumps. The dry mounted pumps are operated in duplex mode with the third pump as backup. All but one of the six stations includes main level controls with a backup. Greenwood station has a natural gas backup generator, but as was noted elsewhere in the report Dufferin station does not include a generator backup. Over the course of the study background review, operations had nothing of consequence to report on the performance of the various lift stations. The recommendations provided in Table 4.2 represent best practices only and are not considered urgent.

Table 4.2: Lift Station Recommended Upgrades

Station	Main Level Controls	Backup level Controls	Recommendations
Dufferin	Miltronics	Floats	New Radio Data To the WTP SCADA
Heap	Miltronics	Floats	none
Greenwood	Miltronics	Floats	none
Daerwood	Pressure	Floats	none
Annie	Miltronics	Floats	none
Woodlands	Floats	none	Upgrade to Ultrasonic Level Control with Float Backup

4.5.2 Wastewater Treatment

The wastewater treatment plant has been assessed for structural integrity and treatment process efficacy by consulting engineers. Recent improvements to the headworks and effluent disinfection have resulted from these efforts. Currently, process improvements are before the regulator for approval that will, when implemented, reduce treated effluent nitrogen and phosphorus to current and anticipated future regulated levels.

As was discussed elsewhere in the report, regulatory pressure is coming to bear on North St. Andrews rural residential land owners (e.g. onsite water well, with wastewater septic field), those bordering the Red River. The larger issue relates to phosphorus nutrients entering the Lake Winnipeg drainage catchment leading to eutrophication of Lake Winnipeg. Red River Planning District proposed plans to establish a mechanical treatment plant to service East St. Paul and St. Andrews leaves open the prospect for North St. Andrews to convey sewage either to the proposed new plant, or to Selkirk.

The challenge with providing municipal wastewater servicing for these lands along the Red River is twofold. The distance to a treatment plant is great, and the parcels are linearly distributed along the River. There are servicing options but they need to be fully evaluated over the life cycle of the infrastructure. For instance, low pressure sewer (LPS) has become a low cost alternative to traditional gravity collection sewer. By distributing the pumping requirement to each landowner, the operating and maintenance costs for the system can be reduced for the municipality.

The difficulty with the system comes when sewage enters the larger municipal collection sewer, for instance a lift station at Selkirk. The discharged from septic tanks is septic and contains a significant content of sulphates and H_2S creating a highly corrosive environment within the receiving lift station. Without effective design and operations, the maintenance costs are in fact transferred from the landowners to the receiving municipality.

In a similar manner, should the activated sludge wastewater treatment plant receive the LPS wastewater described above, the potential for sulphate toxicity and process upset are highly probable. Once again, without effective design and operations on the part of the landowners, the operation and maintenance costs for a new municipal wastewater collection system are transferred to the receiving jurisdiction, in this case Selkirk.

At present, based on hydraulic loading, the Selkirk wastewater treatment plant is 50% utilized. Ideally, the combined sewer separation efforts will gradually free up hydraulic capacity at the plant going forward. As well planned process improvements related to aeration and chemical phosphorus removal will deliver future organic treatment increased capacity.

The wastewater treatment notice of alteration (NOA) currently before Manitoba Conservation has resulted in Manitoba Water Services Board funding for a functional design to address total nitrogen and total phosphorus removal in the treated effluent. The NOA proposal considers upgrading the activated sludge aeration from mechanical mixer/aerator to fine bubble aeration providing tangible returns. The returns will come as lower energy consumption costs and also from a more robust biological treatment regime. Phosphorus removal will be by means of coagulant addition.

The wastewater treatment plant building structural condition assessment by AECOM 2011 flagged concerns with clarifier and aeration basins expansion joint sealant that should undergo restoration. An appropriate protective coating is proposed to arrest localized concrete corrosion. The assessment report discussed the roof structure as beyond the expected design life with observed superstructure roof leakage. Implementation of the roof repairs were completed in 2012. Operations staff have also indicated their belief that cinderblock interior walls may have been impacted by extended exposure to high moisture from the original treatment plant operations before the reactors were covered with polyethylene sheets.

5 DRINKING WATER UPGRADING REQUIREMENTS

A long standing issue with the Selkirk water treatment plant is the permanent disposal of dewatered lime sludge. Over the years a number of approaches have been tried with limited success. Selkirk received a letter dated April 2, 2013 from Don Labossier Director, Environmental Compliance and Enforcement under heading Dangerous Goods Handling and Transportation Act, Director's Order No. 2013-01 City of Selkirk.

This order requires the City of Selkirk to dispose of all lime sludge generated by the City's water treatment process only at a Waste Disposal Ground licenced pursuant to The Environment Act or permitted in accordance with Manitoba Regulation 150/91, the Waste Disposal Ground Regulation. It is our understanding that the lime sludge is currently being used for day cover in the local municipal landfill. It is also made know by the operations staff that tipping fees are not currently required. If tipping fees were implemented it would quickly become a financial burden. As such, Selkirk should be looking at striking a long term agreement with the municipal landfill operators to ensure cost effective ultimate disposal of the water plant lime sludge.

5.1 WATER INFRASTRUCTURE MANAGEMENT OPTIONS [EXISTING]

Another observation is the distribution water, as can be viewed in Figure 2-7, flow meter installation. In this case the flow meter is on a vertical straight run of the pump discharge pipe header. The problem is that the readout panel for the flow meter (which can be easily, and conveniently located) has been installed low to the ground and inverted viewed in Figure 2-7 making it difficult and potentially unsafe for the operations staff. Ideally, the readout panel would be remotely attached to the adjacent wall with all connecting wiring safely and neatly installed.

The analysis indicates that the majority of the distribution system infrastructure is adequate to support present and future domestic and fire flow demands if recommended upgrades are implemented. The 2009 AECOM report recommended a number of upgrades, and these were reviewed as part of this report. The timing of the implementation of the improvements will determine their priority and is further outlined. Upgrading priorities are based solely on the criteria of meeting fire flow demands, and are not based on the condition, age, or pipe material of other areas of the distribution system.

5.1.1 Water Reservoir/Pumping Options

It was learned from operations staff that recarbonation water that was previously drawn from the main reservoir distribution header is now drawn from the treatment plant clearwell. In 2012 VFD drives were installed for the distribution pumps. The combined effect of recarbonation water change and VFD pump drives has helped to moderate daily maximum flow rates. Progressive efforts like these help ensure installed reservoir storage will continue to serve Selkirk for many years.

5.1.2 Water Feedermain Options

In terms of the distribution network, the principal requirement is that the network demonstrates the ability to deliver water in sufficient quantity permitting fire department pumpers to obtain an adequate supply from hydrants. With nominal improvements, the Selkirk network does demonstrate this principal requirement.

Without offering actual data, AECOM indicated in their report that FUS audited Selkirk's detailed fire flow requirements for various locations around the City, based on the type development area and building construction. FUS also submitted documentation to the City of Selkirk in 2012 that their fire flow classification had not changed; it did not indicate fire flow requirements for individual areas however. A subsequent review of fire protection by FUS has been placed in the 2015 budget as several new multi-family wooden construction developments are due to come online.

5.2 WATER INFRASTRUCTURE MANAGEMENT [NEW SYSTEM]

Recognizing an increase in future water demands over the 25 year planning horizon, our recommendation is for duplicate new wells capable of each supplying 60% of the 2038 total sustained maximum day flow volume of 7,525 m^3 per day.

5.2.1 Drill Existing Wells as Needed

As of May 2014, WSP is aware that Selkirk has commissioned a drilling company and hydrogeologist that will prepare and drill an exploratory test well adjacent to the Christie well at the same location. The expectation is that drawdown testing of the well will demonstrate the required backup supply capacity in the event Christie well fails. Selkirk's plans for the test well, should it prove capable; will be to keep the well undeveloped until Christie well fails.

5.2.2 Drill New Well North-West of Selkirk c/w Pipeline

Previous attempts to redevelop the groundwater supply capacity by acidization of the existing wells within the city were unsuccessful in sustainably improving the water supply capacity. The main contributing factor for this has been reported as a fundamental, natural restriction to the flow of groundwater from the surrounding area into the city limits limiting aquifer replenishment by flow from the surrounding area. The long standing solution to this problem is to install wells outside the city beyond the natural flow restrictions and transport it via pipeline to the water treatment plant.

Located outside the city limits at McRae and Meadowdale Roads or approximately 11 km north-west of the current water treatment plant at legal address 14-14-4E, an appropriate supplemental water supply location was identified in a 1973 study. In the event of a failure of one of the existing wells, this supplemental supply well, when it becomes a reality, will be operated to maintain service levels. During periods when the existing wells cannot meet supply, the supplemental wells will be used to make up the shortfall.

Assuming the water table level at McRae and Meadowdale Roads to be 214 m (from the 1975 study) and pump elevation at 210 m, with pipe high point at 224 m (e.g. static head 10 m). VFD (or "soft start") drives may help with ramping up design water supply (e.g. minimizing pumping power costs) over the coming years.

In the short-term a pair of new wells each with 60 L/s (maximum day flow) submersible pumps to provide redundancy against losing the largest and longest serving of the existing pumps. Each new well casing would be large enough for ultimately receive 100 L/s (maximum day flow 2038) submersible pumps that would completely replace the four existing Selkirk pumps while providing 100% redundancy.

The following initial recommendation will need to be reviewed and updated at the preliminary design stage. The initial vertical turbine pumps and motors will be 30 Hp and will easily fit in a 300mm diameter well casing. The ultimate vertical turbine pumps and motors will be 200 Hp and has a maximum diameter of 285mm diameter, which will possibly fit the 300mm diameter well, but is extremely tight and will have to confirmed. Stage 1: Model: VIS-BAT Goulds 10RJLC 1-Stage capable of 63 L/s at 24 metres (1,000 USGPM at 80 ft.); Stage 2: Model: VIS-BAT Goulds 11CLC 2-Stage capable of 105 L/s at 102 metres (1,665 USGPM at 335 ft).

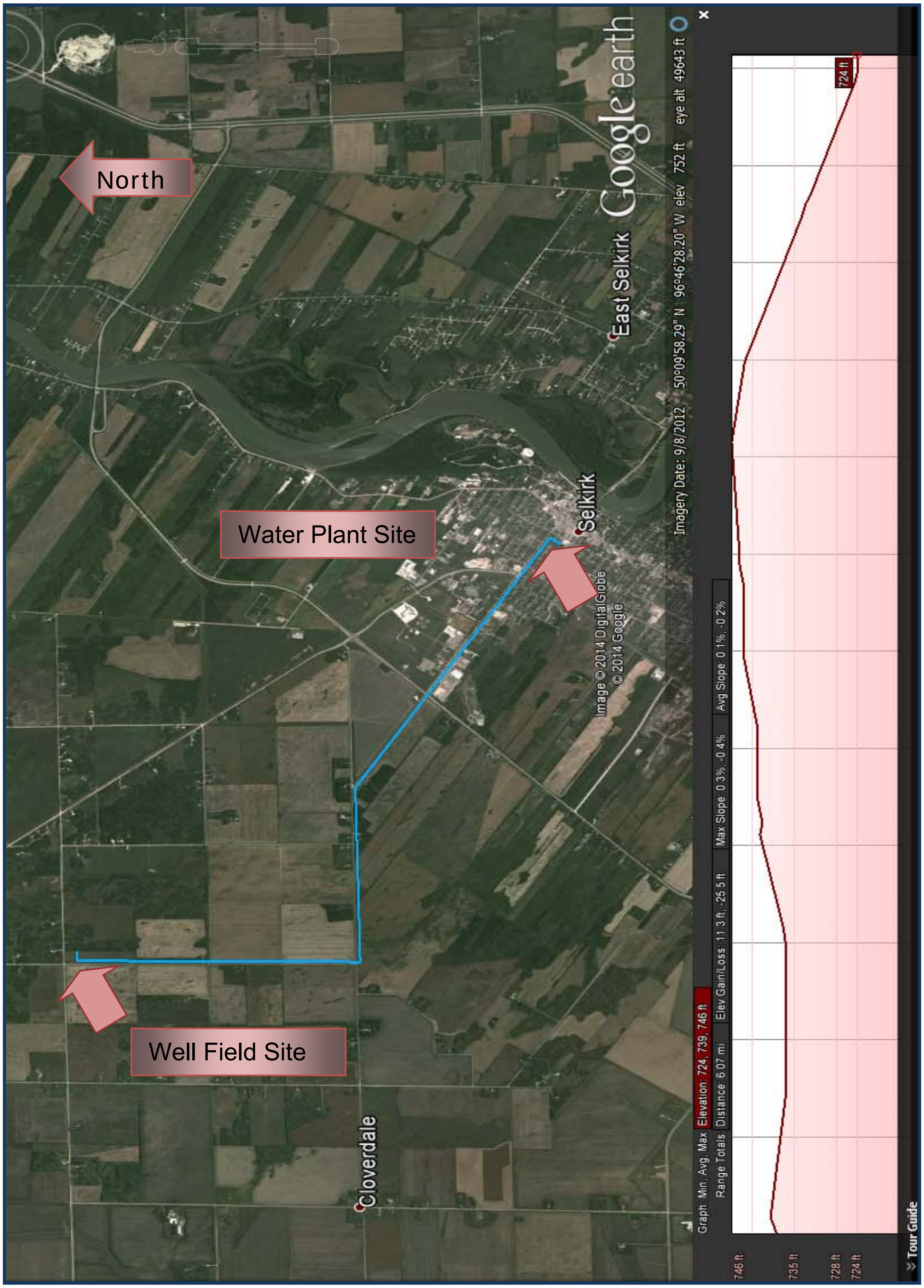


Figure 5-1: Proposed New Water Supply Pipeline Alignment Profile

6 SEWER SYSTEM UPGRADING REQUIREMENTS

The ongoing sewer separation program devised by Tetra Tech provides Selkirk with a vital upgrade path that will potentially eliminate basement sewer backups as were witnessed during May 2010. However, as was also demonstrated in October 2010 the volume of rainfall over a 24 hour period doesn't tell the whole story. These two events, each amounting to multiple days of precipitation, generated similar maximum 24 hour inflow and infiltration volumes. At the wastewater treatment plant, volumes of 13,800 m^3 and 16,950 m^3 were recorded for the May and October events respectively. In fact, the lower volume May event generated 80 reported basement backups while October event had no reported basement sewer backups. As we have learned from the local operators, the rain intensity is a better indicator of potential sewer backups than simply rain volume.

In an effort to document the return on investment for the sewer separation works, it is recommended that Selkirk establish one or more rainfall monitoring stations. The expectation in measuring rainfall is to produce real time data to compare cause and effect between the rainfall intensity-duration and the corresponding wet weather flow volumes measured at the wastewater treatment plant. Unfortunately because this approach was not implemented earlier, the full benefit from the 2011 sewer separation works will not be known. However there may be a similar opportunity with respect to the sewer separation works planned around the proposed Strathnaver Avenue storm trunk.

The conveyance of wastewater, both current and future, from west Selkirk direct to the treatment plant should incorporate a dedicated forcemain and lift station. Under this solution the Dufferin station will continue to service the majority of Selkirk. This approach will provide more flexibility going forward than the current practice for servicing west Selkirk involving small lift stations (e.g. Anne, Woodlands) directing flows into the existing combined sewer.

Dillon recommended a sewage forcemain directed north-east from west Selkirk through developed lands to Dufferin station. Tetra Tech before Dillon suggested a forcemain directed north through essentially sparsely developed industrial lands to the treatment plant. Given the potential encumbrances and rehabilitation costs of the Dillon forcemain approach, the north route can be assumed to be the least costly alternative. As well, the capacity to manage possible future north St. Andrews wastewater flow lends itself to the robust solution of directing west Selkirk wastewater north direct to the treatment plant.

Next to the sewer separation efforts, the next most significant wastewater system upgrade will continue to be the wastewater treatment plant. Clearly the recent screening, grit removal, and ultraviolet disinfection upgrades will pay dividends long into the future. The supernatant return line from the settling ponds to the plant headworks will bode well for the proposed nutrient removal process upgrades. Biosolids disposal at the settling ponds will continue however to challenge, as land application locations for municipal biosolids are becoming more scarce near urban environments. On the matter of biosolids disposal, the proposed coagulation dosing that will provide total phosphorus removal to regulated levels will increase biosolids quantities. The chemical composition of the biosolids will further limit land application opportunities. These and other matters will be addressed as part of the nutrient removal engineering design and licensing.

6.1 SEWER INFRASTRUCTURE MANAGEMENT OPTIONS [EXISTING]

By and large, Selkirk has worked effectively to monitor the sewer infrastructure and plan for needed upgrades. They have explored different operational solutions such as the septage transfer station. Selkirk studied the combined sewer hydraulic capacity and made plans to correct limitations. They have employed sewer flushing and camera recording to better understand the infrastructure investment.

Management of the existing sanitary sewer infrastructure is funded primarily through the utility charges. As such, improvements have been decidedly gradual and targeted. This targeted approach has been demonstrated when sewer separation efforts were fast tracked in 2011 in response to the significant basement sewer backups reported in spring 2010. More than anything, this example exemplifies the necessity of having studied infrastructure capacity and limitations leading to an upgrade action plan. By being preemptive in this way, when funds are freed up are become available by another means, the renewal work can begin immediately.

We have heard about ongoing work on the part of Selkirk to flush and camera existing sanitary collection sewer, emphasizing older parts of the system where there are no design or construction records. These ongoing maintenance and documentation efforts are encouraged as they provide a basis upon which to plan future sewer replacement and upgrades as required in response to both green field and infill development.

There have been no indications from Selkirk about significant problems with the sanitary lift stations. Backup power generation and backup pumping has not become a priority for the lift stations as the treatment plant does not treat wastewater during utility power outages. The lack of backup power generation at the treatment plant and main lift station is a significant deficiency. Other operational improvements recommended for the lift stations would be to standardize main and backup level measurement. Providing SCADA data collection for the lift stations, beginning with Dufferin and transmitting the data to the water plant for trending will be a valuable investment moving forward.

As the regulations on treated wastewater effluent become more stringent, new sewer infrastructure at Selkirk are anticipated to include nutrient removal and aeration upgrades at the treatment plant. The budgetary cost, reported by others, for the works has caused Selkirk at one point to consider a replacement wastewater treatment plant. As of April 2014 Manitoba Water Service Board has retained AECOM to prepare a functional design of a new wastewater treatment plant that will address current and future nutrient removal standards.

6.2 SEWER INFRASTRUCTURE MANAGEMENT [NEW SYSTEM]

Whereas the treatment plant upgrades have become a known quantity for Selkirk with further study and planning well underway, the lift station and forcemain conveyance of west Selkirk wastewater directly to the treatment plant has barely received attention recently. For this reason, it is recommended that a functional planning study be commissioned to evaluate routing options, staging alternatives, and to better understand current and future wastewater generation.

7 IMPLEMENTATION AND FINANCING

Financing upgrades for the various water and wastewater infrastructure components which are at different stages in their estimated design life will require a creative blend of alternative financing methods. In the case of Christie the main supply water well, it is both the oldest and heaviest utilized of the supply wells; replacement of Christie is urgent and cannot be overstated. We know that Manitoba Water Services Board (MWSB) is preparing financially to aid Selkirk with financial aid to ensure the water supply is safe and sustainable.

In another case for instance, despite its age, the wastewater treatment plant is operating at nearly 50% hydraulic capacity; albeit the physical tankage and building envelope may have exceeded the estimated design life. It is recommended that funding through the MWSB in conjunction with the nutrient removal upgrades will also include building envelope upgrades. In this way Selkirk would take advantage of economies-of-scale in the cost of completing the full range of required upgrades at the wastewater treatment plant.

By contrast the recommended sewage forcemain conveyance between west Selkirk and the wastewater treatment plant will not likely be supported by the MWSB as the need is primarily developer driven. As the west commercial and residential development expands a point will be reached when the existing combined sewer will be unable to sustain additional flows without inflicting basement sewer backups. Notwithstanding the sewer relief efforts, intense rainfall events and high river elevations as were witnessed in 2010 will continue to occur leaving the combined sewer vulnerable to basement sewer backup. The time for diverting new wastewater west Selkirk flows has arrived, but unfortunately short term solutions including Annie and Woodlands stations have been chosen.

7.1 STAGED INFRASTRUCTURE IMPROVEMENTS

Infrastructure improvements will continue to be staged based on available funding and urgency. These include tax base financed sewer relief efforts, and the urgently required supplementary water supply with financing at competitive rates by MWSB. There is a different driver for nutrient removal upgrades at the wastewater treatment plant. The nutrient loading to Lake Winnipeg is a much larger issue so it is not completely evident when these upgrades might be completed even though the functional design has been commissioned by the MWSB. As the least planned of the required infrastructure, the forcemain conveyance for wastewater between west Selkirk and the wastewater treatment plant will take the longest to become a reality.

7.2 PROJECTED CAPITAL COSTS AND FINANCIAL COST RECOVERY

Supplementary Water Supply & Pipeline opinion of probable capital costs;

Drill, develop two wells, public consultation	$0.205M
Well pumps, vertical turbine	$0.015M
Three phase utility power service	$0.030M
Eleven kilometre pipeline	$2.200M
Subtotal	$2.450M
Engineering (15%)	$0.368M
Contingency (35%)	$0.858M
Total	$3.675M

Sewer Relief Works opinion of probable capital costs;

Stage 5, 7, 8, and 9	$4.430M
Stage 3, 6, 10 and 11	$3.240M
Subtotal	$7.670M
Engineering (15%)	$1.150M
Contingency (35%)	$2.685M
Total	$11.505M

New Wastewater Treatment Plant opinion of probable capital costs;

Johannesburg BNR process (Modified 3-Stage Bardenpho); Fermenters and primary clarifiers optional (future); No reuse of existing facility or equipment; New UV disinfection facility; Headworks capacity 36 MLD from Dufferin station; Plant/UV bypass, screening, grit removal	$26.000M
Subtotal	$26.000M
Engineering (15%)	$3.900M
Contingency (35%)	$9.100M
Total	$39.000M

New West Selkirk Forcemain opinion of probable capital costs;

Lift Station, public consultation	$0.355M
Civil connections to collection sewer	$0.050M
Three phase utility power service	$0.015M
5.0 kilometre pipeline	$1.500M
Subtotal	$1.920M
Engineering (15%)	$0.288M
Contingency (35%)	$0.672M
Total	$2.880M

7.2.1 Short-Term Costs

Priorities can and do change, however the necessity for a secure supplementary drinking water supply will necessitate a short term investment on the range of $3.0M to $4.0M over the short term. This cost assumes a new supply outside the City of Selkirk.

The cost of upsizing approximately 130 metres the Queen Avenue storm sewer from 450mm diameter to 1650mm diameter depends on a number of decisions. It can be assumed that $200k to $500k should be budgeted for the works.

7.2.2 Medium-Term Costs

Medium term costs represent the ongoing sewer separation works budgeted at roughly $1.0M annually for roughly 10 years. Medium term infrastructure worth roughly $14M will need to be invested to comply with treated wastewater effluent standards.

7.2.3 Long-Term Costs

The remaining component which stands out both for complexity and cost is the long term planning for the new BNR wastewater treatment plant and management of future wastewater from west Selkirk. The planning should consider also possible low pressure sewer wastewater from North St. Andrews.

Because of the new water mains, and the fact that the distribution system is close to meeting the required fire flows, upgrading is recommended for only the long term. However, the priority could rise if future commercial development proceeds in this area in an accelerated manner.

7.2.4 Financial Cost Recovery Methods

Various funding methods are available for capital financing. The Federal-Provincial Infrastructure Funding program is due to commence in 2014, and is an obvious choice for projects both large and small.

- Property tax increase
- Capital borrowing
- Capital lot levies
- Special levies
- Developer contributions
- Gas tax rebate funds
- Utility rates
- Building permits costs

8 CONCLUDING OBSERVATIONS

To the extent possible, the master plan report has provided a road map with respect to identified water and wastewater infrastructure capacity limitations. Recommended management measures for existing infrastructure, and when necessary, new infrastructure will be proposed together with a staging plan when appropriate that will address current and future planned developments.

Identified water and wastewater issues reviewed herein include:

- Provide a supplementary water supply system as the replacement for Christie well, the largest of the four drinking water supply wells;
- Integral to the supplementary water supply, provide a conveyance pipeline from the proposed supplementary well field outside of Selkirk to the water treatment plant;
- Relocate the influent raw water flow meter at the water treatment plant;
- Implement rainfall stations / snow stations based on budgeting for 2015; together with wastewater plant flows; used to track sewer flow reductions from sewer separation efforts.
- Upgrade the final 130 metres of storm sewer pipe on Queen Avenue from 450mm diameter to 1650mm diameter leading to the Red River outfall.
- New Biological Nutrient Removal (BNR) wastewater treatment plant functional design. Manitoba Water Services Board has retained AECOM to complete the design.
- Restore backup power at the WWTP; and provide Dufferin lift station with backup power generation and a data link to the SCADA system at the WTP; and
- The next phase of the combined sewer separation program should consider the proposed stormwater trunk on Strathnaver Avenue and lateral collection sewer as a priority based on 2010 basement sewer backup records.

9 REFERENCES

- Notice of Alteration for the City of Selkirk Wastewater Treatment Facility, AECOM, October 2013.
- RM of St Andrews and RM of West St Paul Wastewater Management Plan, MMM Group, July 2012.
- City of Selkirk Wastewater Management Plan, MMM Group, April 2012.
- Wastewater Treatment Facility Structural Condition Assessment Report, AECOM, May 2011.
- Selkirk and District Planning Area Wastewater Servicing Plan, SDPA Board, October 2010.
- Wastewater Treatment Facility Screening Upgrade Pre-design Report, AECOM, September 2010.
- City of Selkirk – Water Model Update, AECOM, April 2009.
- WWTP Capital Needs Assessment Study – Regional Wastewater Contributions, CH2M Hill, July 2007.
- Lower Fort Garry National Historic Site of Canada, Parks Canada, 2007
- Water Treatment Plant Upgrade Assessment Study, Cochrane Engineering, September 2006.
- Selkirk Water Distribution Model Update, EarthTech, March 2005.
- Ultraviolet (UV) Light Effluent Disinfection System at the City of Selkirk Wastewater Treatment Facility, Tetra Tech (formerly Wardrop), August 2005.
- Preliminary Servicing Feasibility Study Report – Lands West of Railway Street, Dillon 2004.
- City of Selkirk Sewer Relief Study Update, Tetra Tech (formerly Wardrop) 2001
- Town of Selkirk Sewer Relief Study Conceptual Design Report, Tetra Tech (formerly Wardrop) 1993.

10 CLOSURE

This report has been prepared by WSP for the benefit of the City of Selkirk to whom it is addressed. The findings and recommendations provided in this report were prepared in accordance with generally accepted professional engineering principles and practices. The information and data contained herein represent WSP's best professional judgment in light of the knowledge and information available to WSP at the time of preparation. Except as required by law, this report and the information and data contained herein are to be treated as confidential and may be used and relied upon only by the City of Selkirk, its officers and employees. WSP denies any liability whatsoever to other parties who may obtain access to this report for any injury, loss or damage suffered by such parties arising from their use of, or reliance upon, this report or any of its contents without the express written consent of WSP and the City of Selkirk.

11 ACKNOWLEDGEMENTS

The WSP Team has appreciated the opportunity to work with the City of Selkirk council, engineering, and administration staff on this drinking water and wastewater master plan study.

We want to take this opportunity and thank water and wastewater operations staff for their continued dedication. Collectively they ensure infrastructure is safe and carefully operated for the benefit of all Selkirk citizens.

Respectfully Submitted

PROVINCE OF MANITOBA
D.J.
DANKEWICH
July 15/2014
REGISTERED PROFESSIONAL ENGINEER

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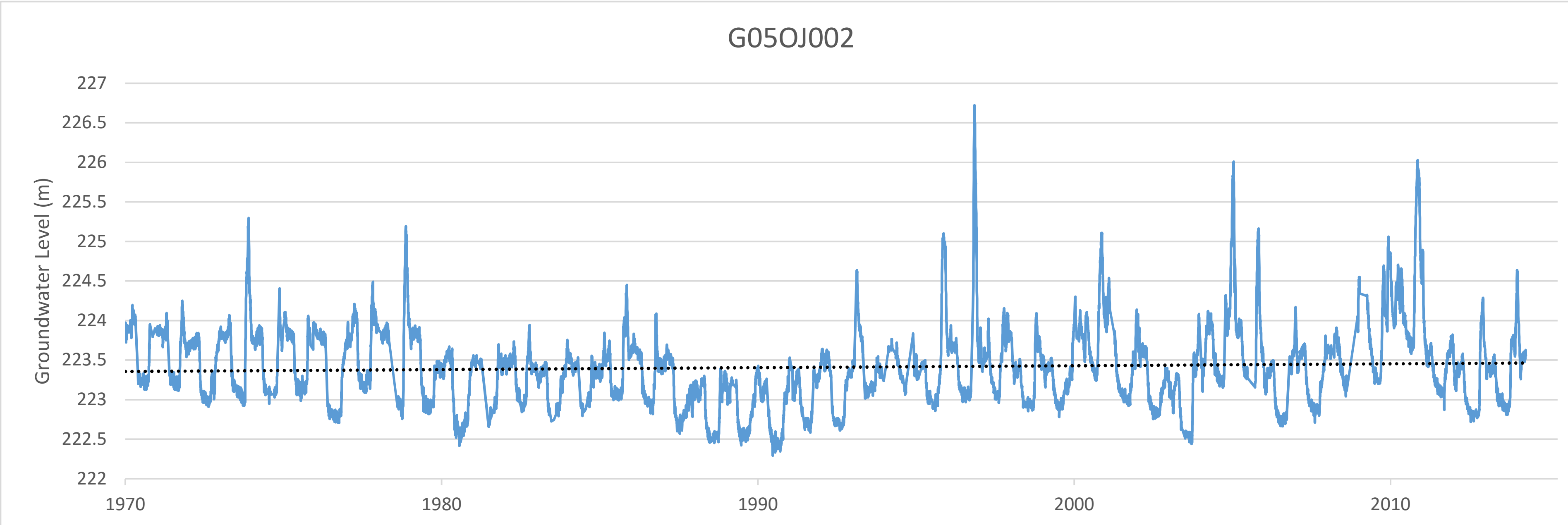
APEGM
Certificate of Authorization
WSP Canada Inc.
No. 5750 Date: July 15/2014

Appendix F

Regional Hydrographs from Provincial Monitoring Wells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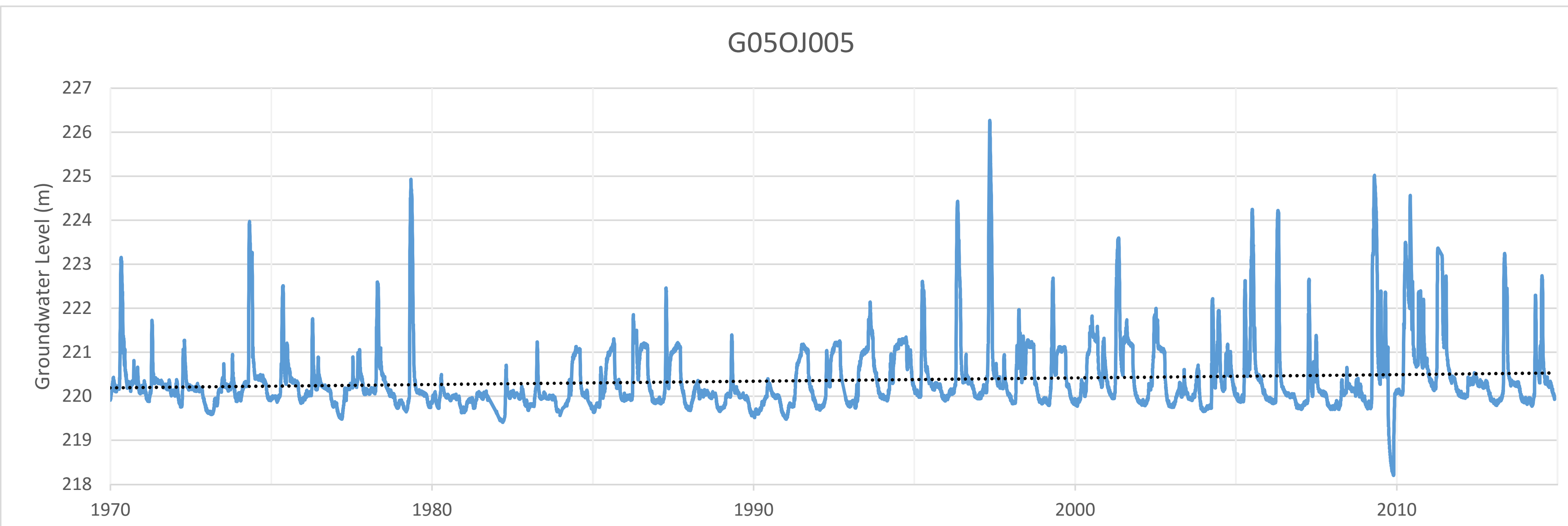
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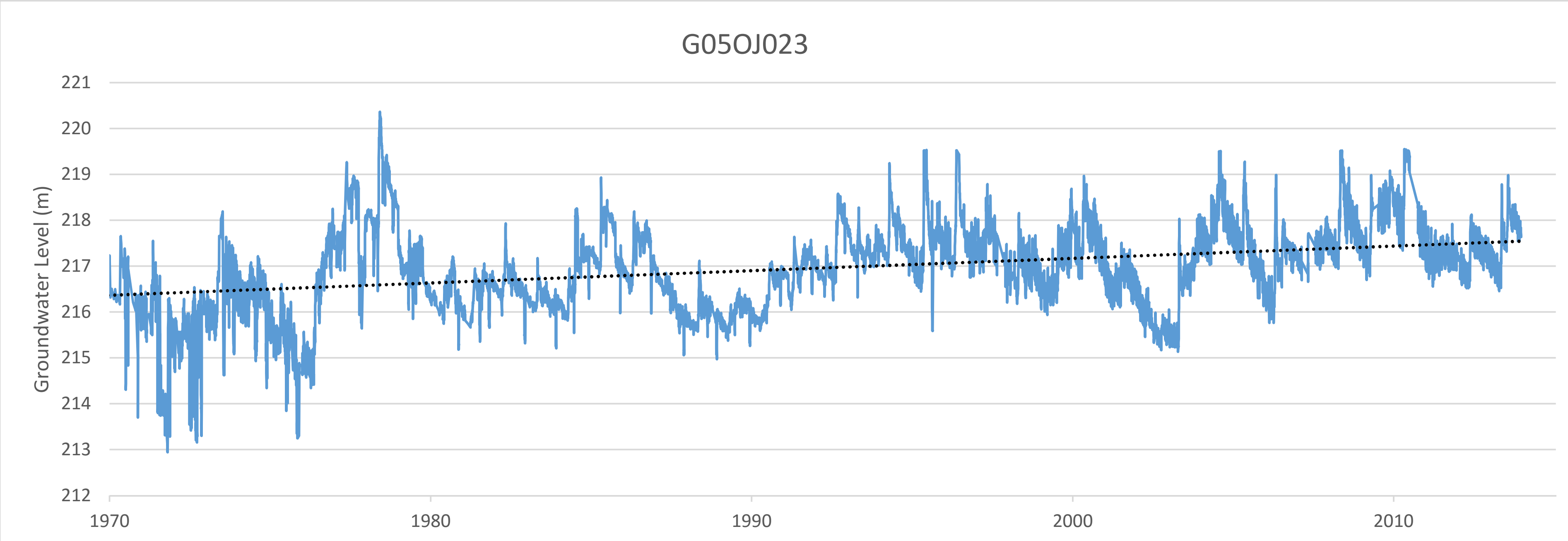
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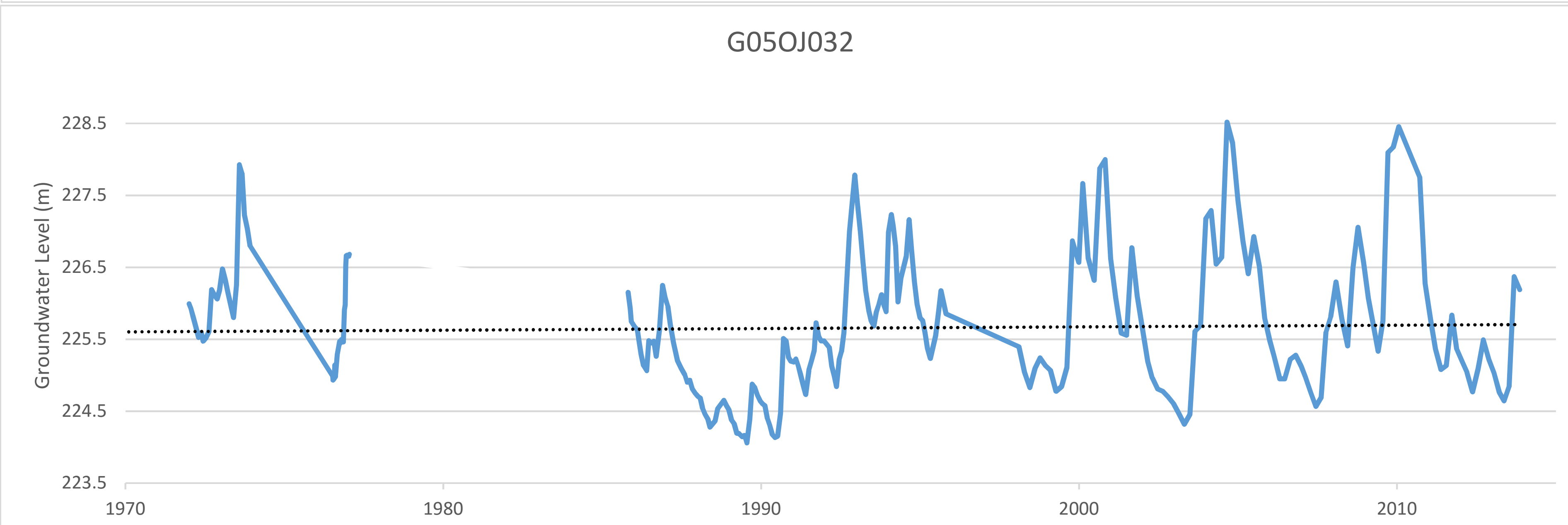
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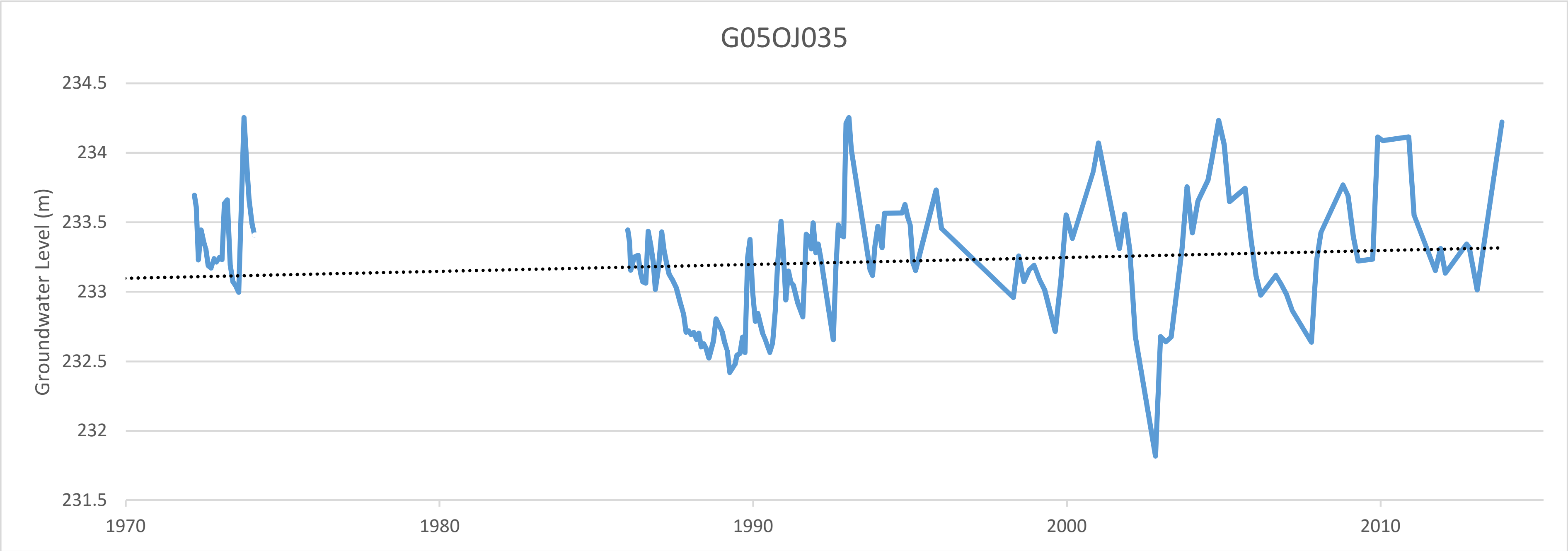
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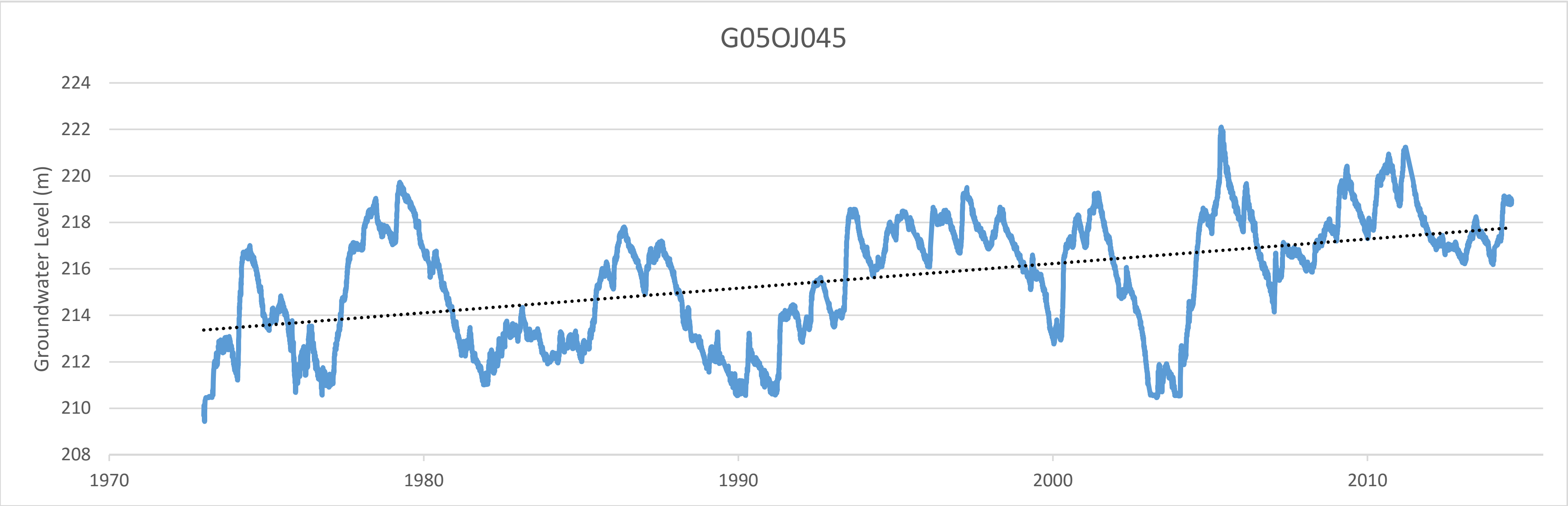
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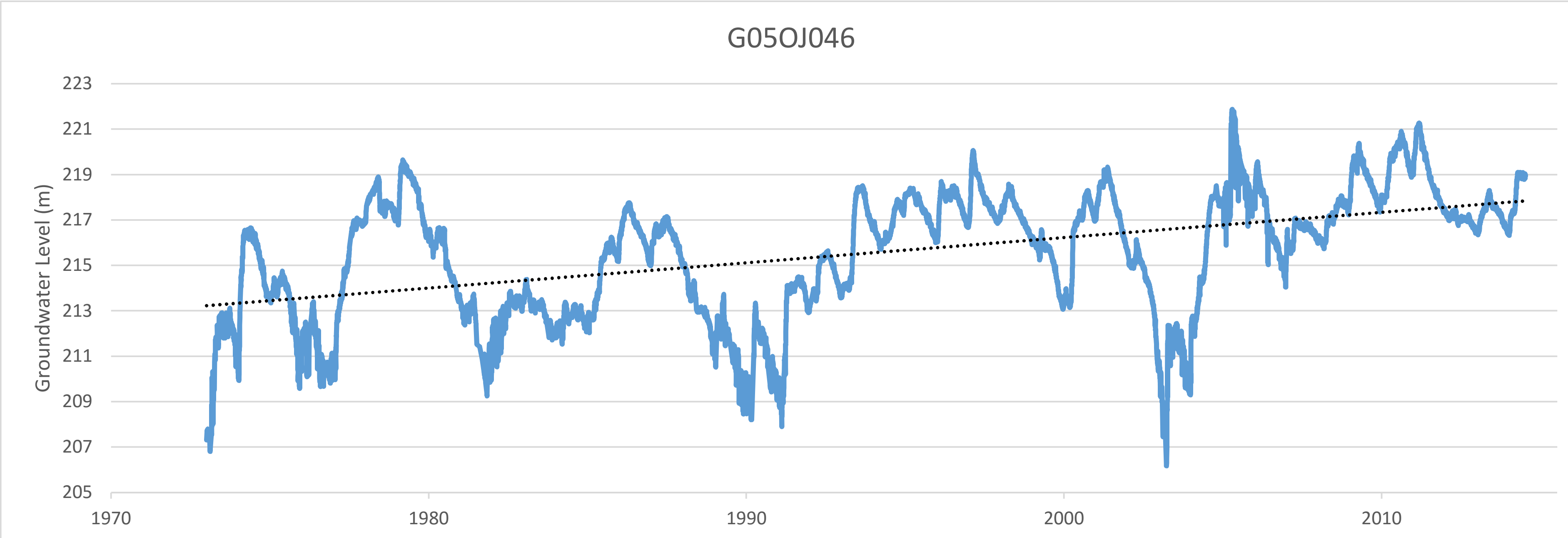
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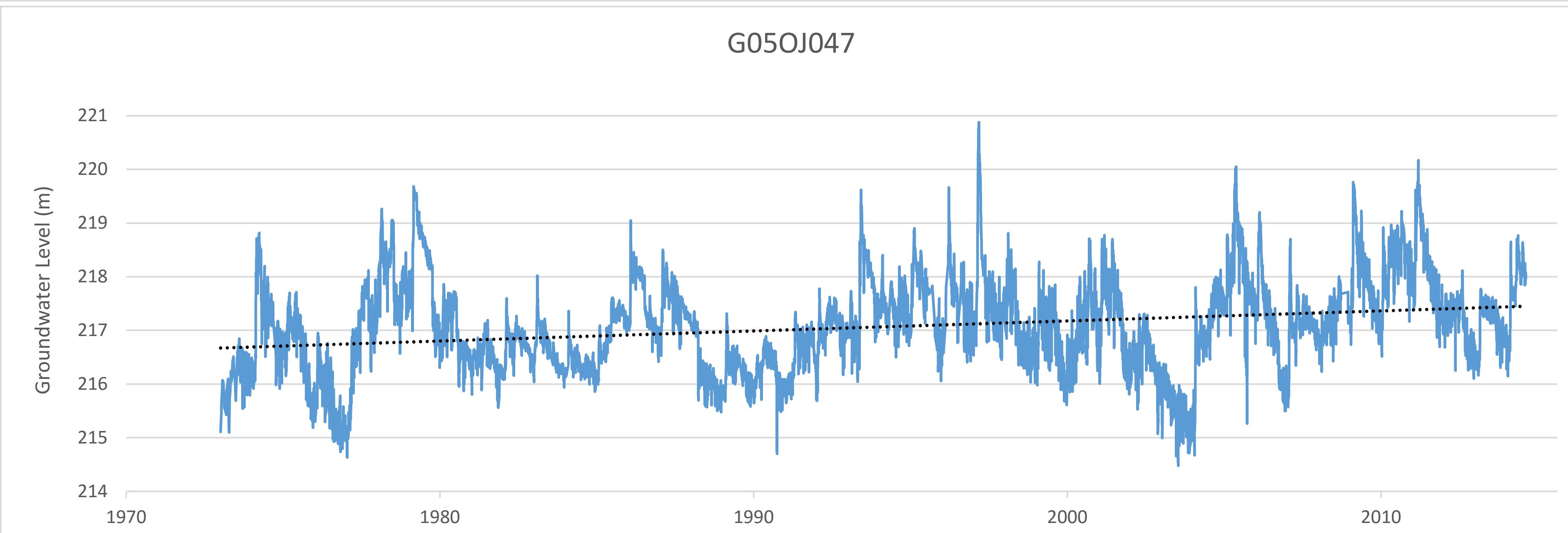
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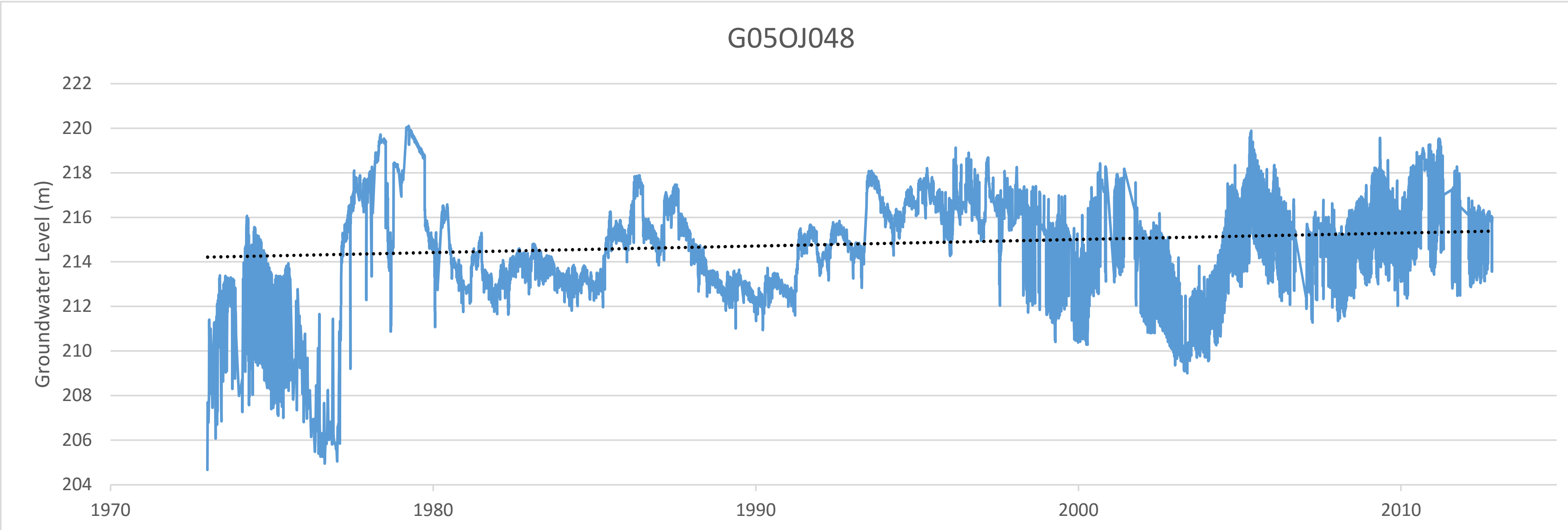

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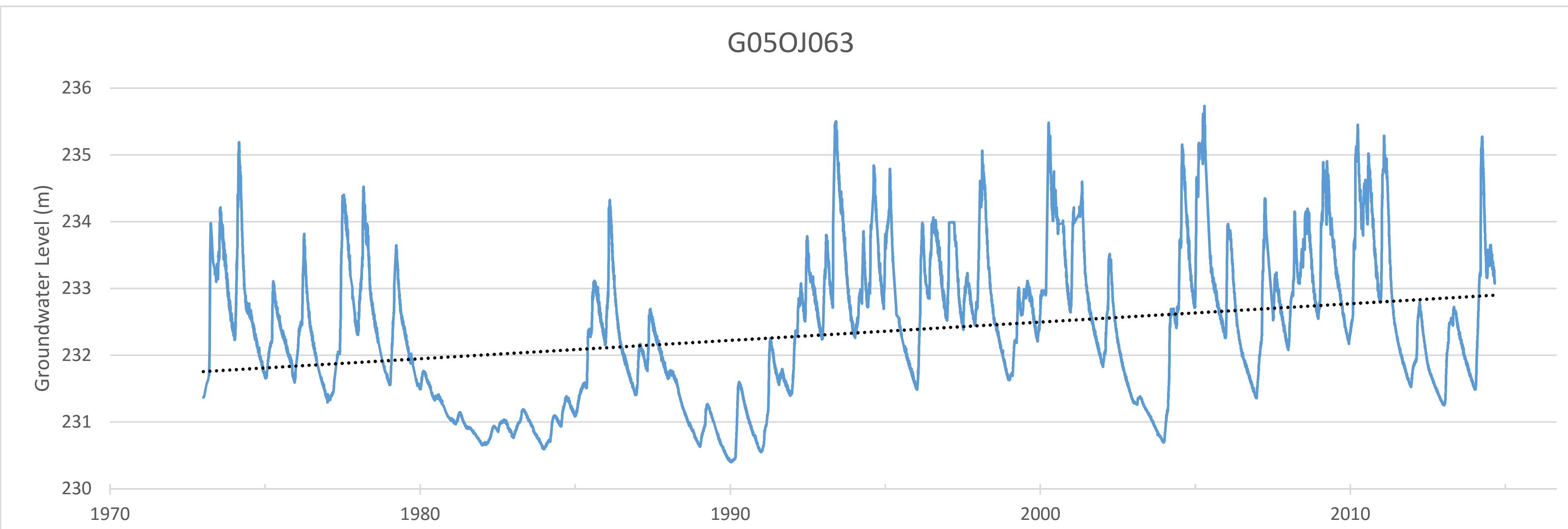

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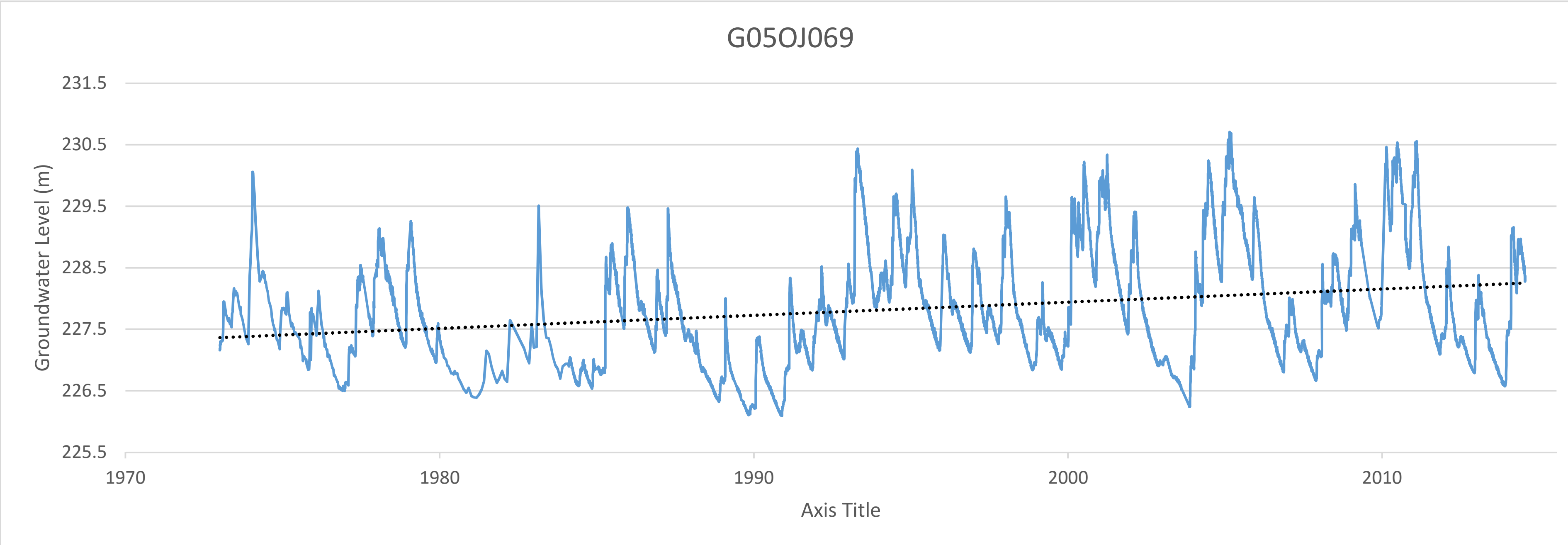
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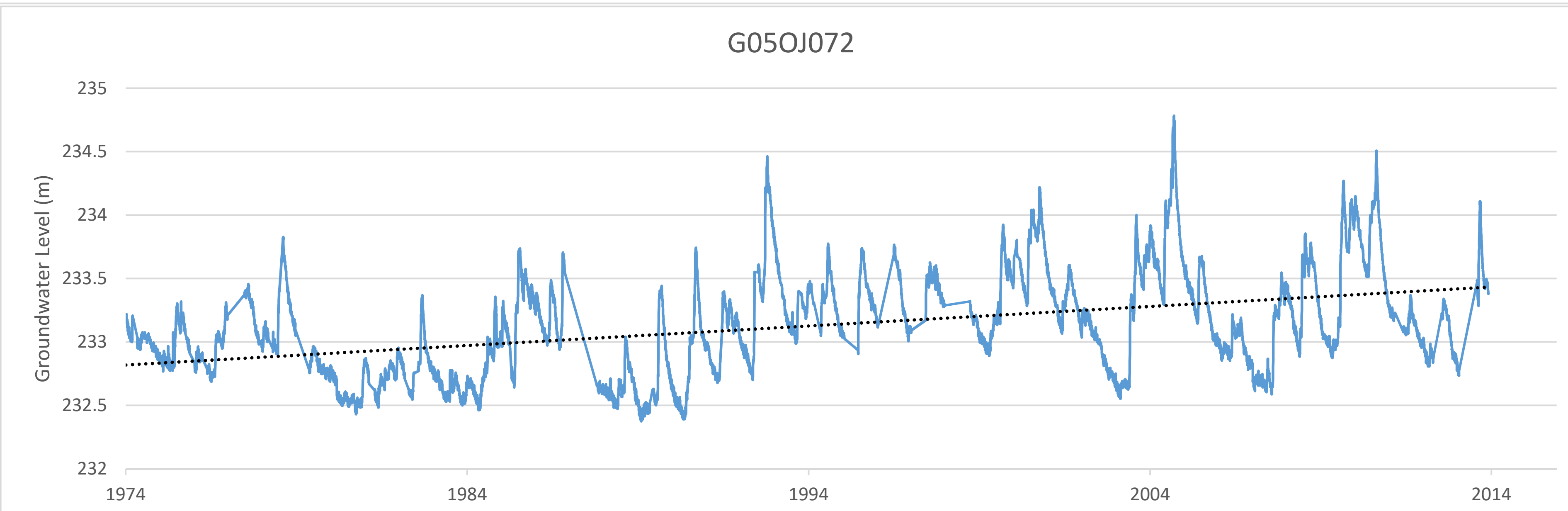
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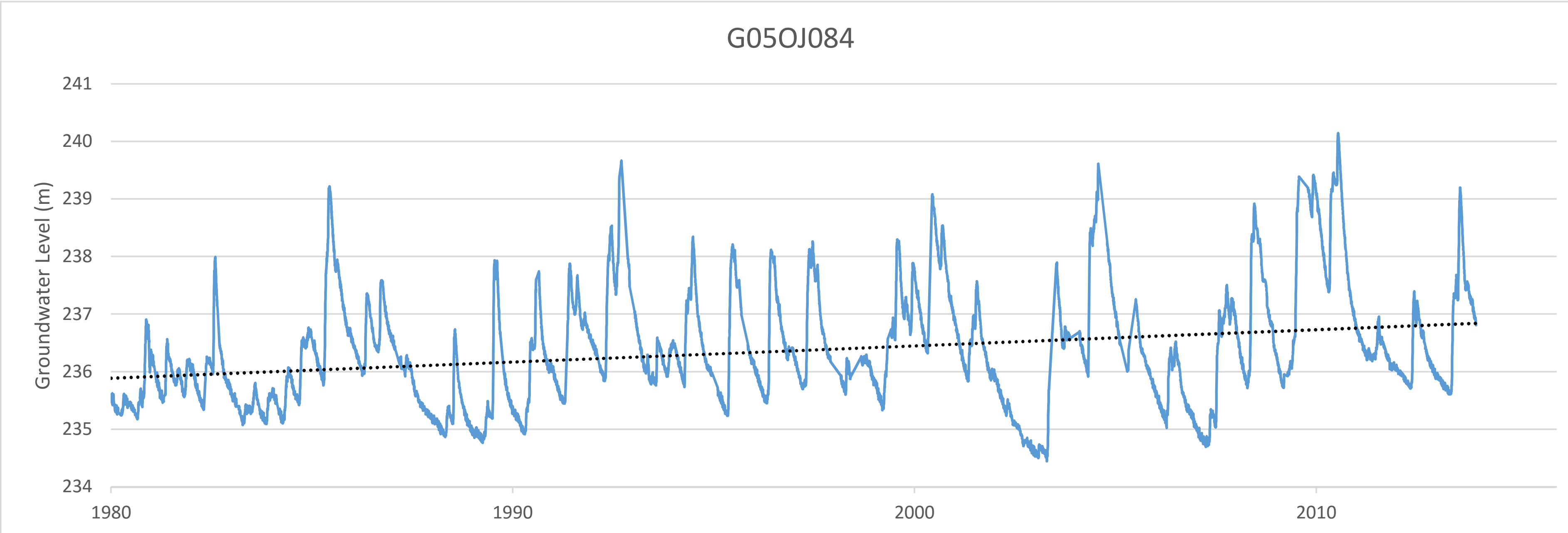
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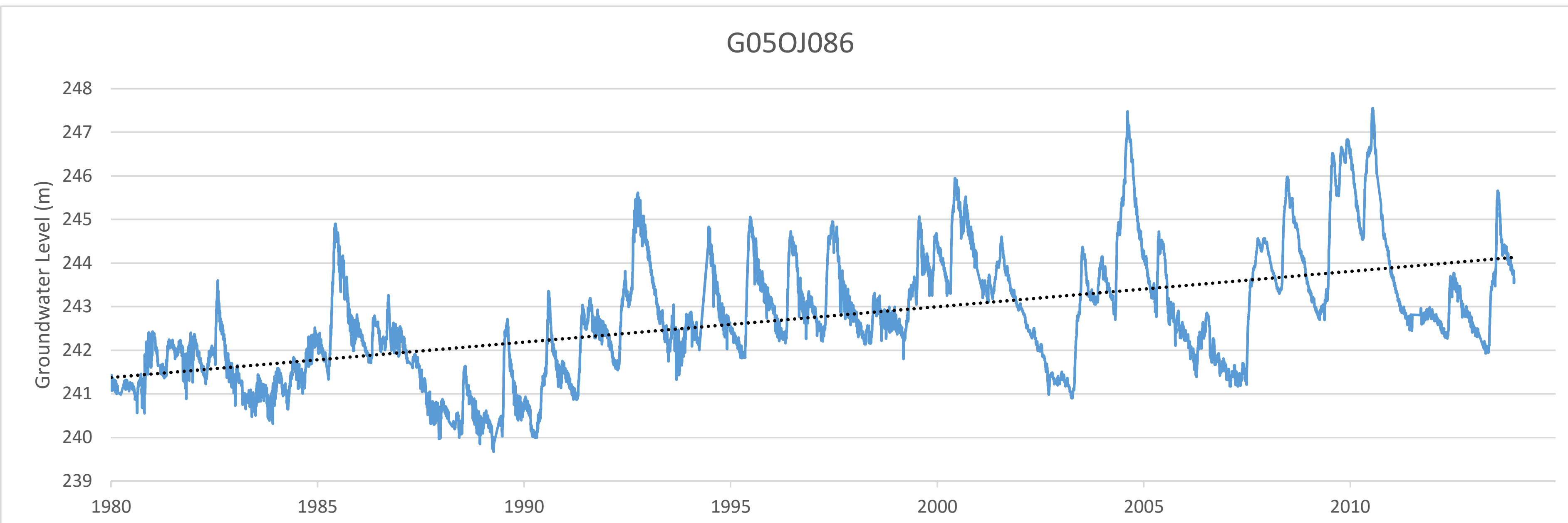
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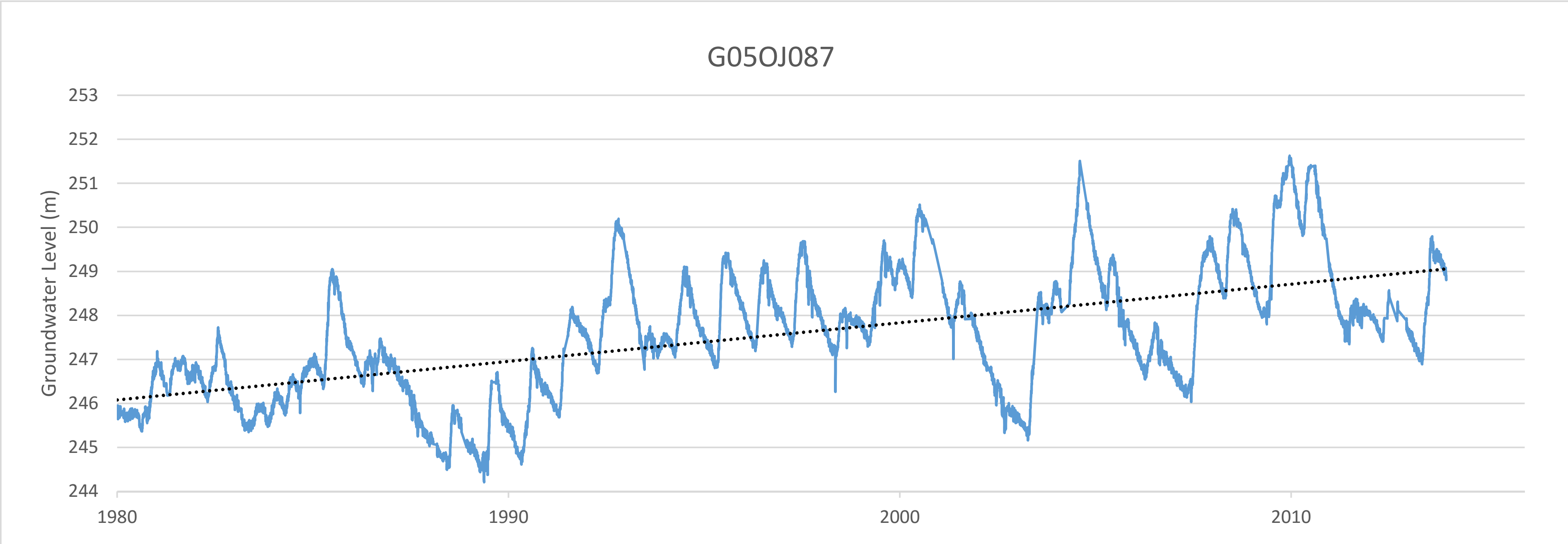
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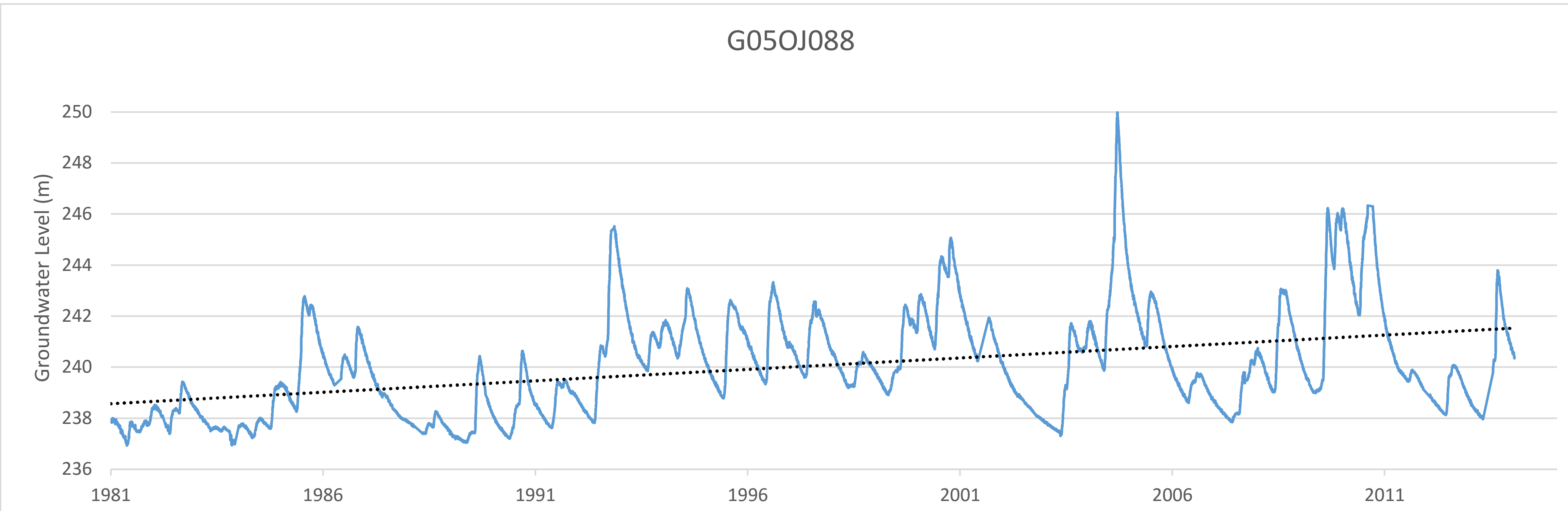
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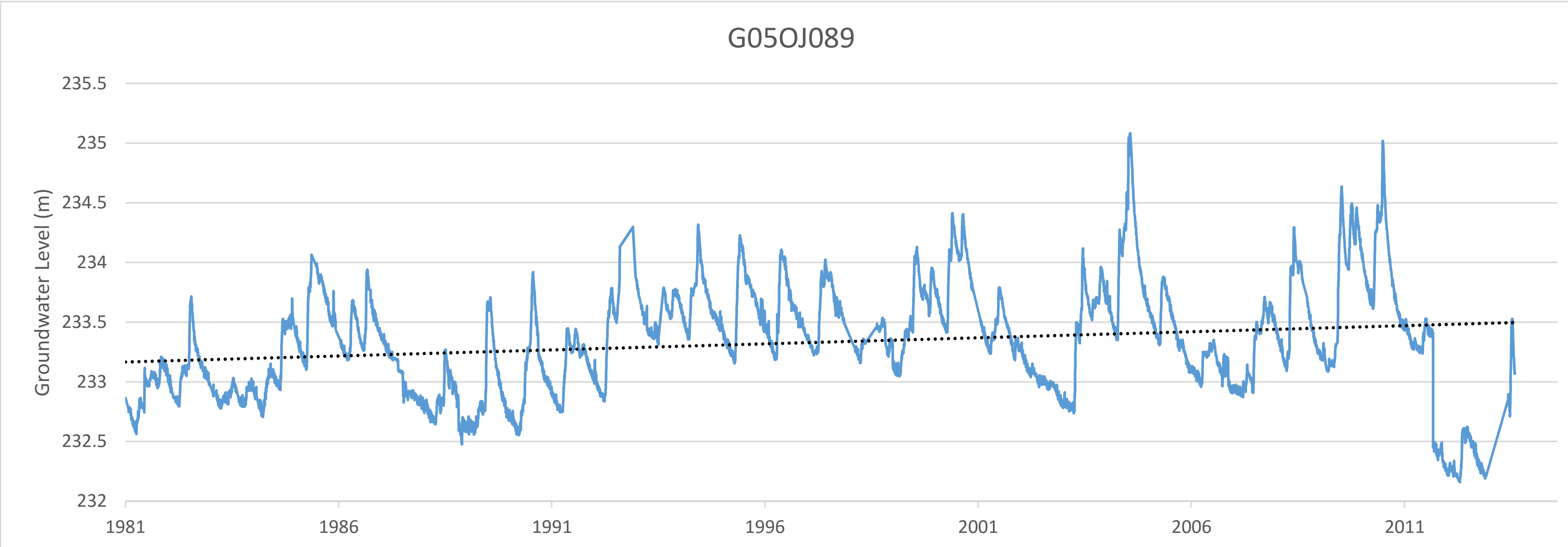
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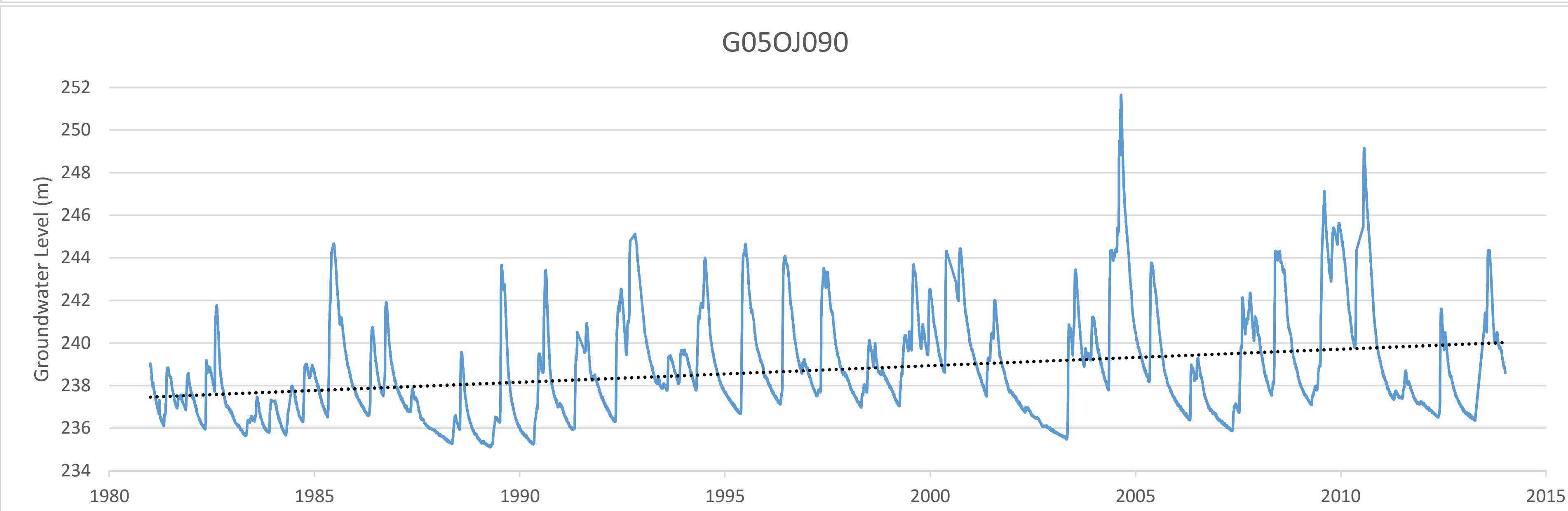
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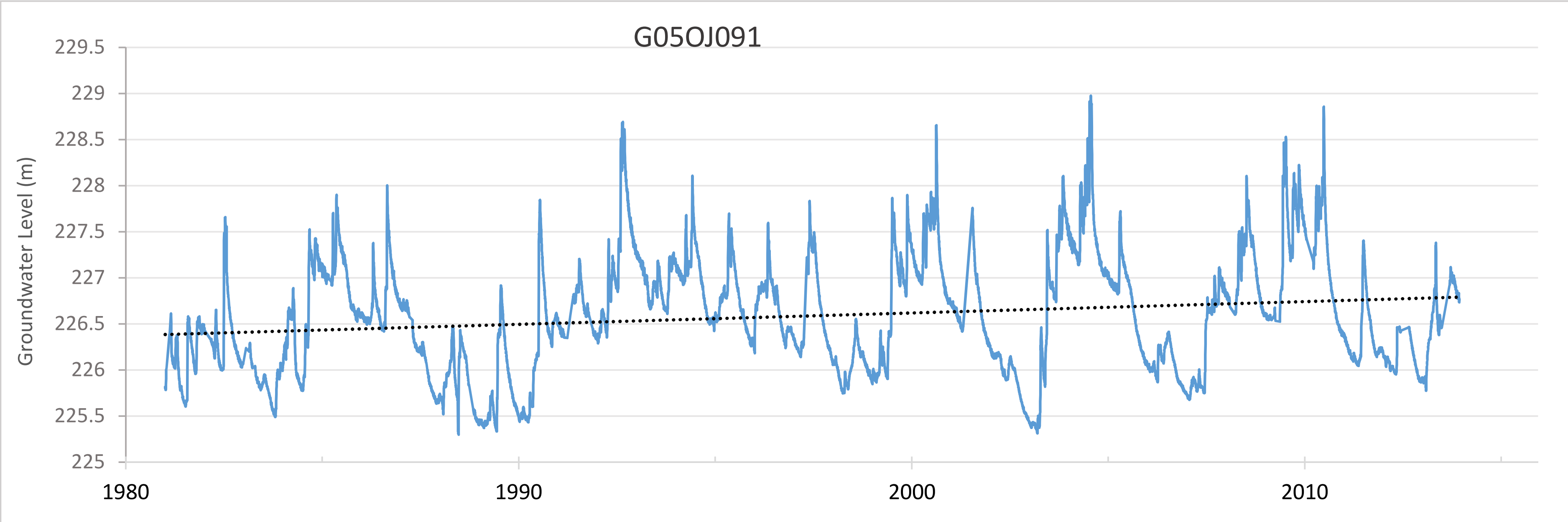
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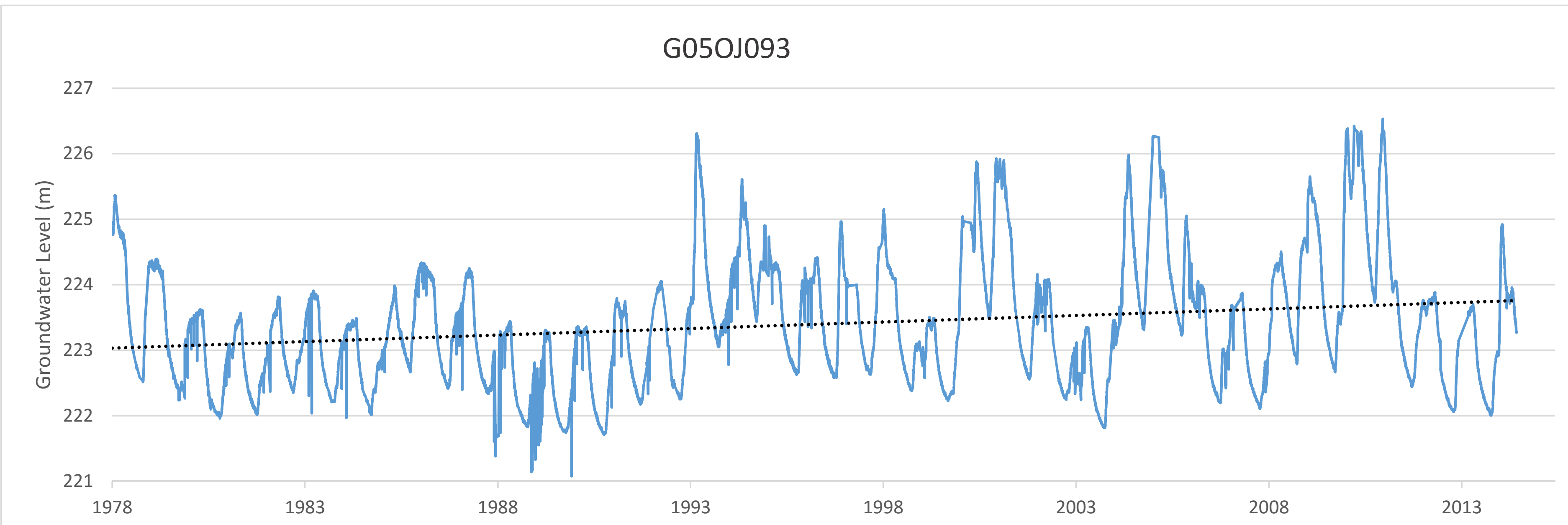
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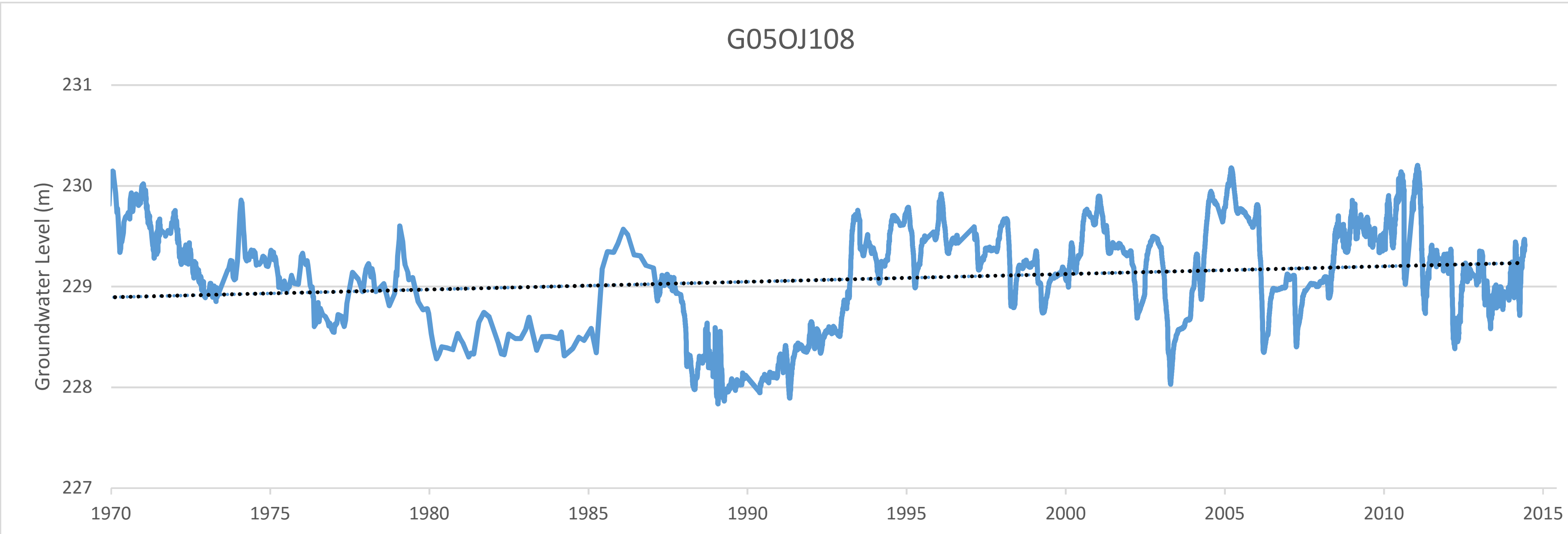

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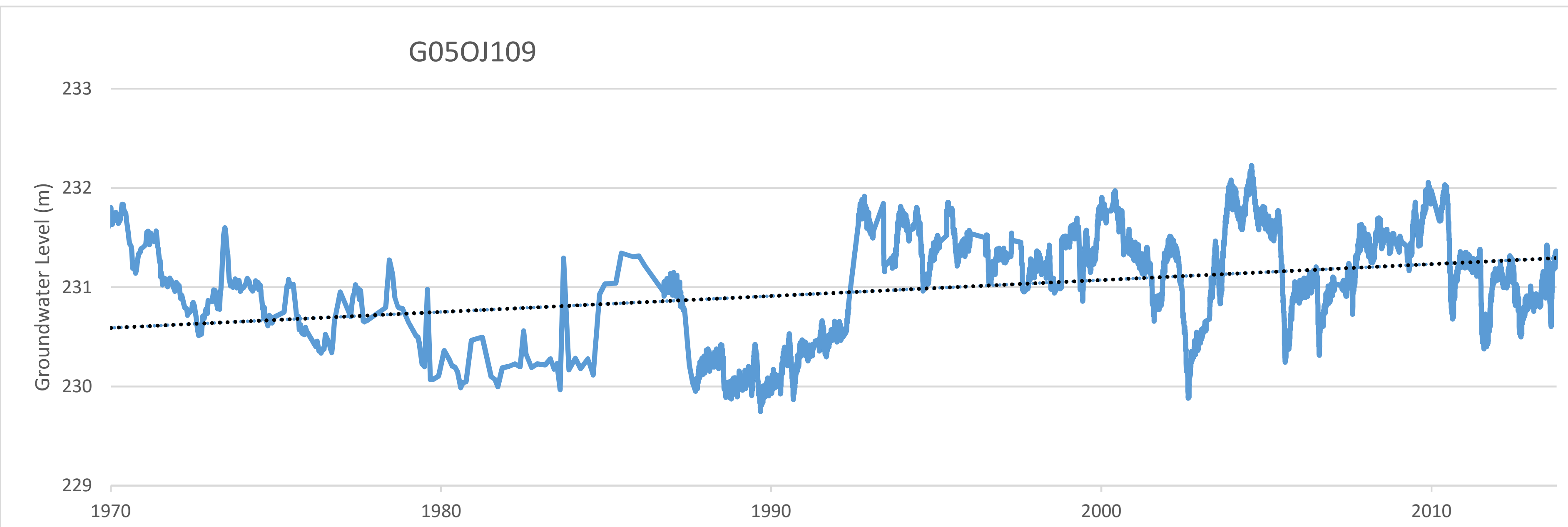

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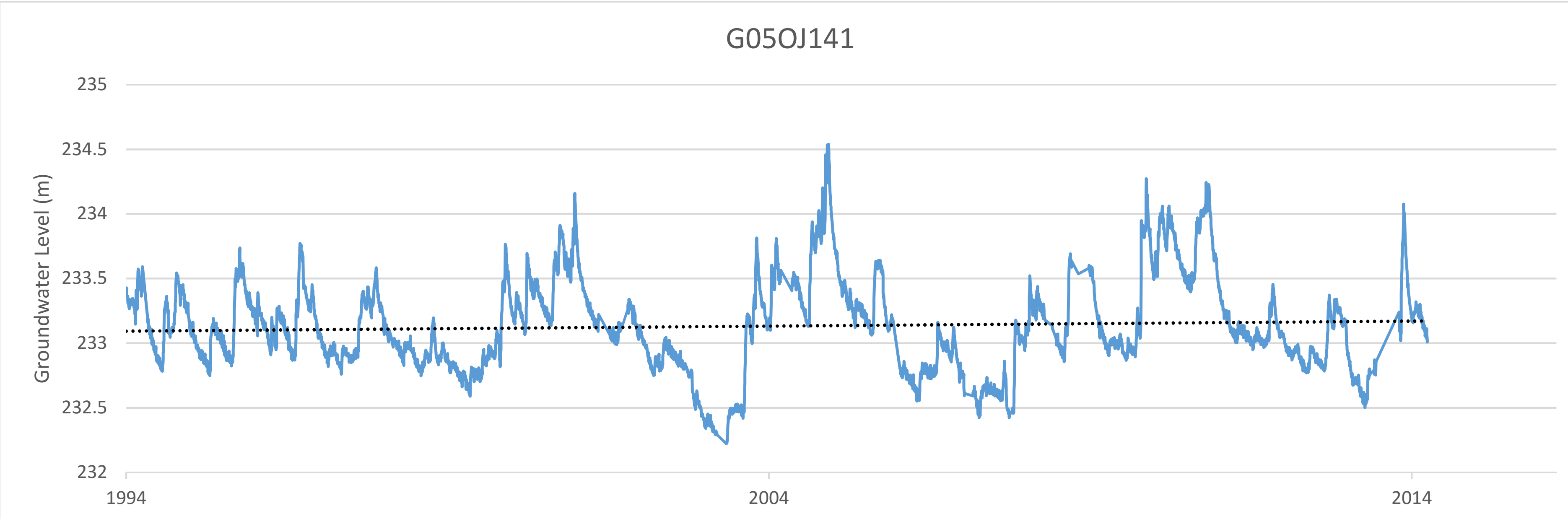
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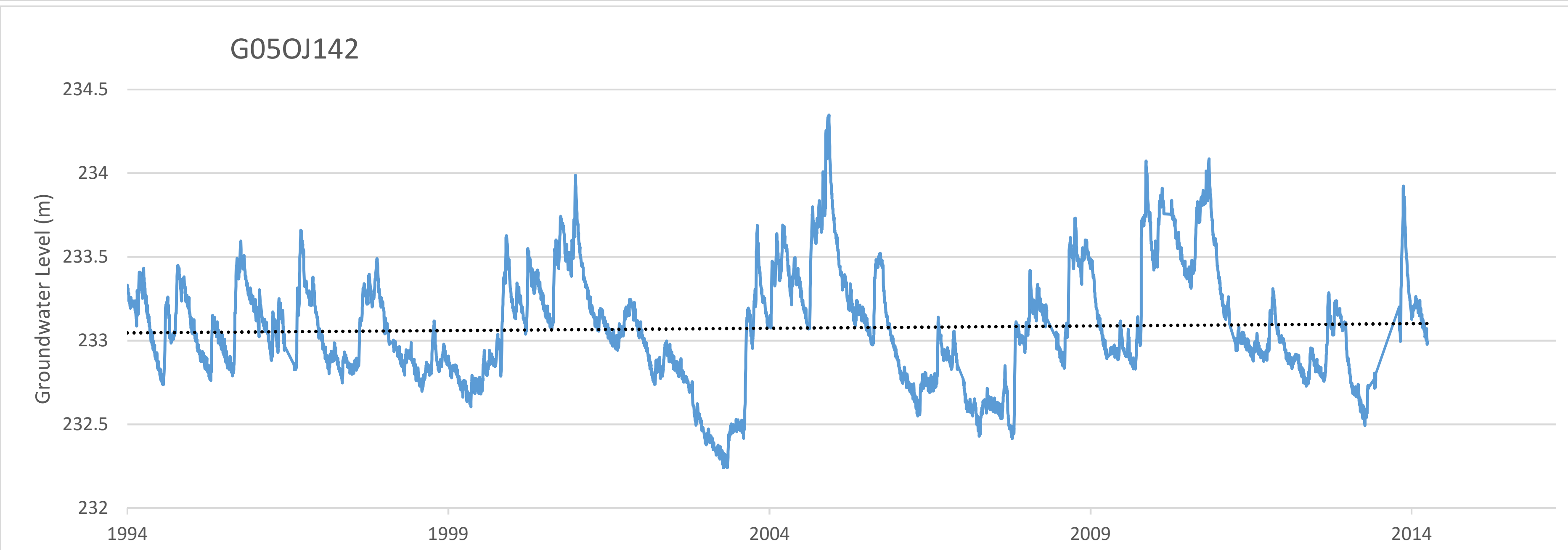
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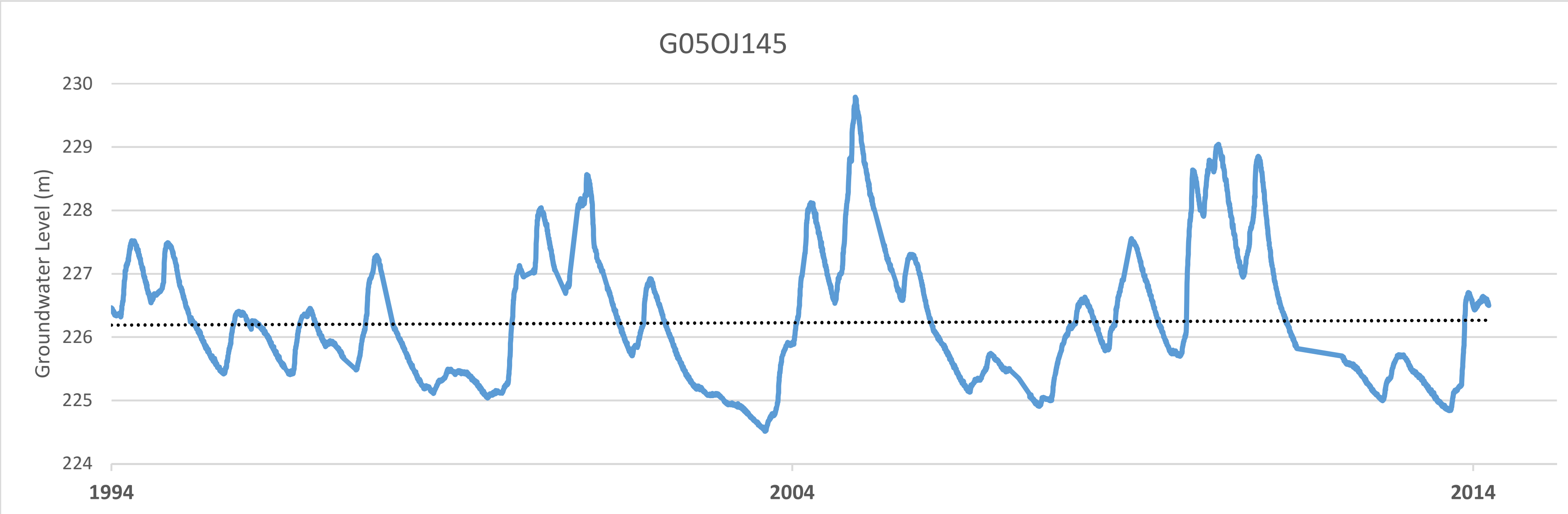
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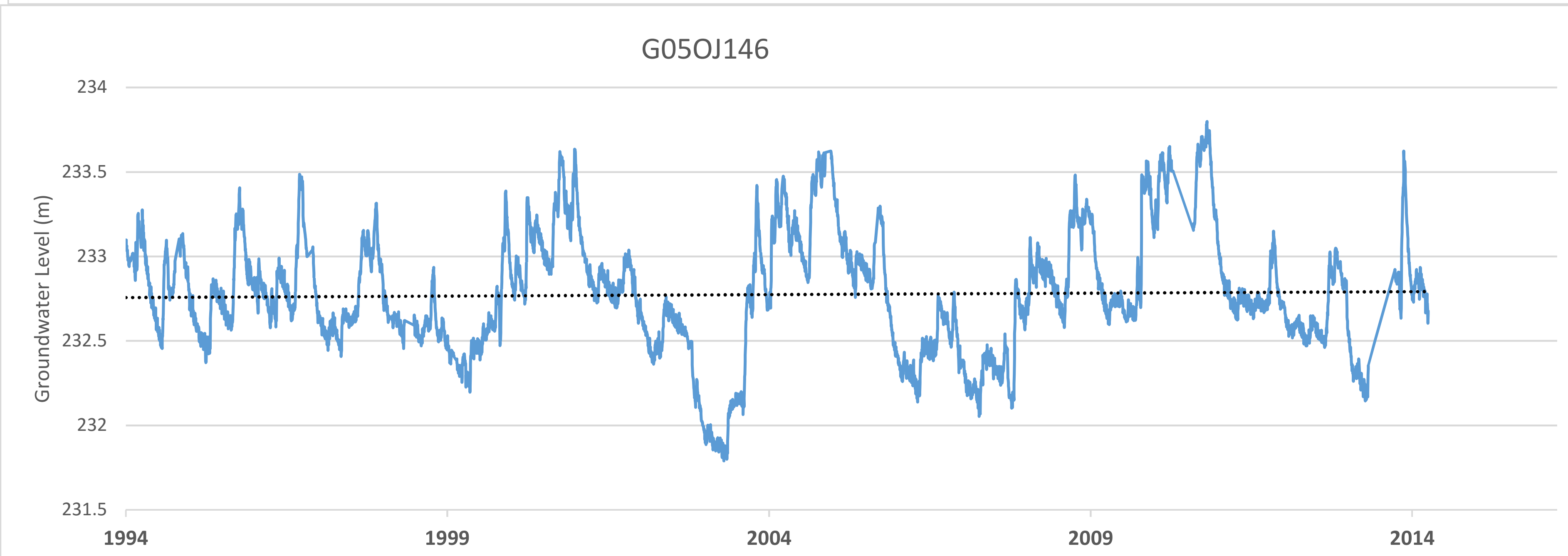
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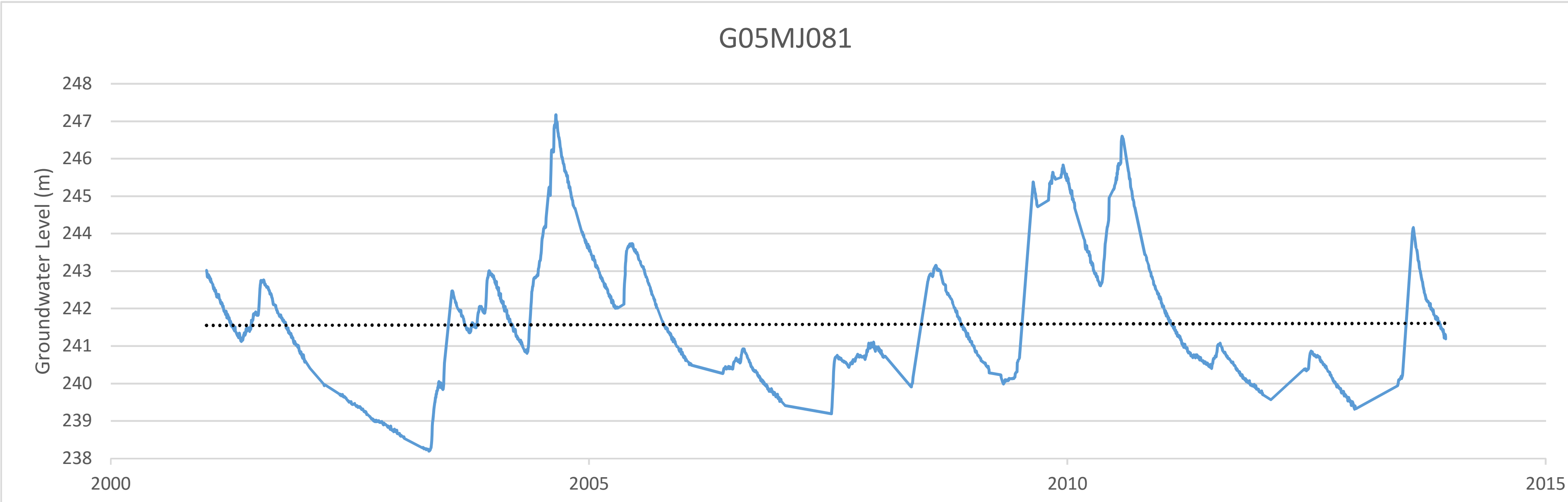
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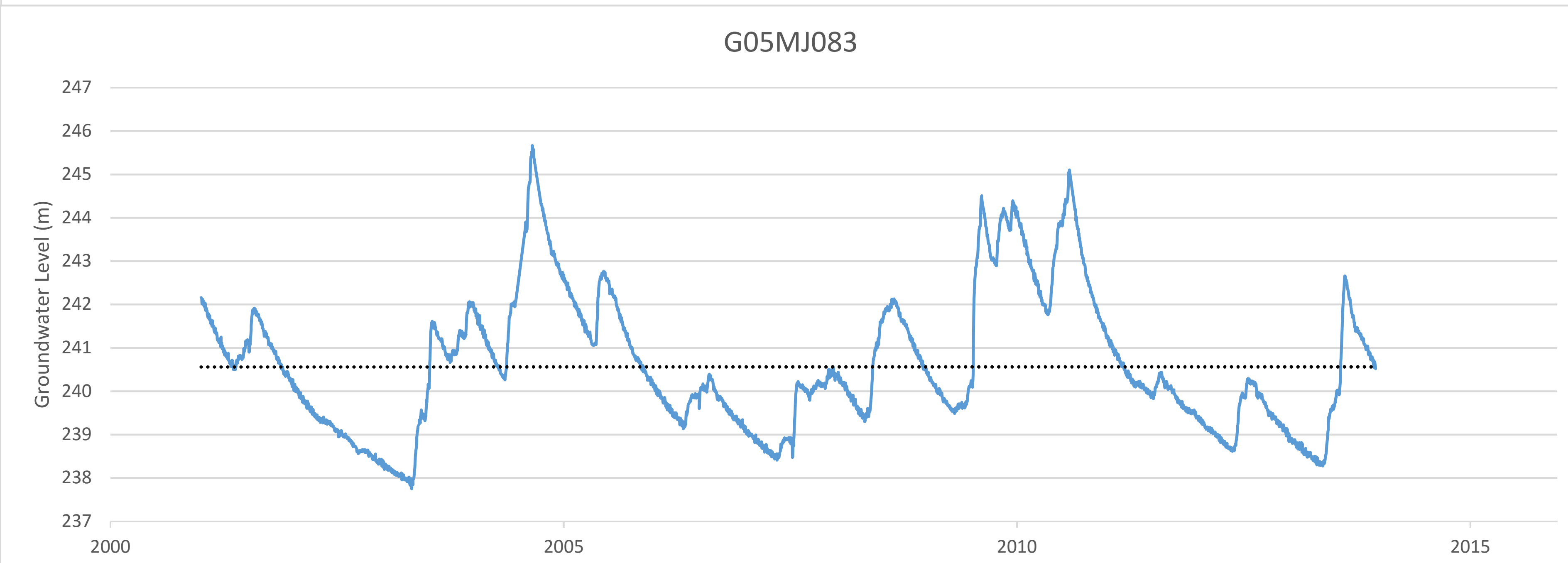
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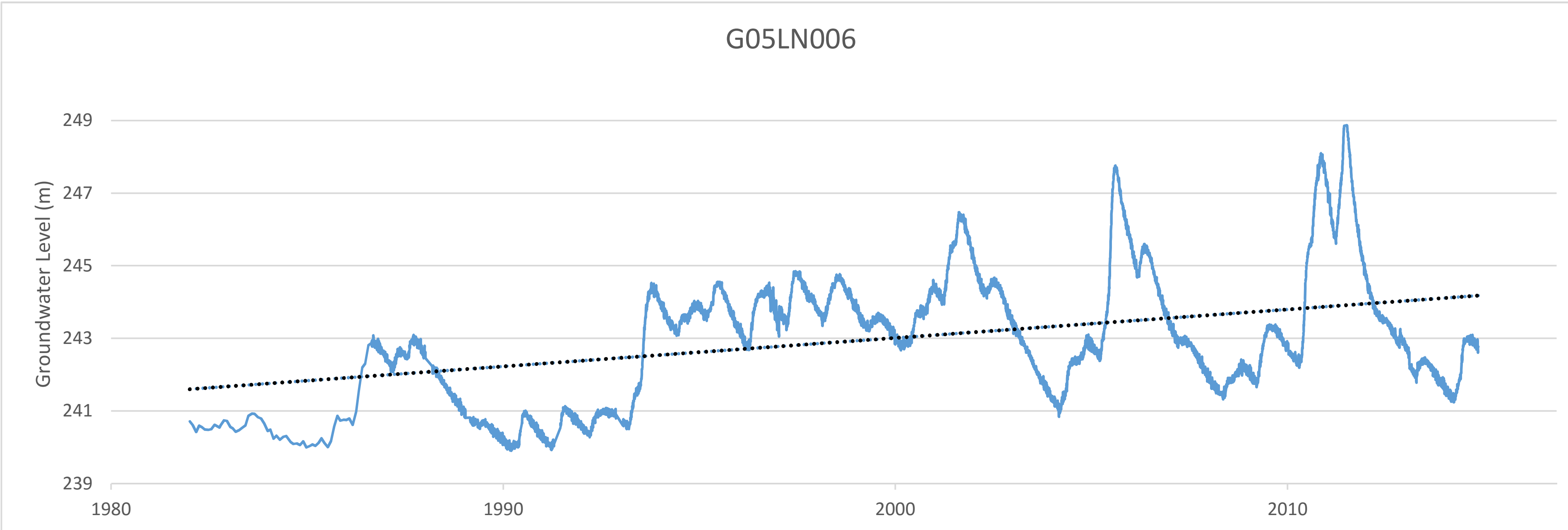
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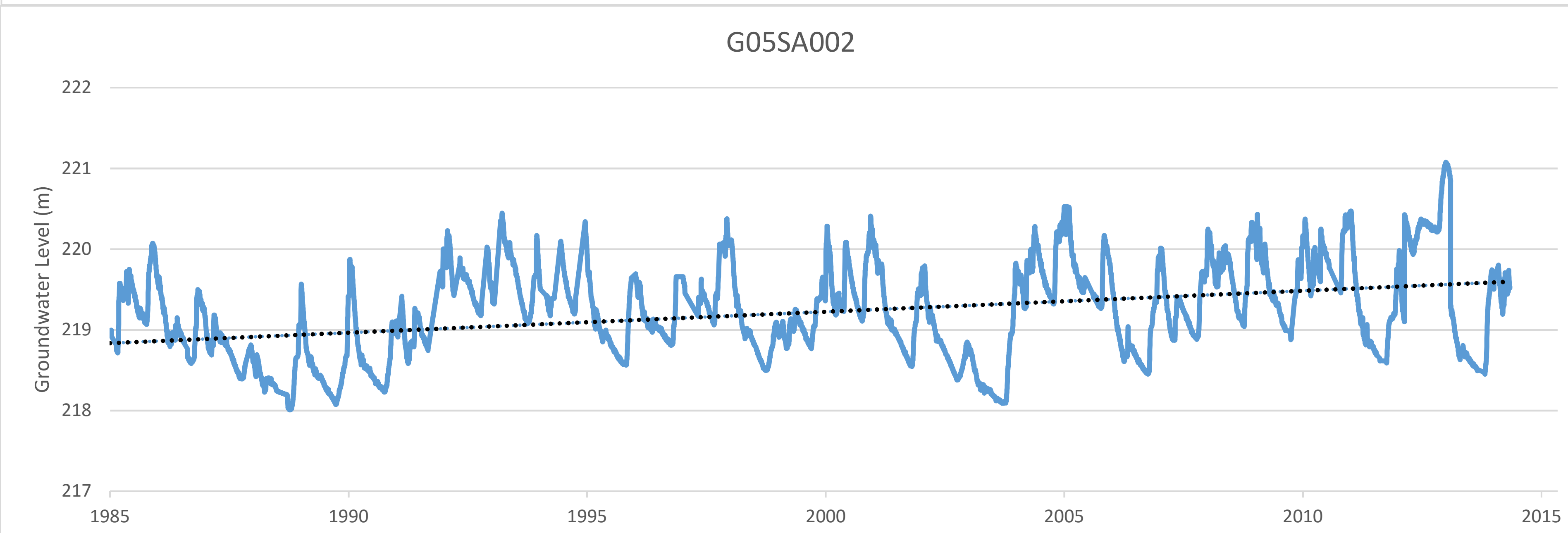
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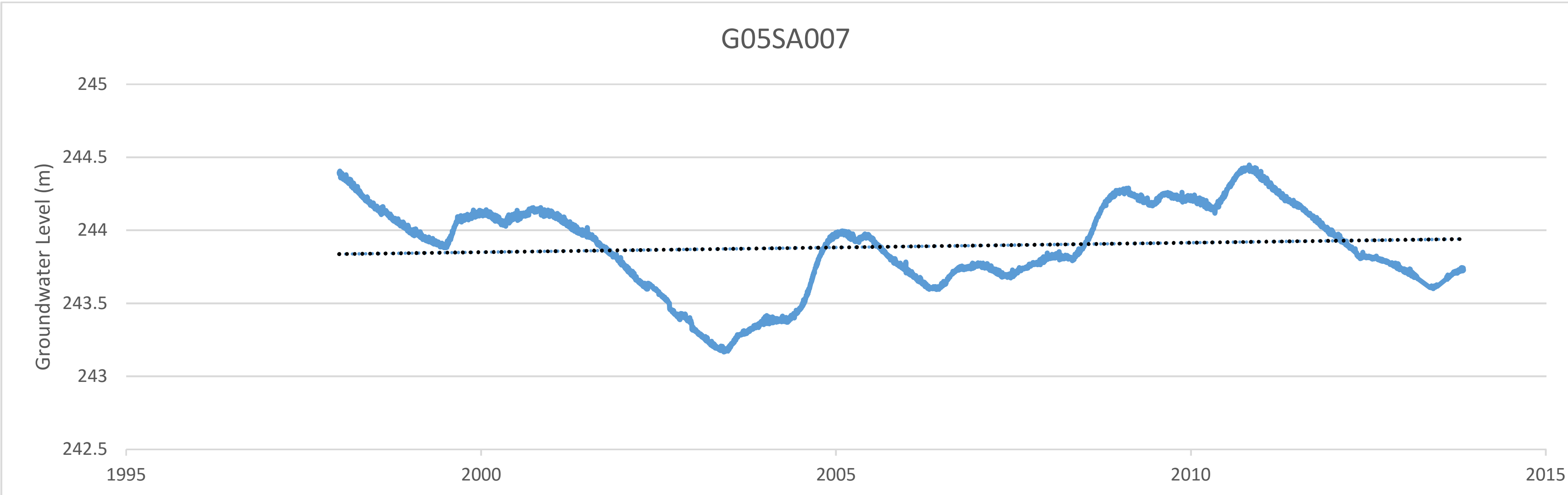
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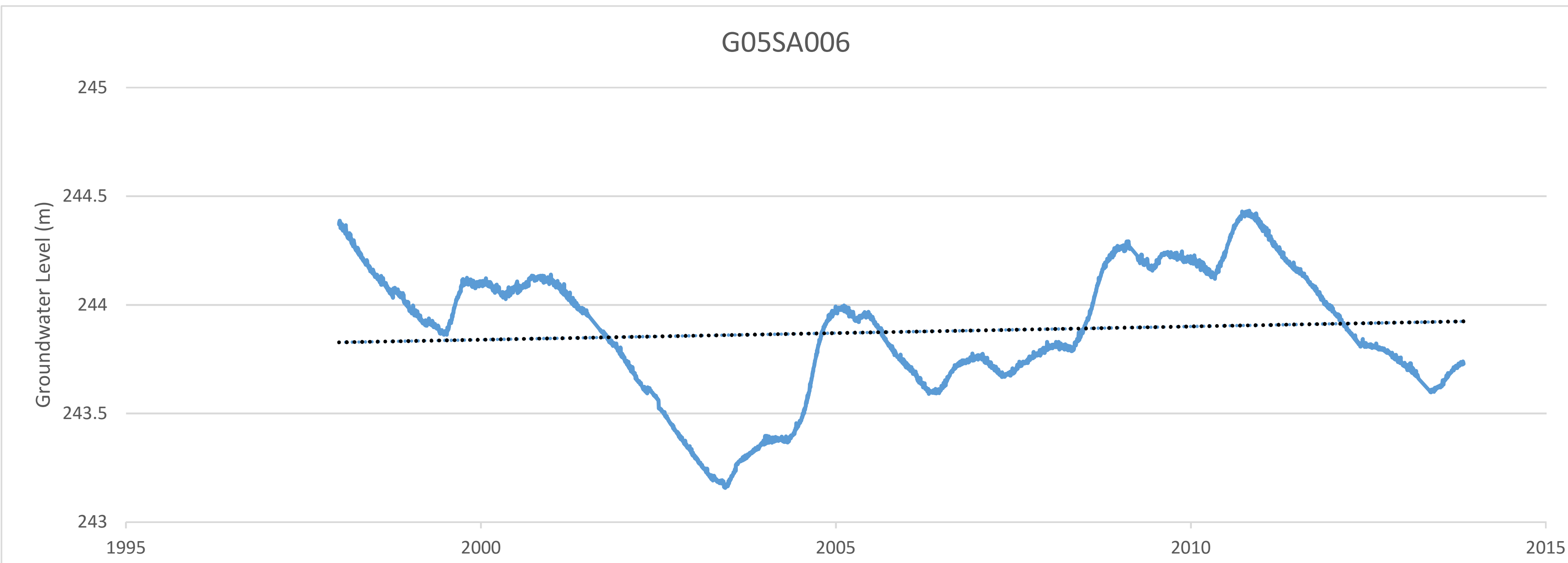
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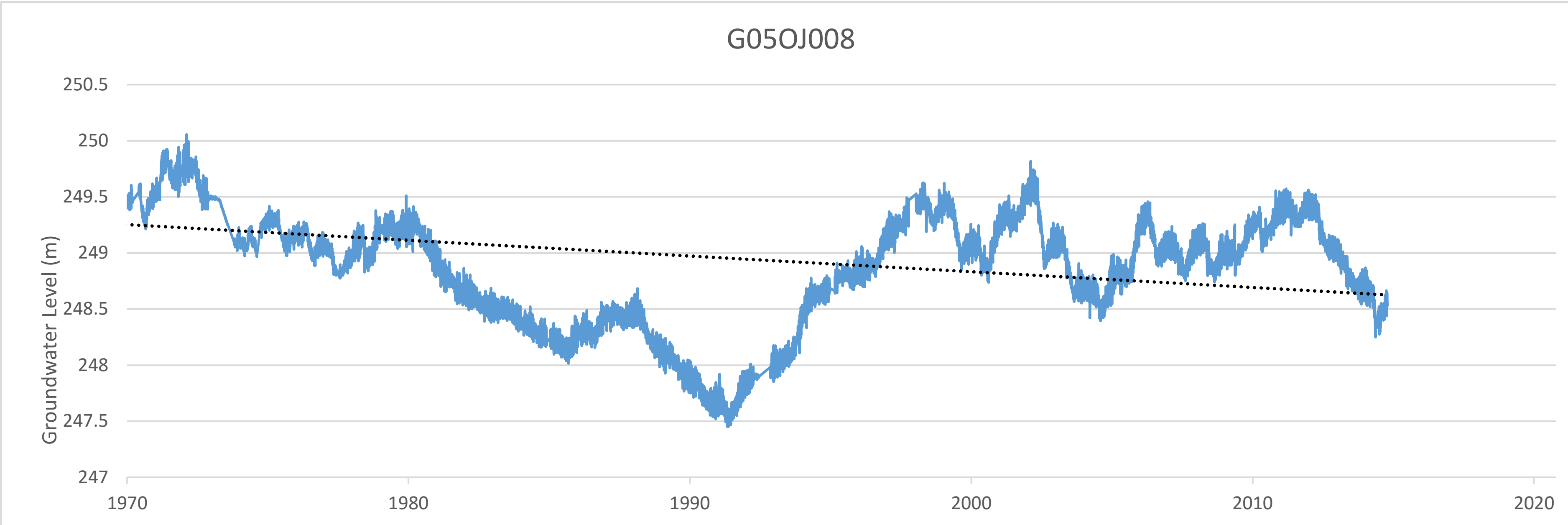

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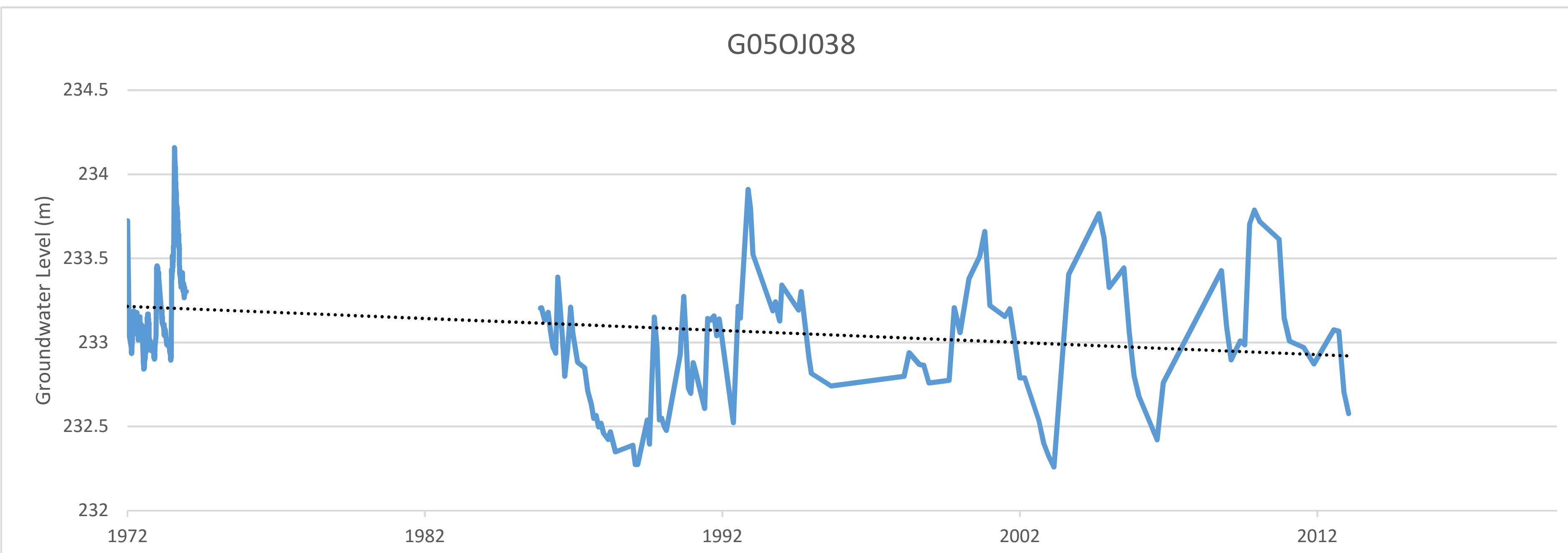

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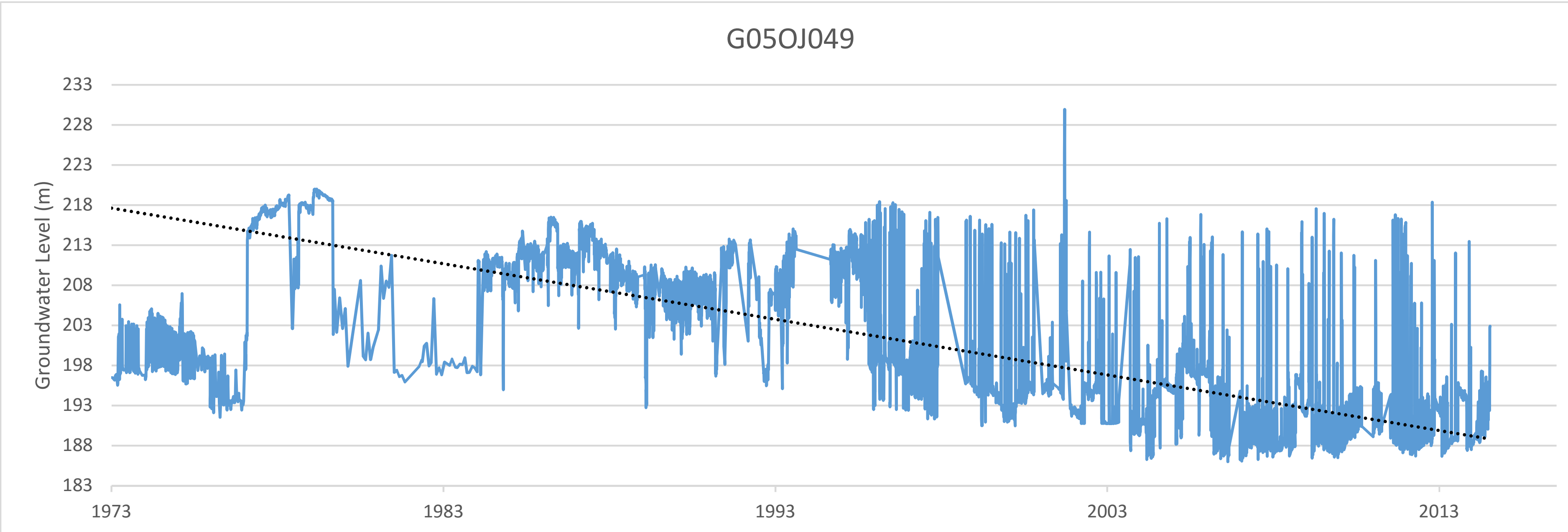
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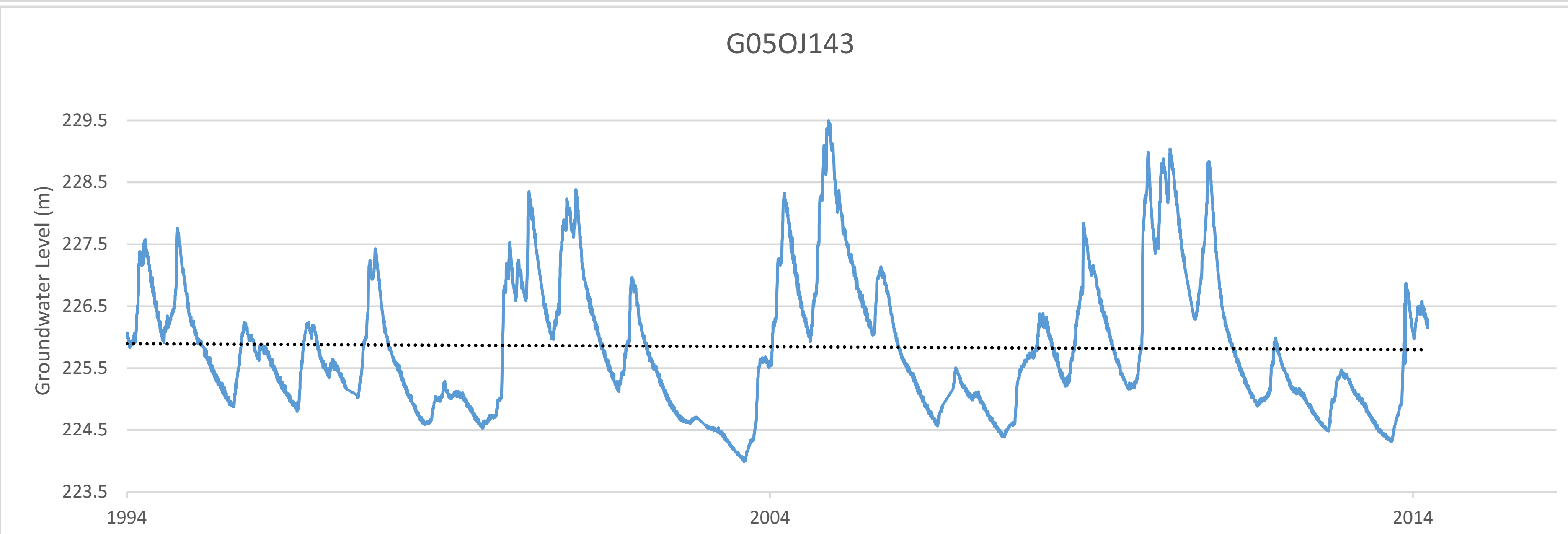
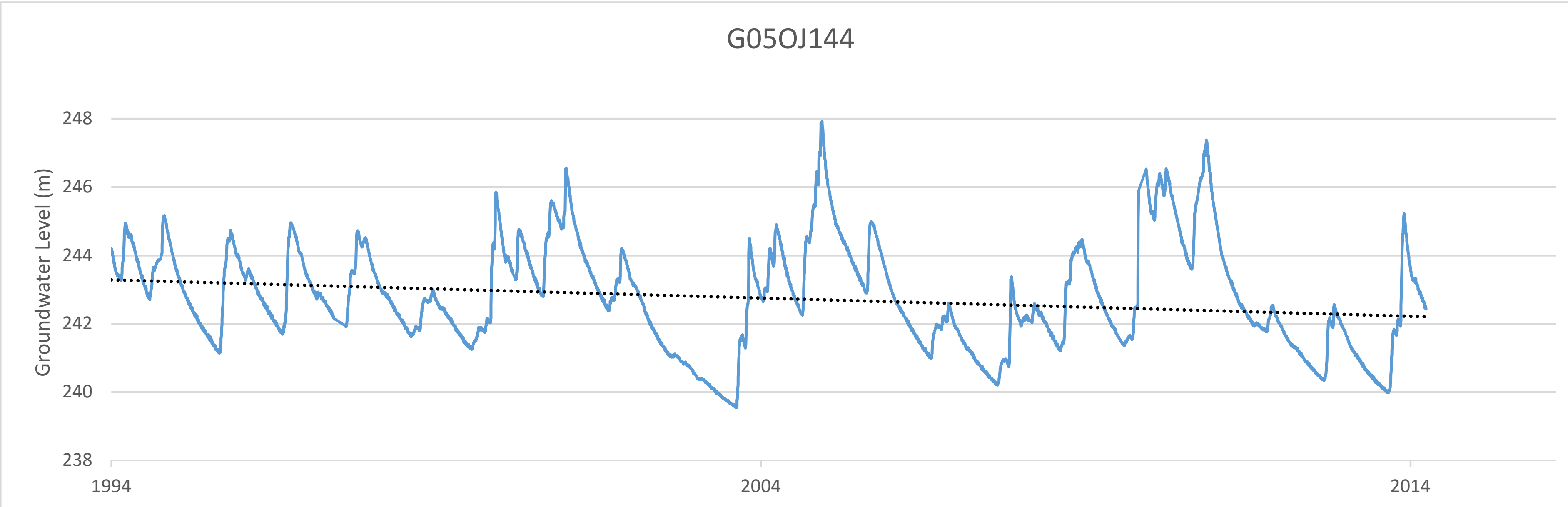
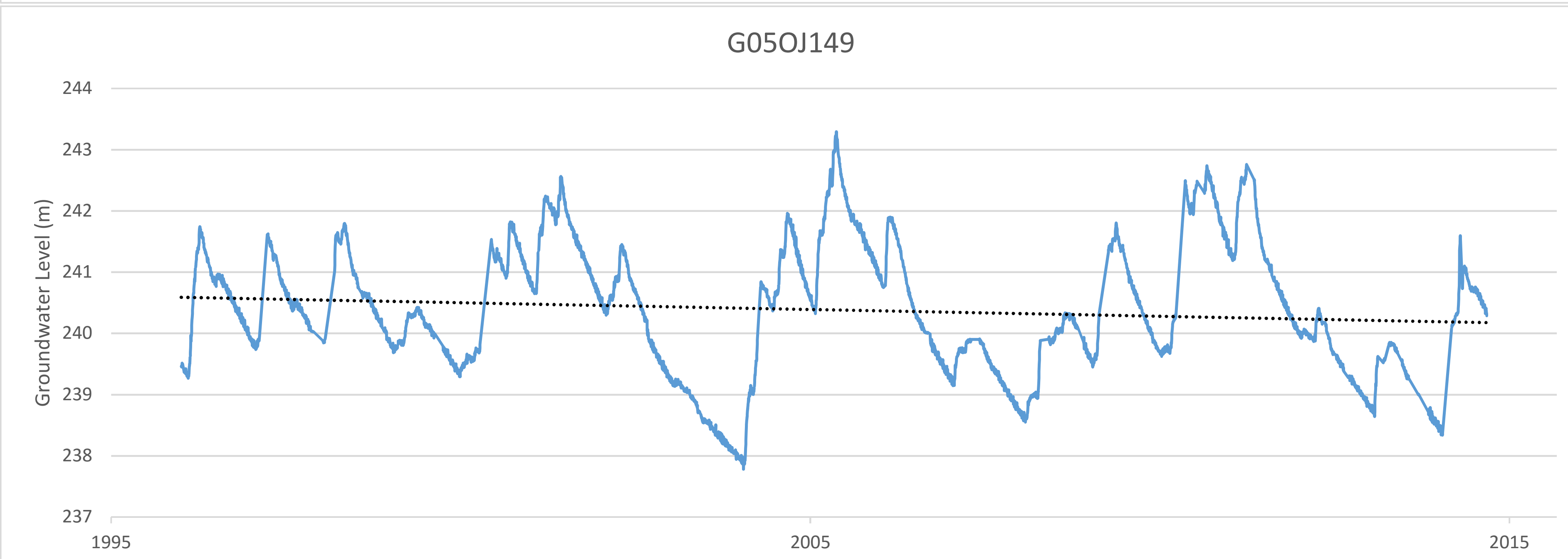
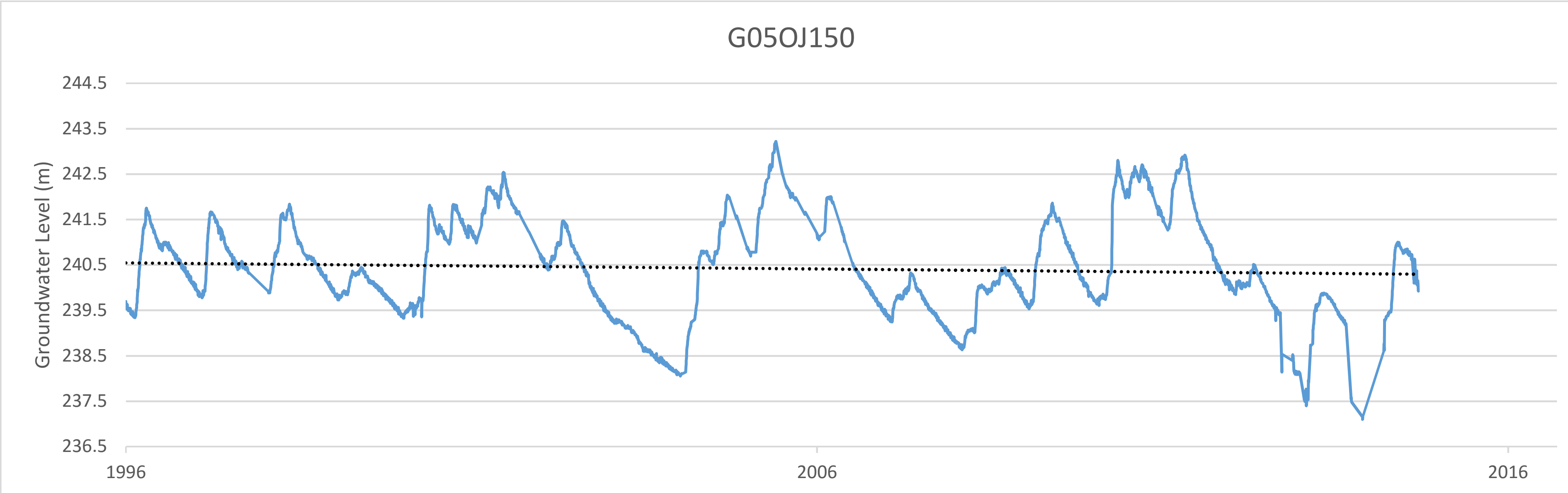
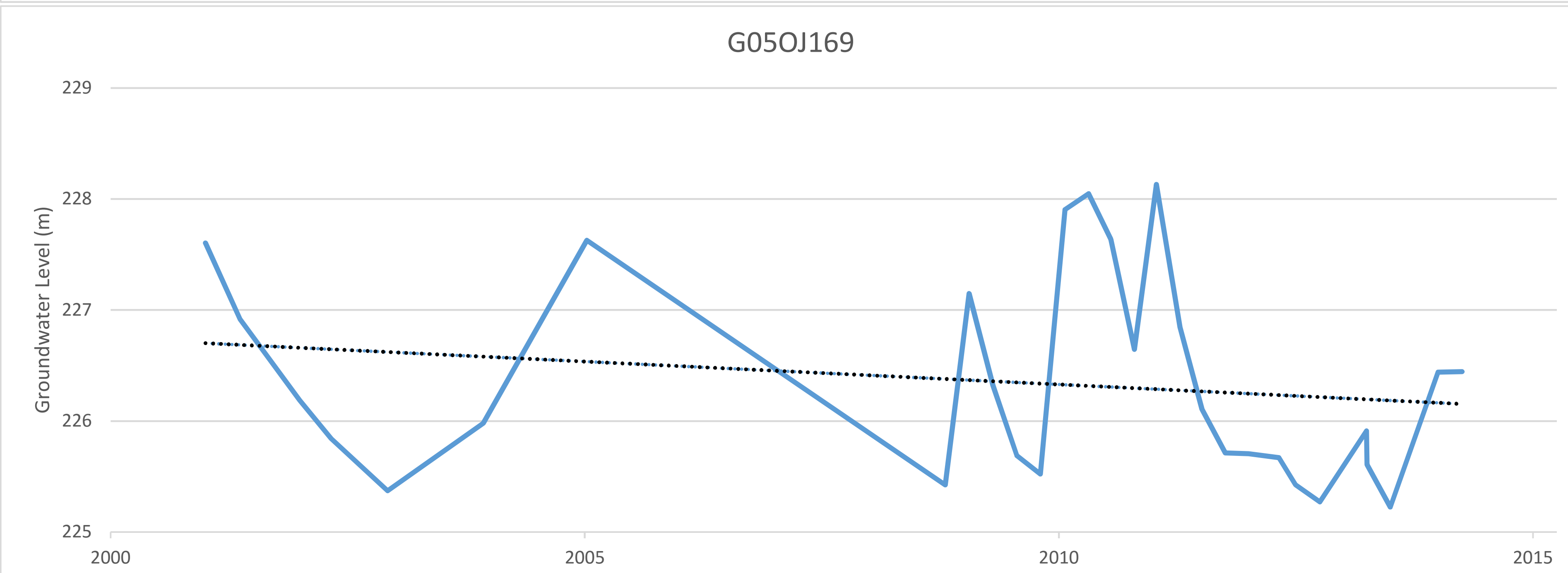
2003
2013

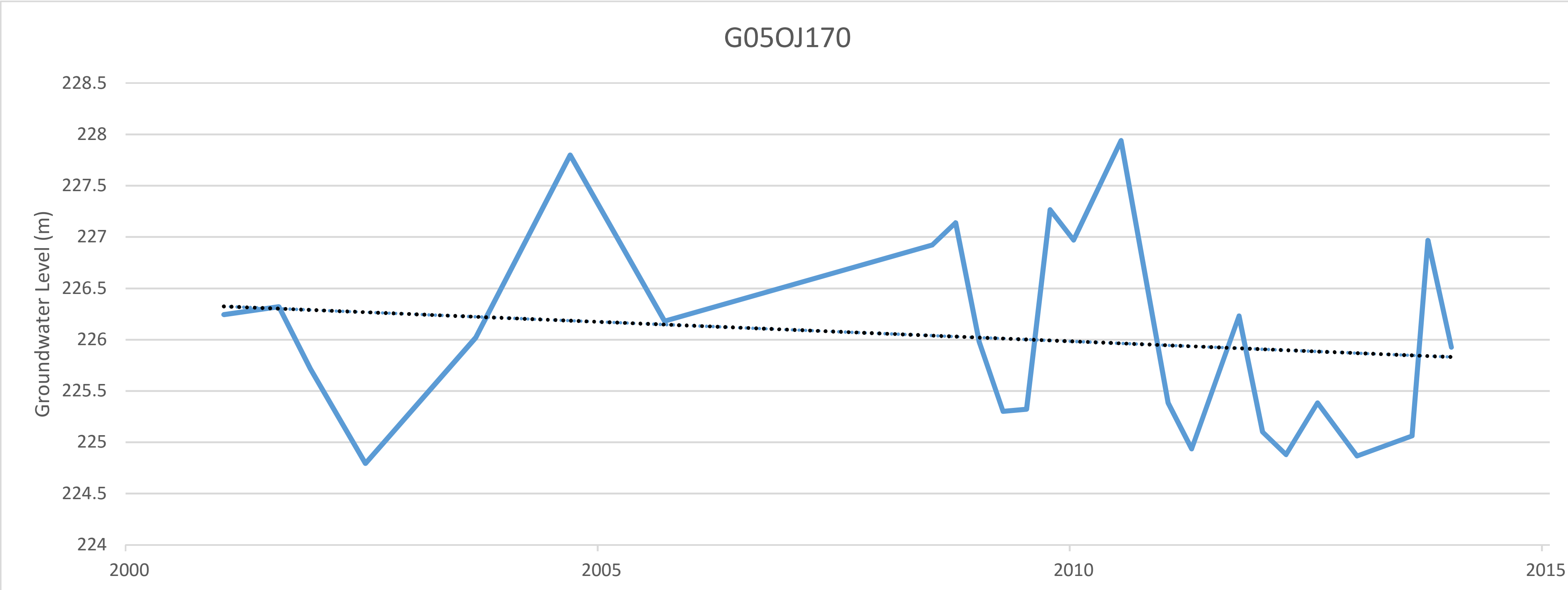

G05OJ143
Groundwater Level (m)
229.5
228.5
227.5
226.5
225.5
224.5
223.5
1994
2004
2014


G05OJ144
Groundwater Level (m)
248
246
244
242
240
238
1994
2004
2014


G05OJ149
Groundwater Level (m)
244
243
242
241
240
239
238
237
1995
2005
2015


G05OJ150
Groundwater Level (m)
244.5
243.5
242.5
241.5
240.5
239.5
238.5
237.5
236.5
1996
2006
2016


G05OJ169
Groundwater Level (m)
229
228
227
226
225
2000
2005
2010
2015



G05OJ170
Groundwater Level (m)
228.5
228
227.5
227
226.5
226
225.5
225
224.5
224
2000
2005
2010
2015

Appendix G

Groundwater Investigation for Water Supply
for the Town of Selkirk - Rutulis, 1973

PS-f-25

Province of Manitoba

inter-departmental memo

To:

L. Gray, P. Eng.
Sr. Groundwater Geologist

Date: November 29, 1973

From: M. Rutulis, P. Eng.
Groundwater Geologist

File: 10.1.7 Selkirk

Subject: Groundwater Investigation for Water Supply for the Town of Selkirk.

SUMMARY

From January 29 to May 9, 1973 a groundwater investigation to find a new water supply for the Town of Selkirk was carried out. The most significant results of the investigation are as follows:

1. A new well field yielding 1750 I.G.P.M. sustained rate, which is the maximum capacity of the Town's water treatment plant, could be developed in an area three to four miles northwest of Selkirk.

2. Water from the potential well field would have a dissolved solids concentration of around 1000 mgs./l. and hardness from 500 to 600 mgs./l. The water would require softening and probably iron removal to make it acceptable for municipal water supply.

3. To reach the farthest point of the potential well field from the water treatment plant five miles of pipeline would be required. The well field would consist of a minimum of two wells.

1. INTRODUCTION

1.1 Purpose of the Investigation

The present water supply for the Town of Selkirk is from a well field consisting of 3 wells located within the Town's boundaries. The municipal well field is developed to its maximum capacity and, therefore, new sources of water are required. The water supply for the Town can be increased by developing a new well field or by using water from the Red River.

The purpose of this investigation was to determine if adequate supply of groundwater could be obtained in the vicinity of Selkirk.

1.2 Water Requirements

The capacity of the Selkirk water treatment plant is 1750 I.G.P.M. (2100 U.S.G.P.M.) or 2.5 x 10^6 I.G.P.D. This is equivalent to 3400 acre feet per year. The treatment plant capacity is about double the present water consumption of about 1.2 million gallons per day.

Hence, it was decided that a new well field yielding 1750 I.G.P.M. sustained pumping rate would produce adequate water supply for the Town. It should be noted that the present well field yields approximately 820 I.G.P.M. and an additional 930 I.G.P.M. sustained pumping rate would be required to reach the capacity of the treatment plant.

1.3 Area Investigated

The groundwater investigation was concentrated to an area two to four miles northwest of Selkirk as indicated by test hole locations in Figure 1. The selection of the area for investigation was based on available information consisting mainly of water well drillers' reports.

The information indicated a belt of low transmissivity just west of Selkirk and considerably better or at least different groundwater conditions in the investigated area. One of the most noticeable facts about the area northwest of Selkirk was high static level. Drillers' reports indicated groundwater levels above or near ground surface in several wells in the investigated area while a short distance east of the flowing well area, water levels in wells were more than 20 feet below ground level and 40 to 60 feet below ground level in Selkirk.

1.4 Procedure

The investigation was started on January 29, 1973 and was completed on May 9, 1973. The investigation consisted of test drilling, several short pumping tests and two extended aquifer tests. The locations of test holes and aquifer tests are shown in Figure 1.

2. GEOLOGICAL CONDITIONS

2.1 Surficial Deposits

The surficial deposits in the investigated area consist mainly of till and sand and gravel deposits. Clay covers the till near the eastern margin of the test drilling area. A typical section through the study area to a depth of about 100 feet is shown in Figure 2.

The thickness of surficial deposits in most of the area ranges from 40 to 50 feet but increases to more than 70 feet east of Highway No. 9.

The till deposits consist of from 15 to 30 feet thick upper clayey till beds and lower very gritty, pebbly and almost 100 percent carbonate rock till.

The sand and gravel deposits generally occur in a zero to ten feet thick zone between the till and the bedrock. The thickest and coarsest gravel deposits appear to occur in the vicinity of aquifer test sites No. 1 and No. 2. The locations of the test sites are shown in Figure 1. At both aquifer test sites considerable amount of coarse, well rounded gravel was washed up while drilling the test holes. Outside of the immediate vicinity of the aquifer test sites, sand and gravel deposits generally are only a few feet thick or are non-existant, e.g. in test holes No's. 1 and 2, no sand and gravel beds were found.

2.2 Bedrock

The surficial deposits are underlain by dolomitic limestone and dolimite of the Ordovician Red River Formation. In general, the carbonate rock in the test hole area is buff and light brown with brown and dark brown mottling to about 130 feet below ground level. Deeper down the rock becomes more greyish and darker. In T.H. 15 from 185 to 281 feet below ground level the carbonate beds contained red, dark red and slightly purplish layers. The carbonate rock extends to more than 300 feet below ground level and is underlain by shale and sandstone beds of the Ordovician Winnipeg formation.

In all test holes drilled into the bedrock, except T.H. 11, rock rubble and highly fractured rock was found at the top of the bedrock. The thickness of the rubble and highly fractured rock zone ranged from less than a foot to about 10 feet in test holes 5 and 14. Weathered or solution affected layers also appear to occur well below the bedrock surface. For example, rounded and apparently weathered rock fragments were washed up in T.H. 15 from the 236 - 240 feet depth zone. It appears that in the apparently weathered zones the rock contains layers of yellow oxidized silt and clay that colours the return water of the drilling process bright yellow. As the test holes were drilled with down-the-hole air hammer, it was noticed that considerable increase in pumping was nearly always associated with bright yellow silt and clay in the water.

The bedrock surface in most of the investigated area is very flat. The depth to bedrock in most of the test holes was between 40 and 50 feet. As shown in Figure 2, the depth to the bedrock increases towards the eastern edge of the test hole area. Well data indicate it is more than 100 feet in some wells in the Town of Selkirk. Test hole No. 3 and well data from Selkirk and immediate vicinity indicate that buried sinkholes and/or buried bedrock channels exist in the area between Hwy. 9 and Red River.

3. GROUNDWATER

3.1 Aquifers

The carbonate rock that underlies the investigated area and extends for tens of miles outside the area constitutes the main aquifer in the area. Because there are no impervious or low permeability sediments between the sand and gravel deposits and the bedrock, the sand and gravel beds are considered as part of the carbonate aquifer.

The carbonate rock in the area usually has a water bearing zone at the bedrock surface and several good water bearing zones between less permeable layers to about 50 feet below the bedrock surface. However, exceptions do occur, e.g. in T.H. 11, no water was found at the till-bedrock contact and in T.H. 15 after sealing off the upper gravel and rock rubble zone, there was no traces of water for about 90 feet of drilling. It appears that a second water bearing zone in the carbonate bedrock is common at some 140 feet below ground surface and several zones at more than 200 feet below ground level.

Thin water bearing sand and/or gravel layers interbedded in the till were found in some of the test holes. Because it is simpler and less expensive to install wells in the carbonate rock, these sand and/or gravel aquifers are not used for domestic supply. The lenses of sand and/or gravel in till are too small to be considered as sources of water supply for Selkirk.

The results of aquifer tests carried out during this investigation as well as observed pumping rates during the drilling of the test holes indicates that the transmissivity of the carbonate aquifer varies considerably from place to place. In general, transmissivity appears to be moderate to very high in the central and western part of the investigated area and low to very low along the eastern and southern margins of the area. In the vicinity of aquifer test No. 1, the coefficient of transmissivity is 4×10^4 I.G.P.D./ft. and possibly as high as 1×10^5 at test holes 7, 8, 9 and 10. In the vicinity of aquifer test No. 2 (Figure 1) the coefficient of transmissivity is 2.2×10^5 I.G.P.D./ft. Between the pumped well at aquifer test No. 2 (T.H. 14) and test hole 5, the transmissivity appears to be around 1×10^6 I.G.P.D./ft.

The observation that the piezometric surface elevation drops rapidly just outside the 740 feet piezometric surface elevation line in Figure 2 seems to indicate that transmissivity in the area south and east of the 740 feet line is much lower than inside it; probably considerably less than 10,000 I.G.P.D./ft.

The coefficient of storage in the vicinity of aquifer test No. 1 is in the order of 1.0×10^{-4} and 1.0×10^{-3} at aquifer test site No. 2.

3.2 Aquifer Tests

Two extended aquifer tests were carried out during the investigation. For the first test, the pumped well was installed in T.H. 7 and for the second test, in T.H. 14. In addition a short aquifer test was conducted at test site No. 14.

3.2.1 Aquifer Test No. 1

T.H. #1

The pumped well of aquifer test No. 1 consisted of 10 inch inside diameter (I.D.) casing to the carbonate aquifer and 47 feet 10 inches open hole in the carbonate rock. The depth of the pumped well was 104 feet. Except for T.H. 5, the observation wells consisted of casing to the carbonate rock and open hole in the rock to approximately 100 feet below ground level. Test hole No. 5 was drilled only 7 feet in the rock and was 43 feet deep. The locations of the wells used for aquifer test No. 1 are shown in Figure 4. The duration of the test was 30 hours and the pumping rate 400 I.G.P.M.

The time-drawdown and distance-drawdown curves of the test are shown in Figures 5 - 7. There is good agreement between the various time-drawdown and distance-drawdown curves for the observation wells near the pumped wells, i.e. test holes No's. 4, 8 and 10. The test indicates that in the vicinity of the pumped well of aquifer test No. 1, the coefficient of transmissivity of the upper water bearing zones of the carbonate aquifer is from 4.2×10^4 to 4.4×10^4 I.G.P.D./ft. and the coefficient of storage around 1×10^{-4}.

440 0000

In the wells near the pumped well the rate of drawdown decreased sharply after 8 hours of pumping and in the later part of the test equilibrium conditions existed. The time-drawdown curve of T.H. 5 and the results of aquifer test No. 2 indicate considerably higher transmissivity in the area west of test holes No's. 4, 7, 8 and 10. Hence, the decrease in drawdown is likely due to very high transmissivity areas west from the pumped well. It should be noted that atmospheric pressure increased at the same time as the decrease in rate of drawdown took place. As increase in the atmospheric pressure causes fall in water levels in confined aquifers, the observed decrease in drawdown rate is lower than it would have been without increase in atmospheric pressure.

3.2.2 Aquifer Test No. 2

Drilling of T.H. 5 indicated very high transmissivity in the upper few feet of the carbonate aquifer. The aquifer at this site consisted of carbonate rock rubble, highly fractured carbonate rock and coarse gravel deposited on the rock rubble. The pumped well for this test consisted of 10 inch I.D. casing to 34 feet below ground level, coarse slotted 10 inch I.D. casing from 34 to 44 feet below ground level and 10 inch open hole from 44 to 50 feet below ground level. Test hole No. 5 consisted of casing to 36 feet below ground level and 7 feet of open hole. Test holes No's. 6 and 7 consisted of casing to the bedrock surface and 31 and 52 feet open hole in the rock, respectively. Test hole No. 15 was constructed to measure water level changes in the aquifer in a zone from 50 to 200 feet and a second zone from 220 to 280 feet below ground level. The location of the test site and wells used for the test are shown in Figures 1 and 8. The well was pumped at 550 I.G.P.M. for 29 hours. The drawdown curves of the test are shown in Figures 9 - 11.

The time-drawdown curves of aquifer test No. 2 indicate that the coefficient of transmissivity in the vicinity of the pumped well is 2.2×10^5 I.G.P.D./ft. and storage coefficient is 2.5×10^{-3}. The time-drawdown rate increased after the first ten minutes of pumping. The increase in rate of drawdown most likely is caused by considerably lower transmissivity in the carbonate aquifer a short distance from the pumped well. The distance-drawdown curve indicates that the aquifer conditions are fairly uniform between the pumped well (T.H. 14) and T.H. 15 but transmissivity is much lower both east and west of the pumped well. The distance-drawdown curve indicates that adjacent to the pumped well the coefficient of transmissivity is very high (9.0×10^5 I.G.P.D./ft.).

Prior to aquifer test No. 2, the well was pumped at 615 I.G.P.M. and by using analog automatic recorder very early measurements of the drawdown curve were obtained. The time-drawdown curve of this short test indicates coefficient of transmissivity of 2.6×10^5 I.G.P.D./ft. and storage coefficient of 1.0×10^{-3}.

As the pumping affected water levels both in the upper and lower zones monitored in T.H. 15, it appears that there is fairly good hydraulic connection between the upper and deeper water bearing zones in the carbonate aquifer at this location.

3.3 Potential Yield

From the observations made during the aquifer tests it is obvious that high capacity wells can be installed in the carbonate aquifer in the investigated area.

Test well No. 7 was pumped at 400 I.G.P.M. At this pumping rate drawdown in the well stabilized at around 33 feet. As the distance-drawdown curve indicates that without well losses drawdown would be around 20 feet, approximately 13 feet of the observed drawdown in the pumped well was due to well losses. The available drawdown at this site is 43 feet. Hence, a well with very low well losses at this site could be pumped at rates up to 800 I.G.P.M. Because the well losses in a well of better design at this site are likely to be considerably lower than in the test well, it is reasonable to assume that the pumping capacity of a well at this site would be around 600 I.G.P.M.

Test well No. 14 was pumped at 550 I.G.P.M. and the drawdown was 4.5 feet after 29 hours of pumping. Assuming that the rate of drawdown would be 1.5 feet per log cycle of time as it was during the last full log cycle of time of the pumping test, drawdown after 3 years (i.e. 4 additional log cycles of time) of continuous pumping at 550 I.G.P.M. would be 4.5 + 6.0 = 10.5 feet. The allowable drawdown at this site is 27 feet. As the test well shows practically no well losses, it can be estimated from the above drawdown figures that a well at this site could be pumped continuously at approximately 1300 I.G.P.M.

600 + 1300 = 1900 IGPM

The test wells indicate that the capacity of wells in the carbonate aquifer in the investigated area would range from 600 to 1300 I.G.P.M. and that total pumping rates are likely to be equal to the treatment plant capacity.

Because there is no doubt that adequate short period pumping rates could be obtained, the most important question is what is the long term sustained yield of the carbonate aquifer.

From observation well data and measurements of groundwater discharge in springs in the Interlake Area it has been estimated that the annual recharge areas of the carbonate aquifer generally is 0.1 foot of water and may be up to 0.2 foot in some areas.

As the future water requirement for the Town of Selkirk is assumed to be 3400 acre feet per year, a recharge area of 34,000 acres of 58 square miles would be required for the annual recharge to be equal annual pumpage, if annual recharge is 0.1 foot of water. The probable recharge area for wells in the investigated area is around 80 square miles. The fact that the total discharge from the numerous springs in the area north of Stony Mountain is around 20 c.f.s. or about 14 x 10^3 acre feet per year indicates that recharge conditions are good and large amounts of groundwater are available for development.

A well at Gimli located in a similar hydrogeological situation as the test wells of the present investigation has been pumped at 1 x 10^6 gallons per day (700 I.G.P.M.) without noticeable decrease in piezometric surface in the vicinity. This is another indication that recharge conditions of the carbonate aquifer are good and fairly high pumping rates can be maintained without dewatering the aquifer.

The aquifer test data and observations of groundwater discharge in the area northwest of Selkirk, indicate that adequate supply of groundwater to supply the Town of Selkirk could be obtained from a well field in the investigated area.

3.4 Groundwater Quality

Water in the carbonate aquifer in the investigated area is of fairly good quality. In the upper water bearing zone the dissolved solids concentration is around 1000 mgs./l. or less, with the exception of T.H. 17 where it was nearly 1500 mgs./l. The water is moderately hard with total hardness ranging from 480 to 670 mgs./l. Hardness from a well field developed in the investigated area probably would fluctuate between 500 and 600 mgs./l. The analyses of several water samples obtained during the groundwater investigation are listed in Table I.

As in the investigated area, groundwater in the carbonate aquifer is too hard for municipal water supply, softening would be required to make it acceptable for municipal water supply. Field tests indicated iron ion concentration of 0.4 to 0.5 mgs./l. at both aquifer test sites. As the acceptable maximum iron ion concentration is 0.3 mgs./l., iron removal probably would be required to reduce iron concentration to acceptable level.

Indications are that groundwater in the deeper water bearing zones in the carbonate rock has somewhat higher dissolved solids concentration than in the upper zones. Hardness in the deeper zones is approximately the same as in the upper part of the carbonate aquifer.

4. POTENTIAL GROUNDWATER DEVELOPMENT

4.1 Well Field

As the groundwater investigation in the area northwest of Selkirk shows that high capacity wells can be installed in the area and adequate supply to replace part or all of the present water supply is available, a well field to supply the Town could be developed in the area. Figure 13 shows tentative well and pipeline locations for the potential well field. Well No. 2 would be located at or near the pumped well of aquifer test No. 2 (T.H. 14). To determine the location of well No. 1, test drilling would be required to determine a suitable well site in the vicinity of the tentative location. The cost of the test drilling would be $3000 to $5000.

4.2 Well Design

The investigation indicates that in areas where conditions are favorable for very high capacity wells, the upper part of the aquifer consists of carbonate rock rubble and coarse gravel deposits. Hence, high capacity wells in the area should have a screened section through the gravel and rubble zone. A typical well, therefore, would consist of 12 inches inside diameter casing to the gravel and rubble zone, a 0.100 to 0.125 inch slot stainless steel Layne screen through the rubble zone, and open hole to about 100 feet below ground level. The cost per well would be approximately $15000, excluding pumps and pump housing.

4.3 Observation Wells

To obtain long term records of groundwater level fluctuation in the potential well field area and vicinity groundwater observation stations were established at test sites No's. 4, 6, 14, 15 and 17. Hence, only one additional observation station would be required to complete the monitoring network of the well field.

5. GROUNDWATER VS. SURFACE WATER

If cost is not considered as the only criterion for deciding whether to use groundwater or surface water for the municipal water supply of Selkirk, several other advantages and disadvantages of each source should be considered to decide which is the preferable source of water supply.

5.1 Groundwater

The main advantages of groundwater are:

1. Potable water. The water is potable without any treatment.

2. No pollution. Groundwater in the vicinity of Selkirk is not polluted at present and pollution is not likely to occur in the future.

3. Constant quality. Water quality is likely to stay constant during long periods of time. Only minor and gradual changes may be expected.

4. Cold water at constant temperature. Water temperature in wells is likely to fluctuate only one or two degrees.

5. No sediment or algae problems.

6. Water supplied to the town would be of constant quality in respect to chemistry and temperature.

The main disadvantages of groundwater are:

1. Limited supply. The supply is limited in the sense that the yield of a fixed well field is limited to the yield of the aquifer or part of an aquifer from which the wells draw water. To increase the supply the well field must be expanded at considerable expense to draw water from new aquifers or additional parts of the same aquifer.

2. High hardness. The water in the investigated area is hard and, although it can be used without any treatment, it will require softening to make it satisfactory for municipal supply.

5.2 Surface Water

The Red River is considered here as the potential source of surface water. The main advantages of water supply from the Red River are:

1. Practically unlimited supply. The flow in the river is many times higher than the present or future water requirements of Selkirk. The supply would be limited only by pump, pipeline or treatment plant capacity.

2. Soft water. Water in Red River, generally is softer than groundwater in the carbonate aquifer at Selkirk.

The main disadvantages of water from the Red River are:

1. Unpotable water. The water cannot be used for municipal supply without treatment.

2. Pollution. The Red River water is and likely will be polluted for some time in the future.

3. Changes in quality. Water quality in the river can change considerably and frequently within a short time. This may require major adjustments in treatment process to keep quality at constant level.

4. Water temperature in the river will fluctuate between near freezing temperatures in winter to, probably, more than 80^{0} F. in summer.

5. The quality of water in respect to chemistry and temperature supplied to the town is likely to fluctuate depending on water conditions in the river.

M. Rutulis.

MR/bw

Enclosure

TABLE 1 WATER ANALYSES

Well or Test Hole and Depth of Zone Sampled in Feet		Date Well Sampled D/M/Y	Cations mgs./l.			Anions mgs./l.			Total Hardness ($CaCO_3$) mgs./l.	Electric Conductivity Micromhos/cm 25°C	Dissolved Solids mgs./l.
			Ca	Mg	Na+K	HCO_3	SO_4	Cl			
T.H. 1	47 - 83	30/1/73	56	93	14	517	30	14	524	880	725
T.H. 2	50 - 105	1/2/73	62	95	50	531	93	53	548	1120	88
T.H. 2	50 - 207	1/2/73	64	90	116	502	136	131	532	1380	1040
T.H. 4	48 - 65	8/2/73	88	81	59	580	120	66	555	1200	994
T.H. 5	36 - 43	8/2/73	56	100	48	551	116	65	550	1200	935
T.H. 6	56 - 84	12/2/73	72	117	98	585	202	99	665	1470	1178
T.H. 12	48 - 102	4/4/73	71	102	92	561	192	92	600	1440	1110
T.H. 15	138 - 144	23/4/73	43	107	115	546	198	127	550	1330	1135
T.H. 15	220 - 280	26/4/73	113	65	173	522	230	180	550	1550	1225
T.H. 17	41 - 102	20/4/73	74	117	194	507	420	174	670	1960	1496
Pumped well (T.H. 7, 50 - 105) aquifer test No. 1, after 30 hours of pumping		12/4/73	133	47	79	610	110	66	480	1240	1044
Pumped well (T.H. 14, 36 - 50), aquifer test No. 2, after 23 hours of pumping		9/5/73	85	91	74	595	122	64	585	1270	1029

NOTE: Well locations shown in Figure 1.

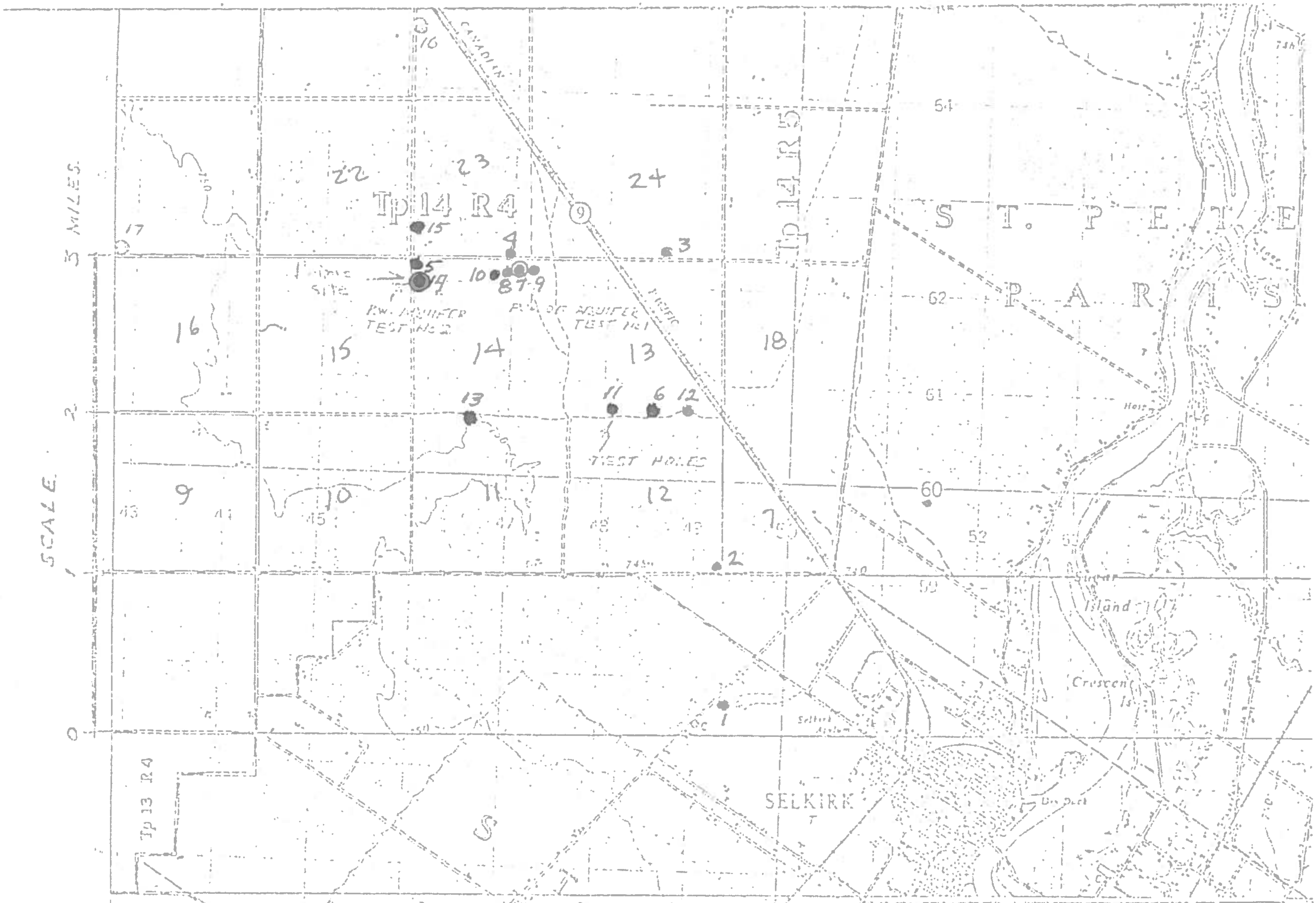
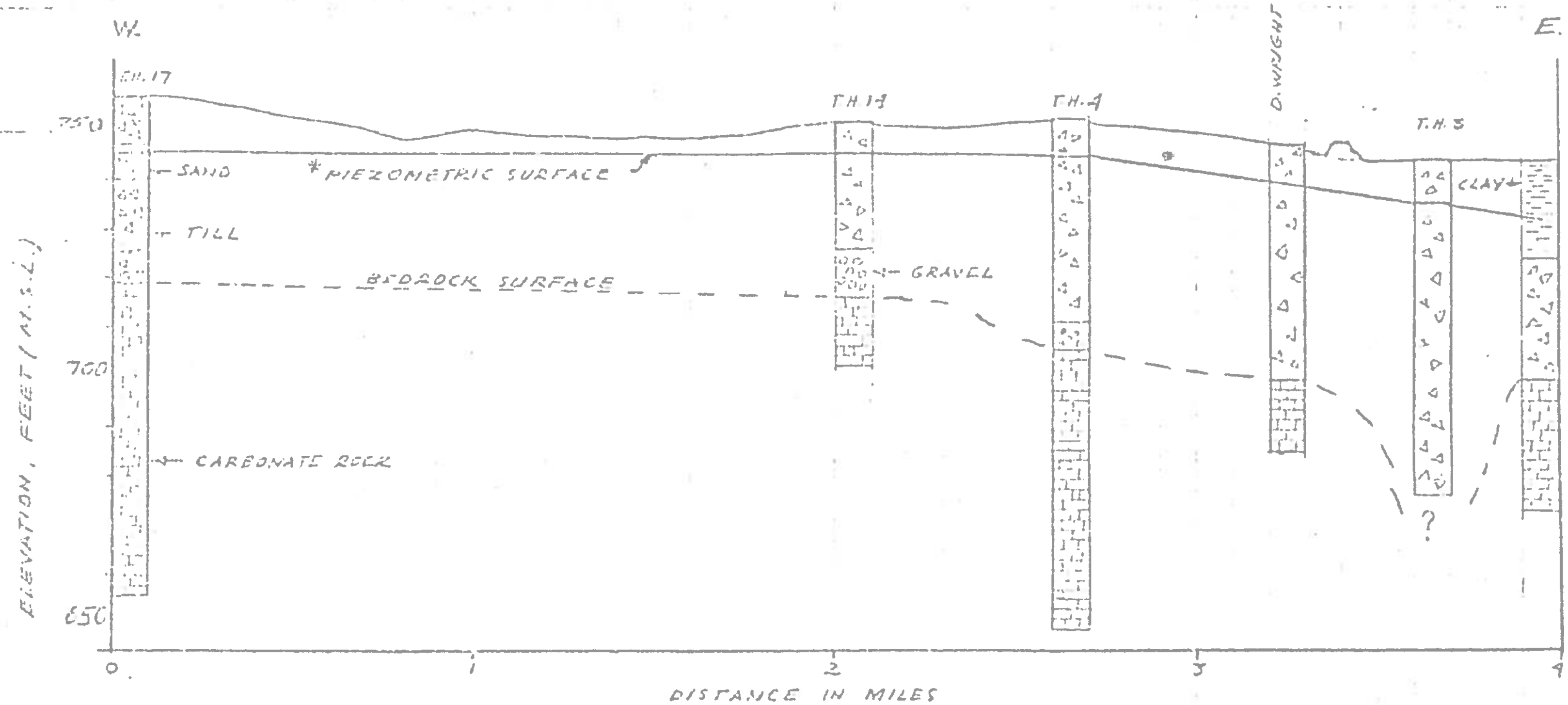


FIG. 1

TEST HOLE AND AQUIFER TEST LOCATION



* AS MEASURED IN TEST HOLES 17, 14, 4 MAY 7, 1973 AND T.H. 5 FEB. 7, 1973

FIG 2 EAST-WEST SECTION THROUGH INVESTIGATED AREA

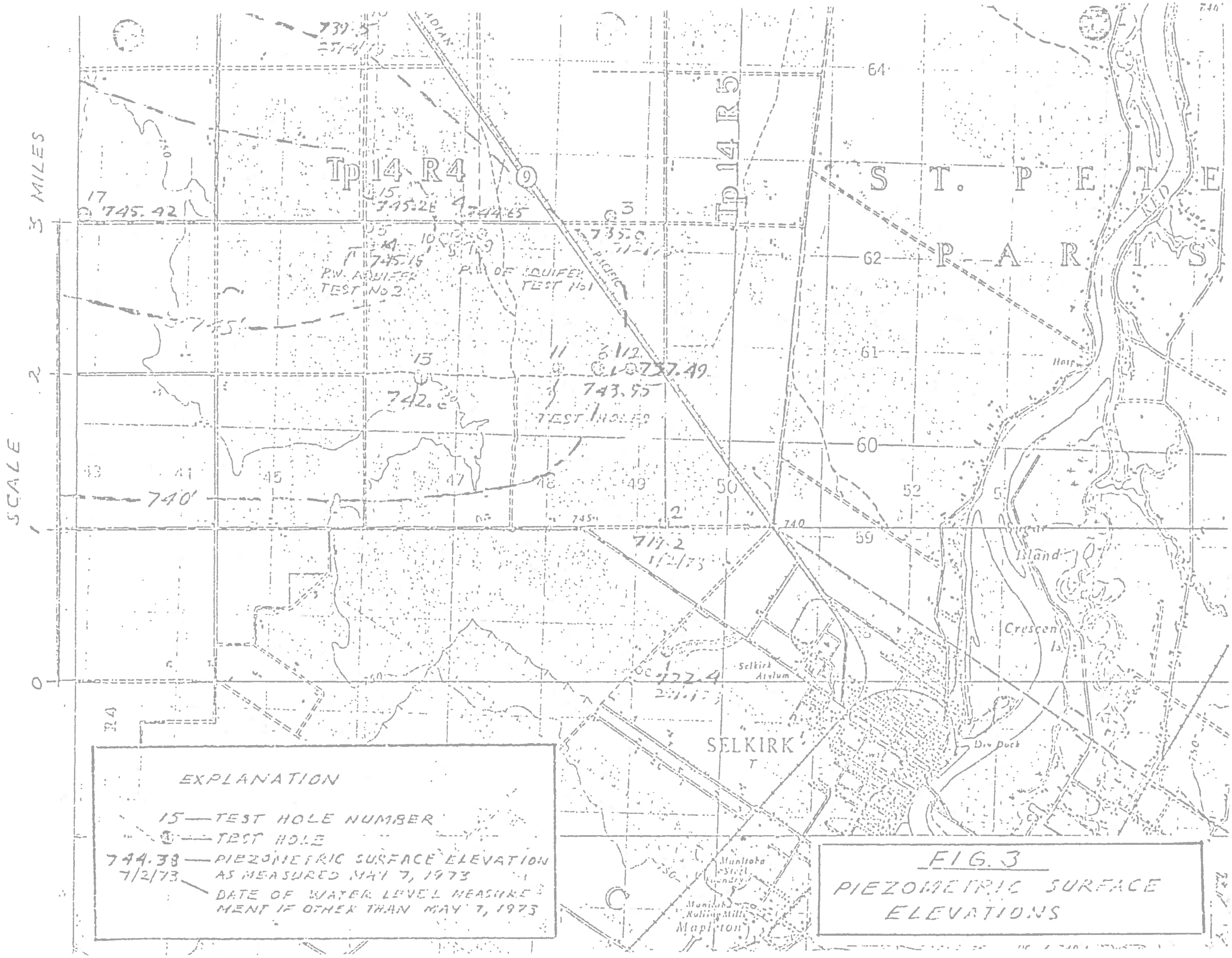


FIG. 3
PIEZOMETRIC SURFACE ELEVATIONS

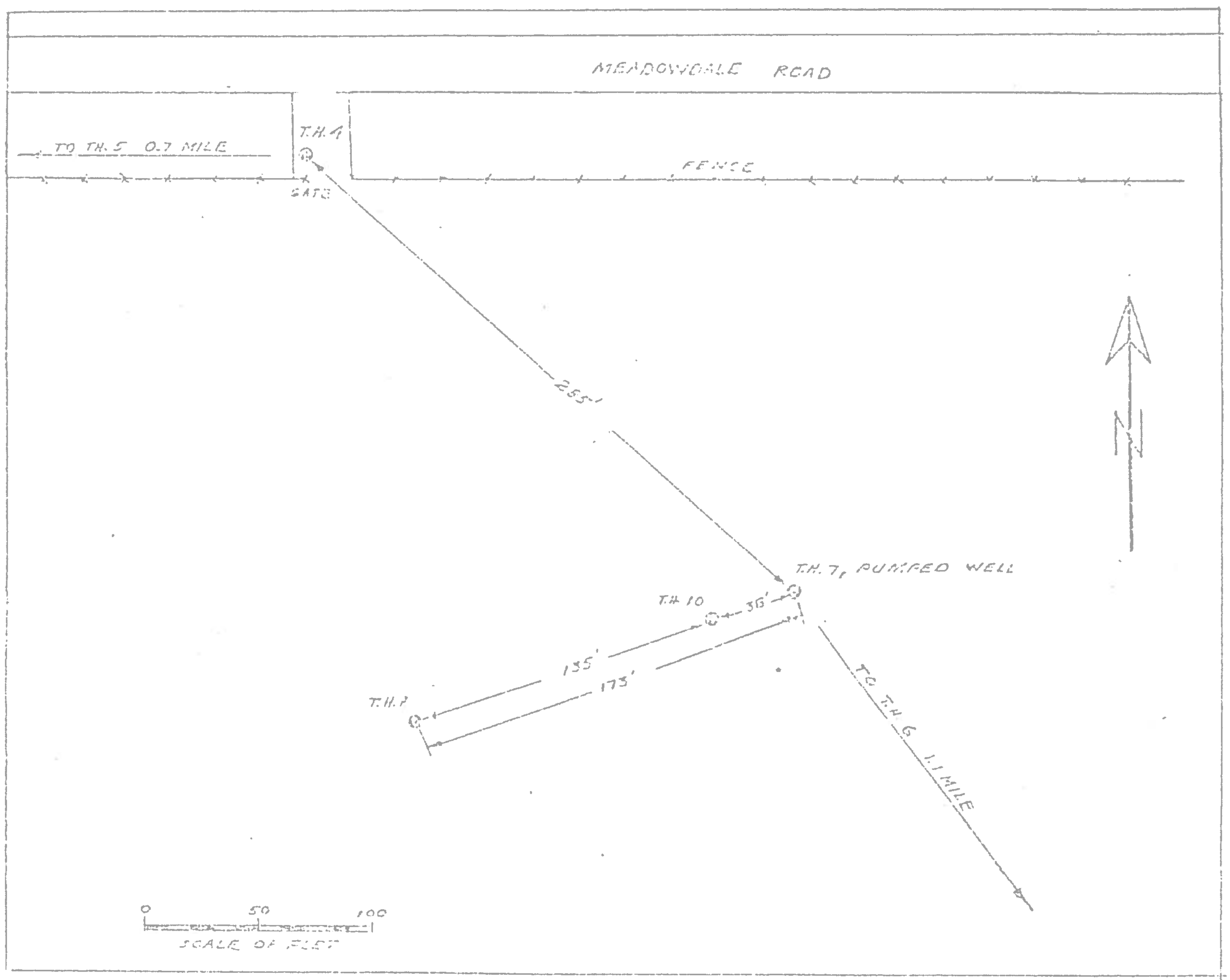


FIG. 4 LOCATION OF WELLS FOR AQUIFER TEST No. 1

TABLE 1 WATER ANALYSES

Well or Test Hole and Depth of Zone Sampled in Feet		Date Well Sampled D/M/Y	Cations mgs./l.			Anions mgs./l.			Total Hardness ($CaCO_3$) mgs./l.	Electric Conductivity Micromhos/cm 25°C	Dissolved Solids mgs./l.
			Ca	Mg	Na+K	HCO_3	SO_4	Cl			
T.H. 1	47 - 83	30/1/73	56	93	14	517	30	14	524	880	725
T.H. 2	50 - 105	1/2/73	62	95	50	531	93	53	548	1120	885
T.H. 2	50 - 207	1/2/73	64	90	116	502	136	131	532	1380	1040
T.H. 4	48 - 65	8/2/73	88	81	59	580	120	66	555	1200	994
T.H. 5	36 - 43	8/2/73	56	100	48	551	116	65	550	1200	935
T.H. 6	56 - 84	12/2/73	72	117	98	585	202	99	665	1470	1178
T.H. 12	48 - 102	4/4/73	71	102	92	561	192	92	600	1440	1110
T.H. 15	138 - 144	23/4/73	43	107	115	546	198	127	550	1330	1135
T.H. 15	220 - 280	26/4/73	113	65	173	522	230	180	550	1550	1225
T.H. 17	41 - 102	20/4/73	74	117	194	507	420	174	670	1960	1496
Pumped well (T.H. 7, 50 - 105) aquifer test No. 1, after 30 hours of pumping		12/4/73	133	47	79	610	110	66	480	1240	1044
Pumped well (T.H. 14, 36 - 50), aquifer test No. 2, after 23 hours of pumping		9/5/73	85	91	74	595	122	64	585	1270	1029

NOTE: Well locations shown in Figure 1.

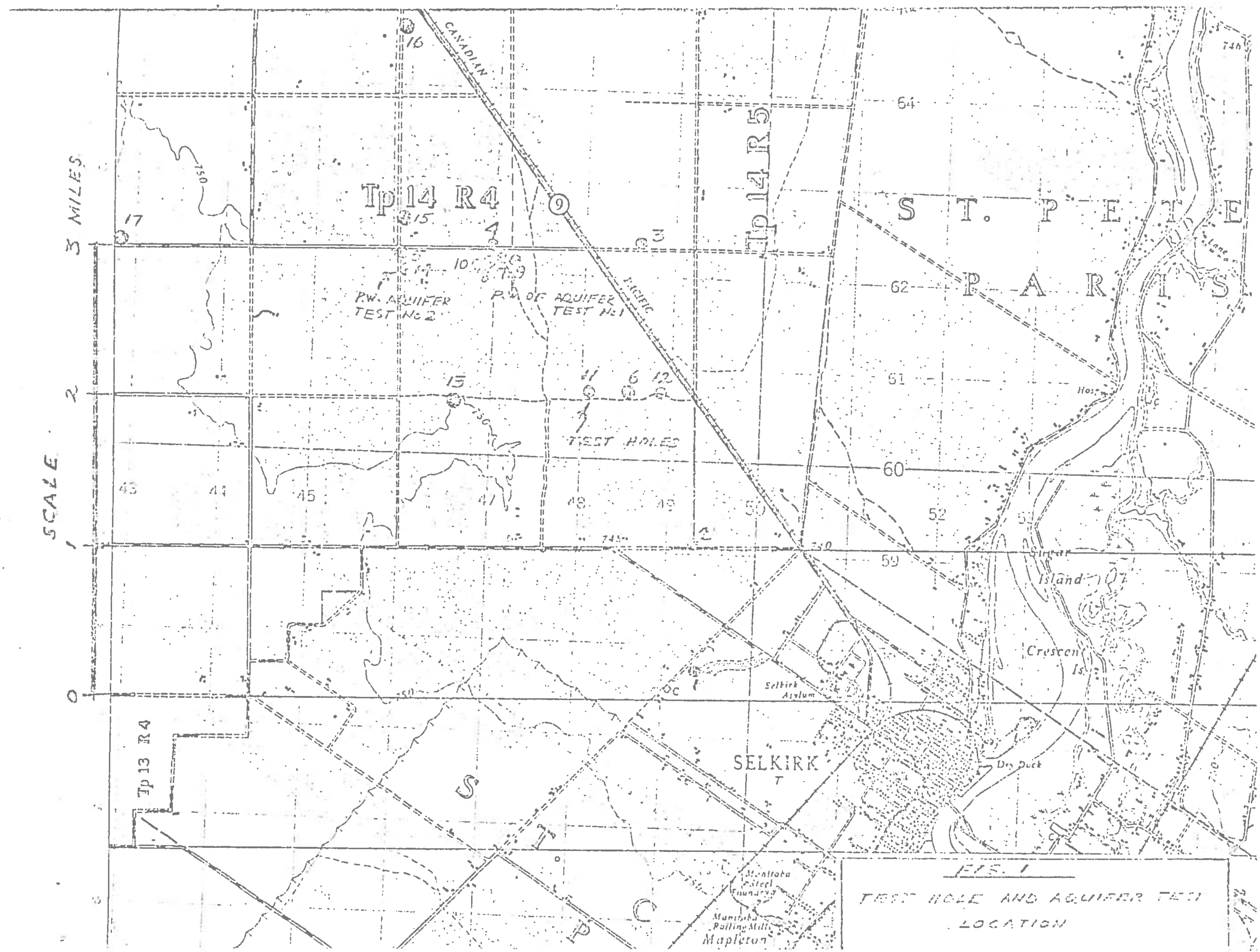
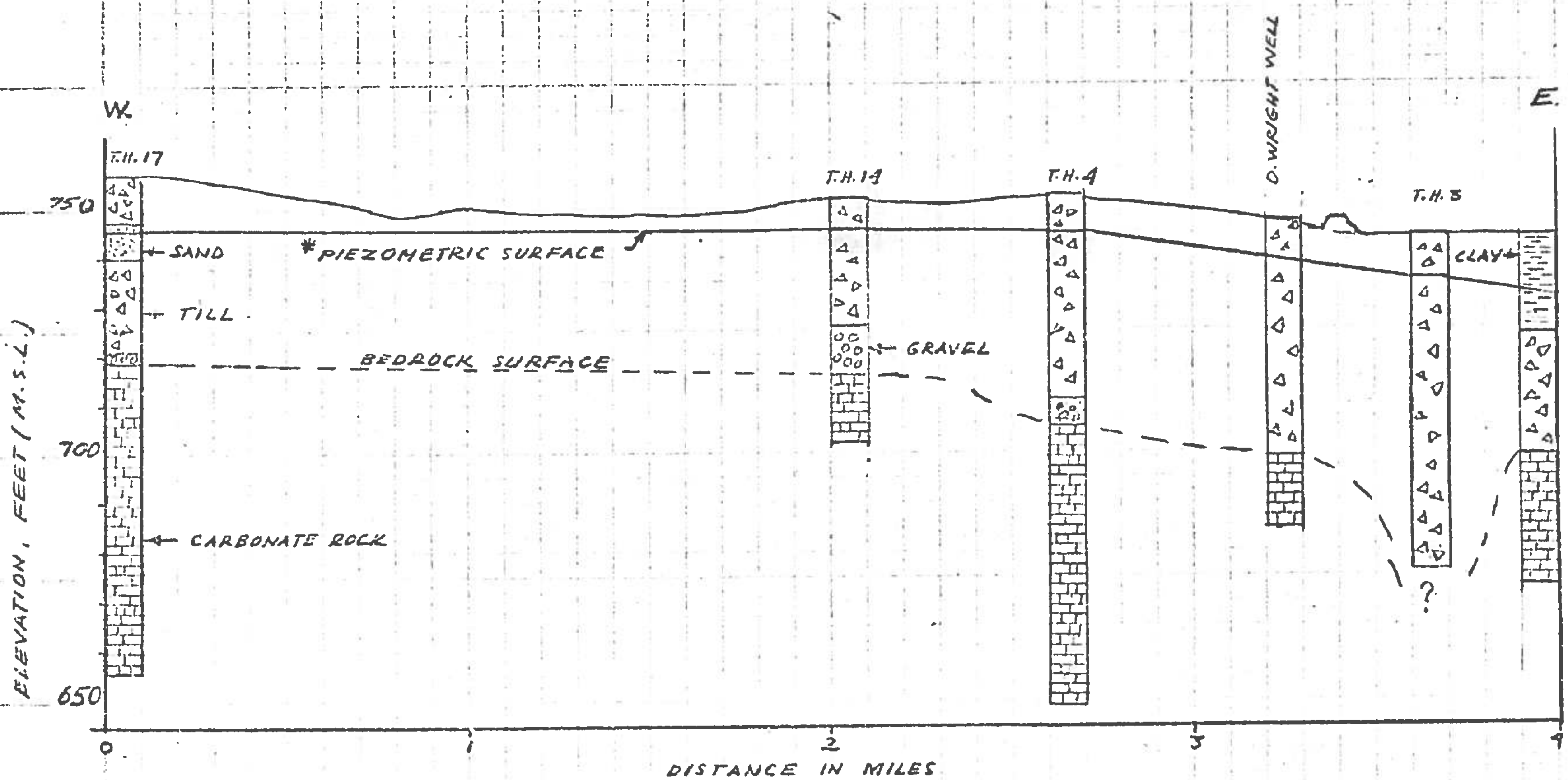


FIG. 1

TEST HOLE AND AQUIFER TEST LOCATION



* AS MEASURED IN TEST HOLES 17, 14, 4 MAY 7, 1973 AND T.H. 3 FEB. 7, 1973

FIG. 2 EAST-WEST SECTION THROUGH INVESTIGATED AREA

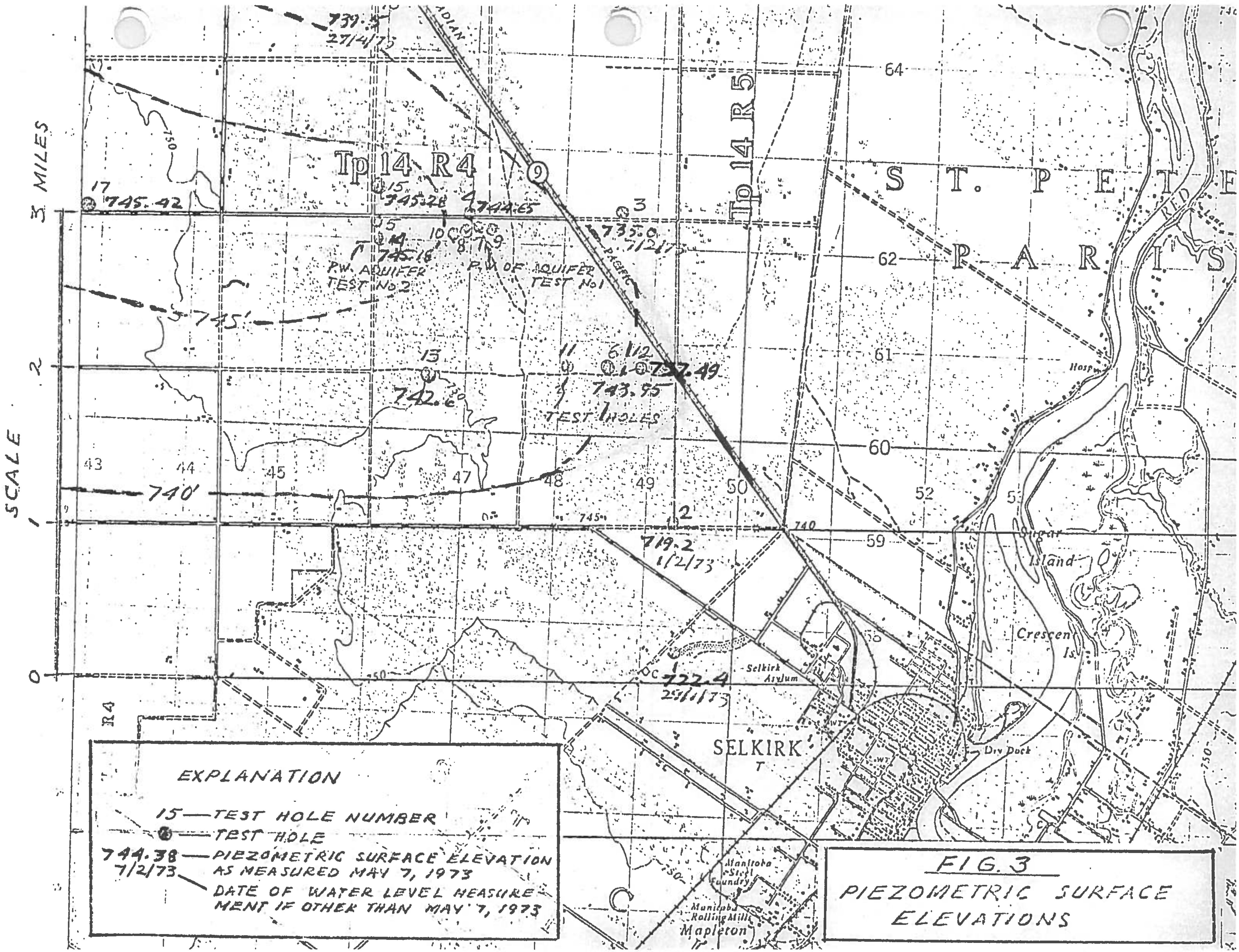


FIG. 3
PIEZOMETRIC SURFACE ELEVATIONS

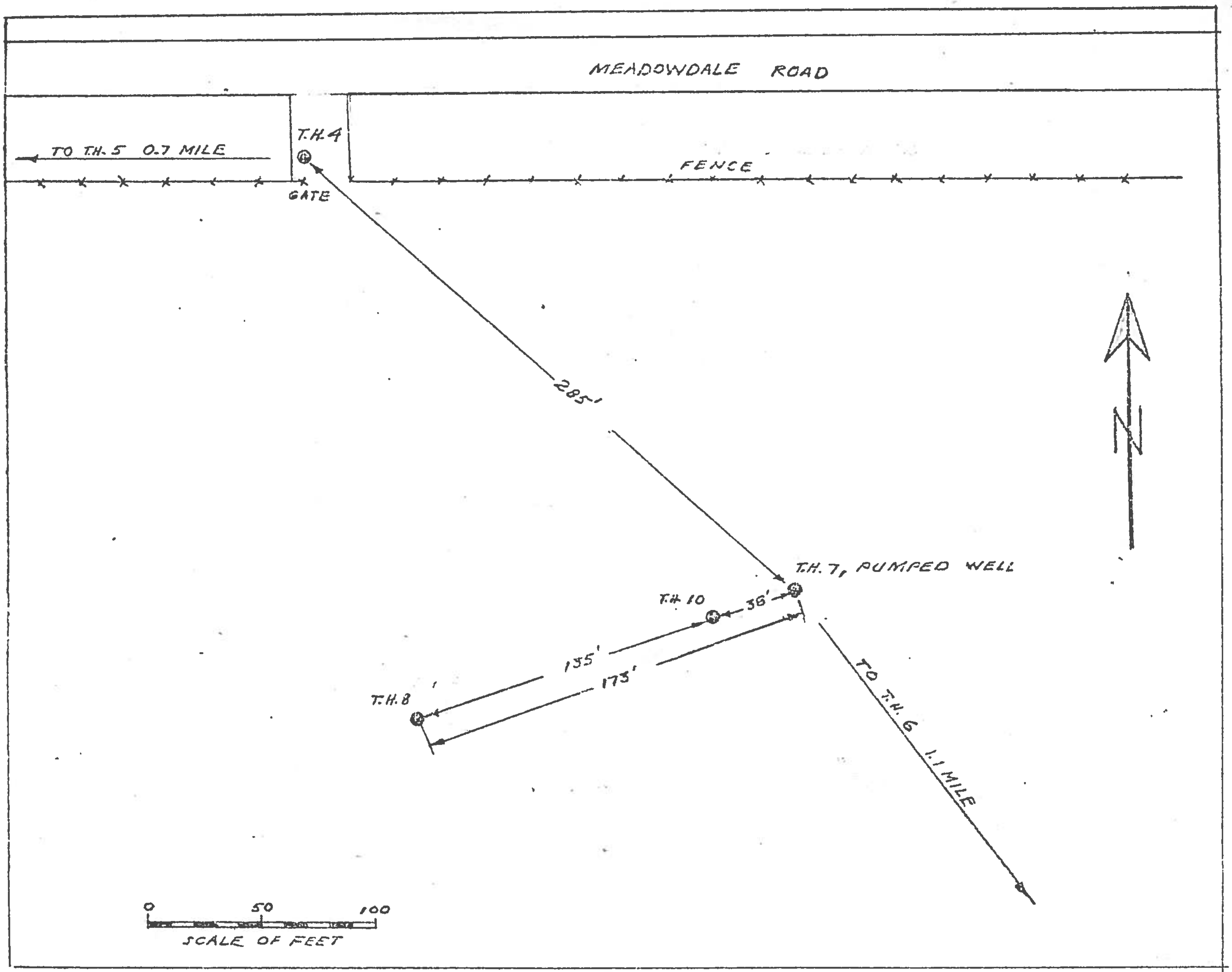


FIG. 4 LOCATION OF WELLS FOR AQUIFER TEST No 1

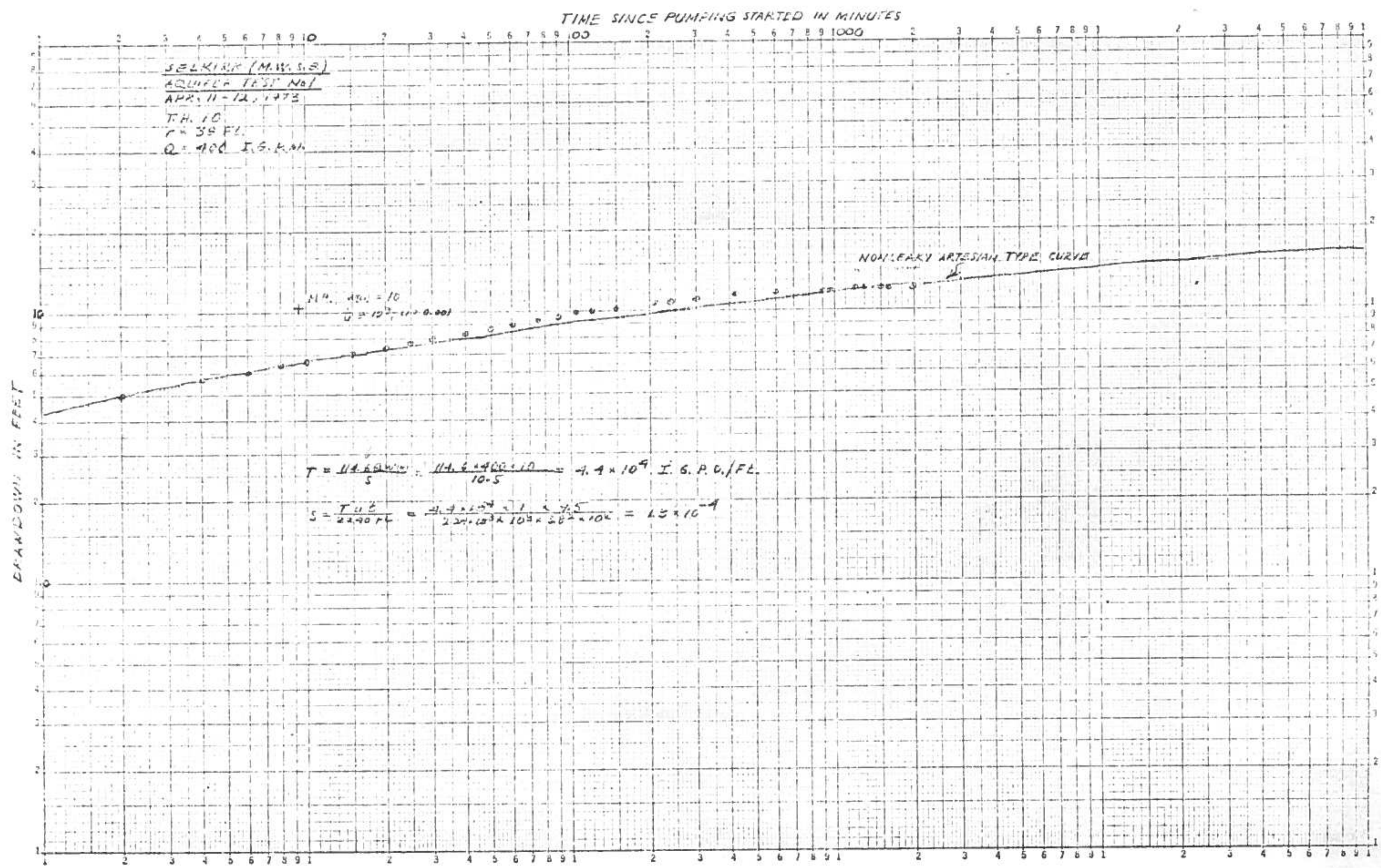


FIG. 5 TIME-DRAWDOWN CURVE, AQUIFER TEST No1.

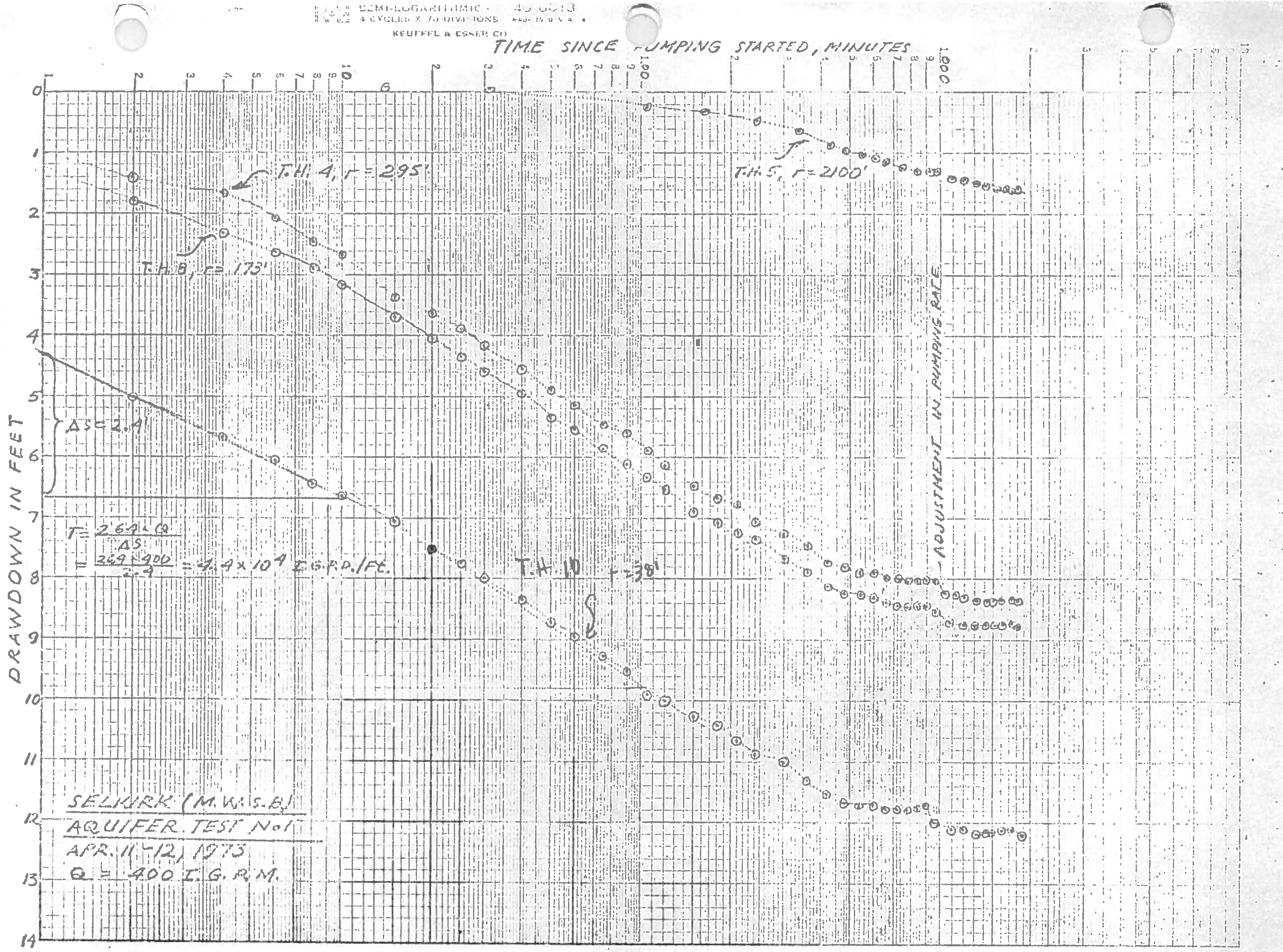

SEMI-LOGARITHMIC 46 6013
4 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO.
TIME SINCE PUMPING STARTED, MINUTES
DRAWDOWN IN FEET
T.H. 4, r = 295'
T.H. 5, r = 2100'
T.H. 8, r = 173'
T.H. 10 r = 38'
ADJUSTMENT IN PUMPING RATE
ΔS = 2.4'
T = 264 Q / ΔS
= 264 × 400 / 2.4 = 4.4 × 10^4 I.G.P.D./Ft.
SELKIRK (M.W.S.B.)
AQUIFER TEST No. 1
APR. 11-12, 1973
Q = 400 I.G.P.M.

FIG. 6

FIG. 7 DISTANCE-DRAWDOWN CURVE OF AQUIFER TEST No1

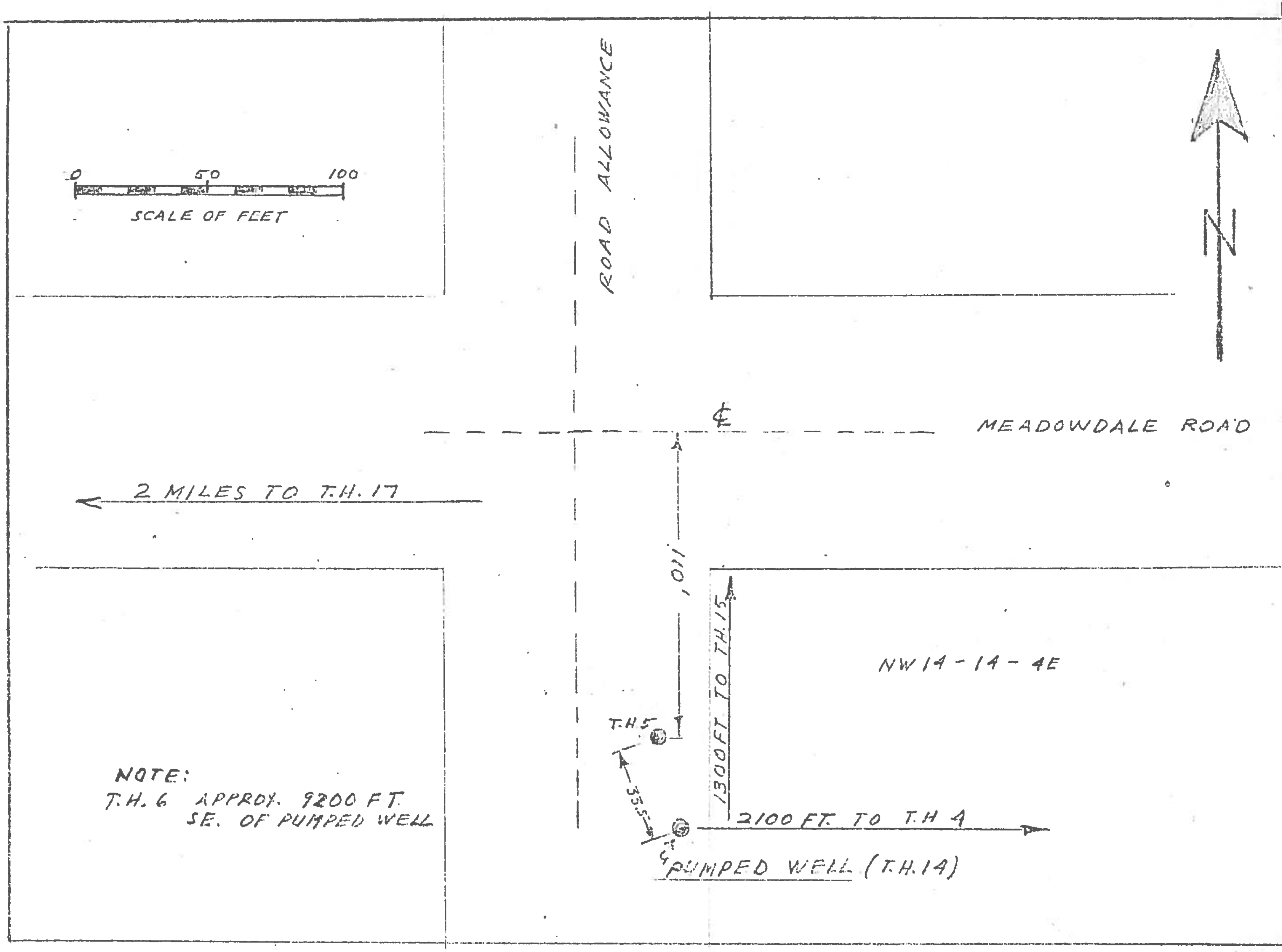


FIG. 8 LOCATION OF WELLS FOR AQUIFER TEST

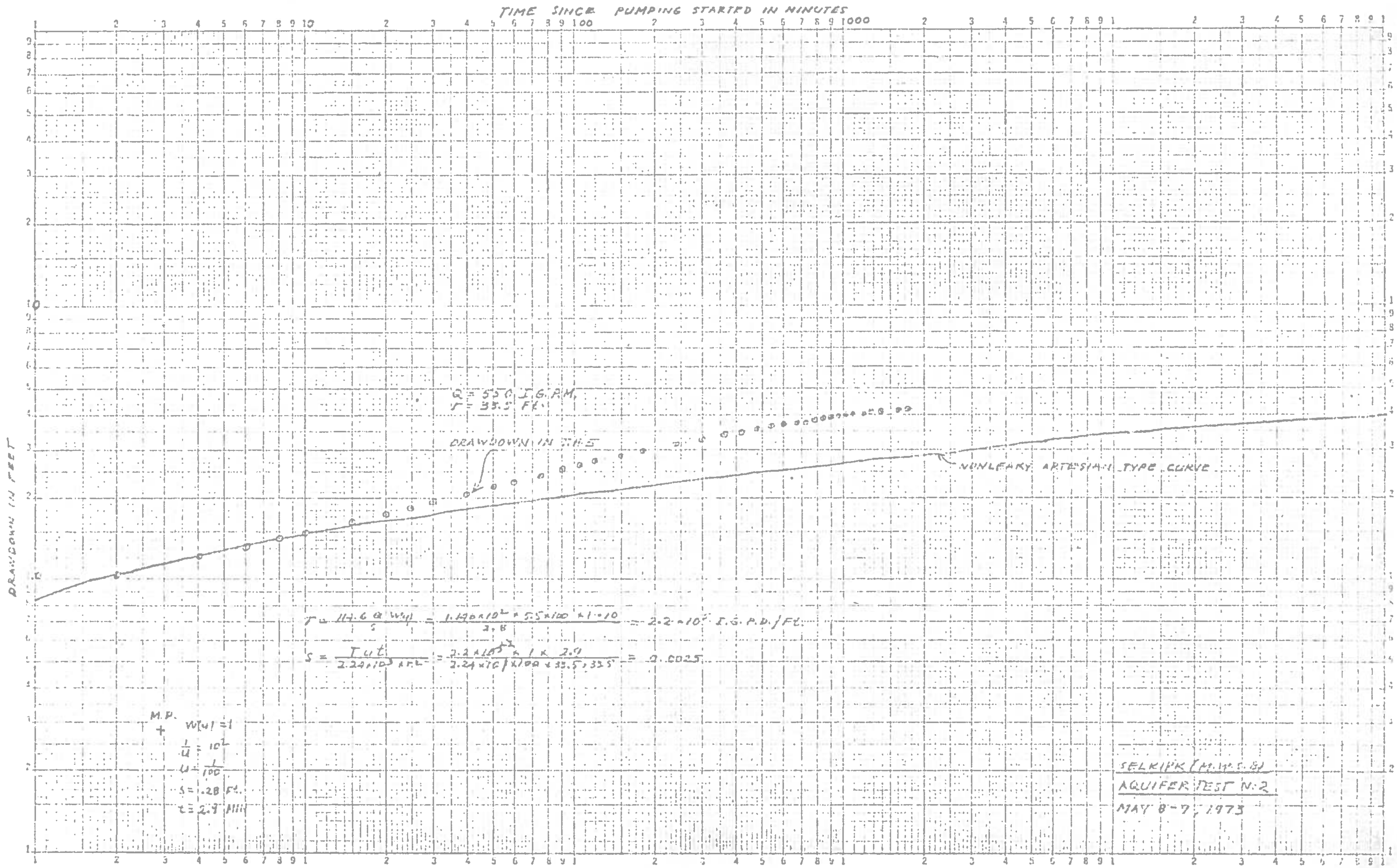


FIG 9 TIME - DRAWDOWN CURVE OF AQUIFER TEST No 2

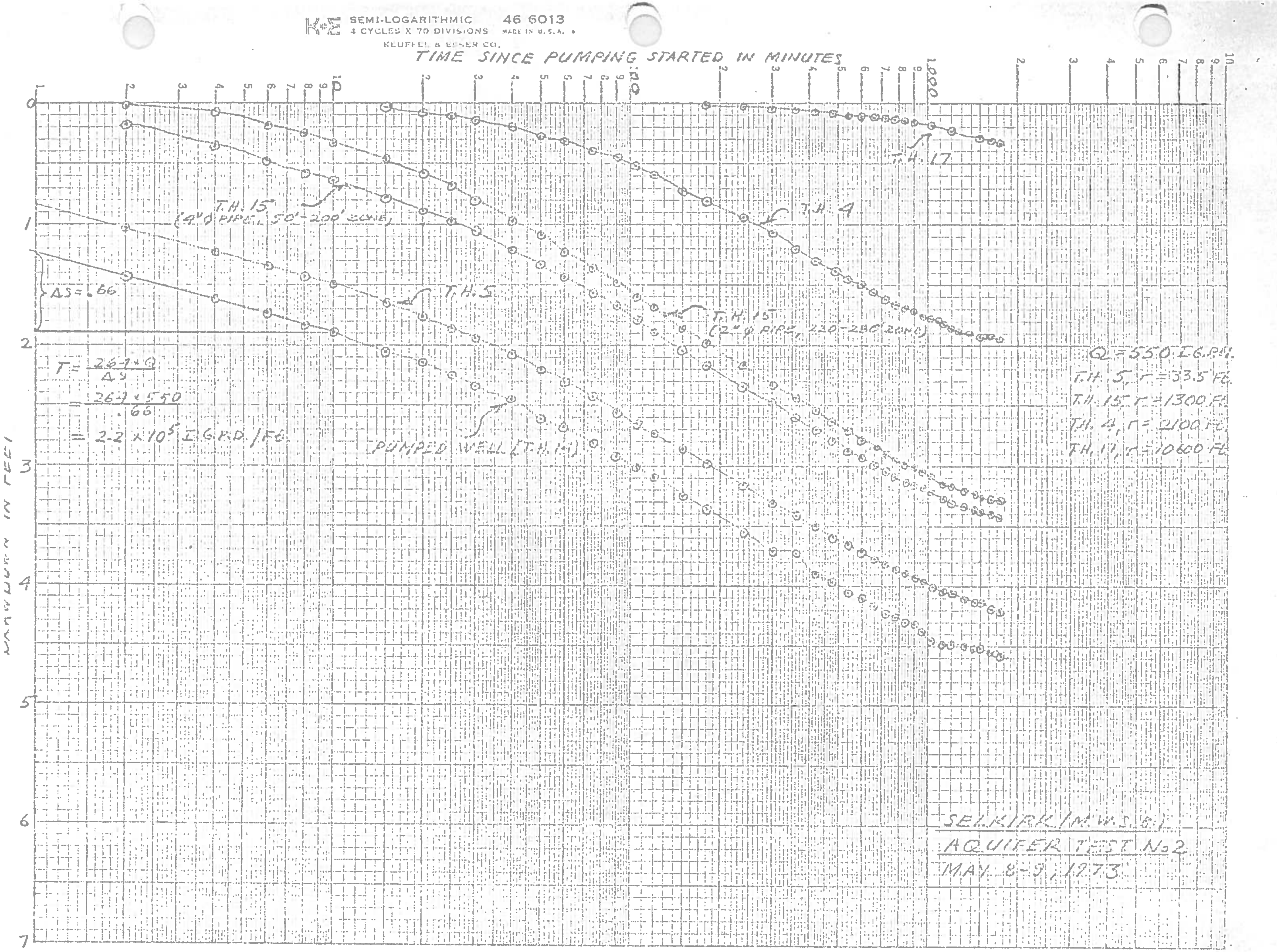


FIG. 10 TIME - DRAWDOWN CURVES OF AQUIFER TEST No 2

T 1020

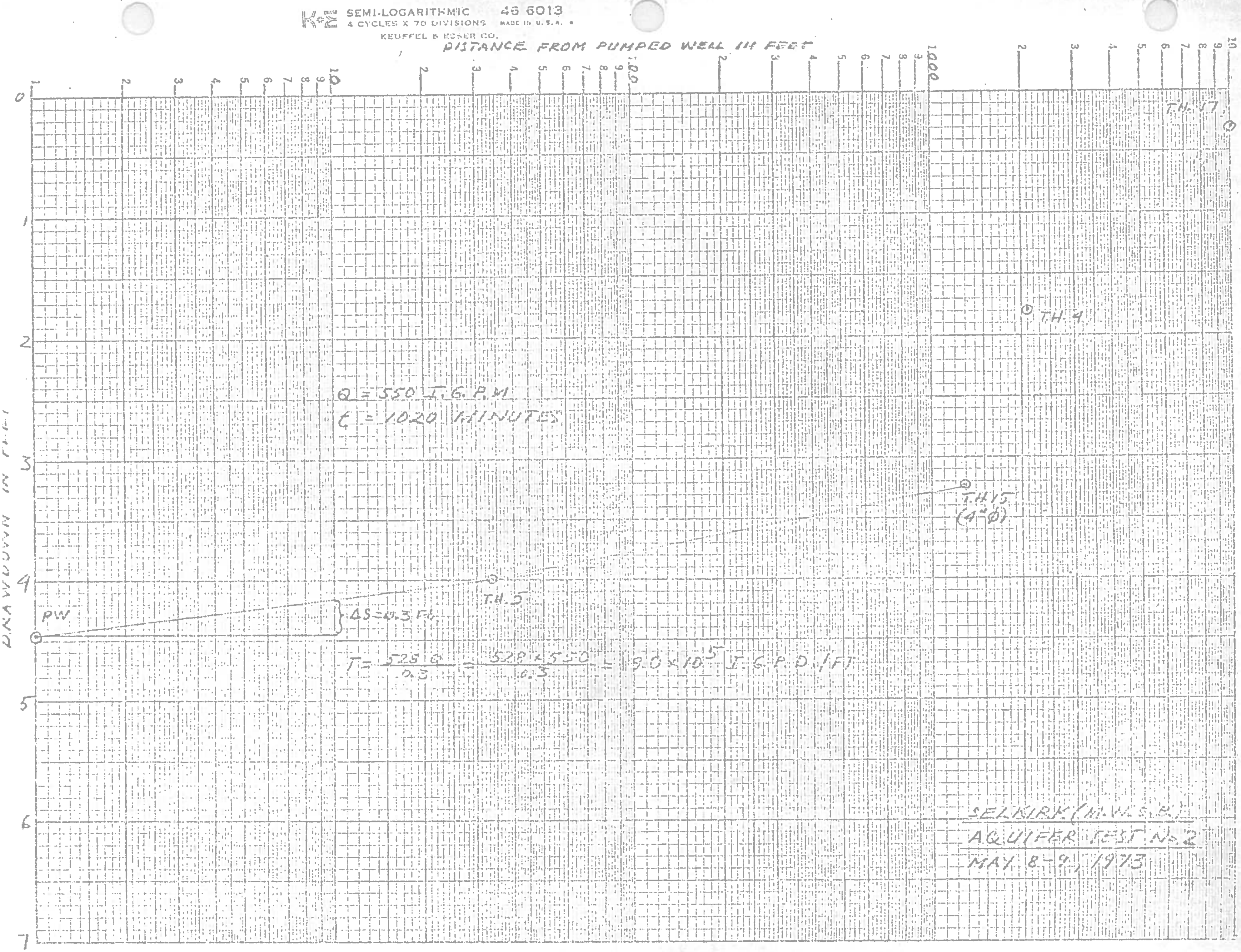


FIG 11 DISTANCE - DRAWDOWN CURVE OF AQUIFER TEST No 2

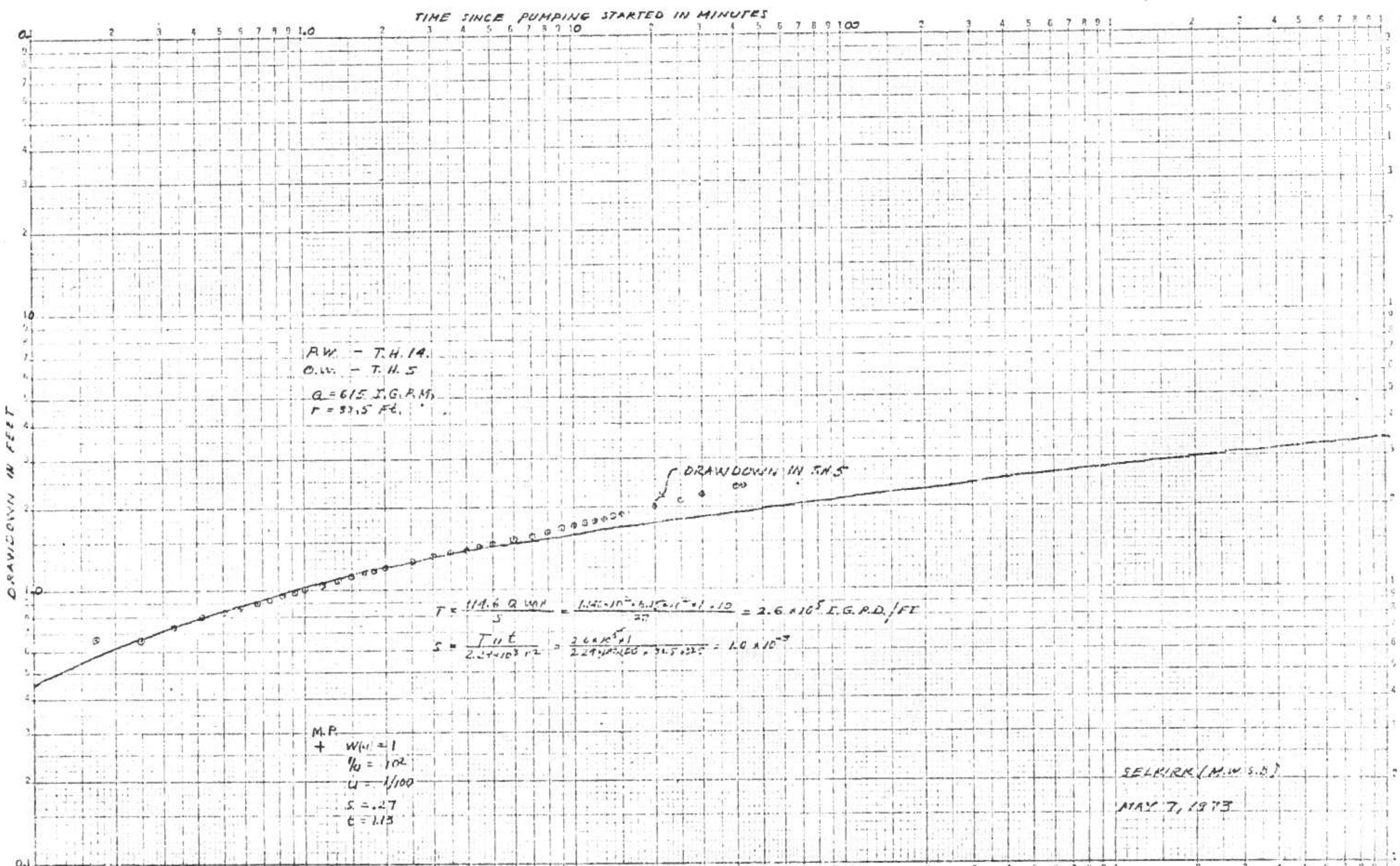


FIG 12 SHORT TERM, EARLY DRAWDOWN AQUIFER TEST.

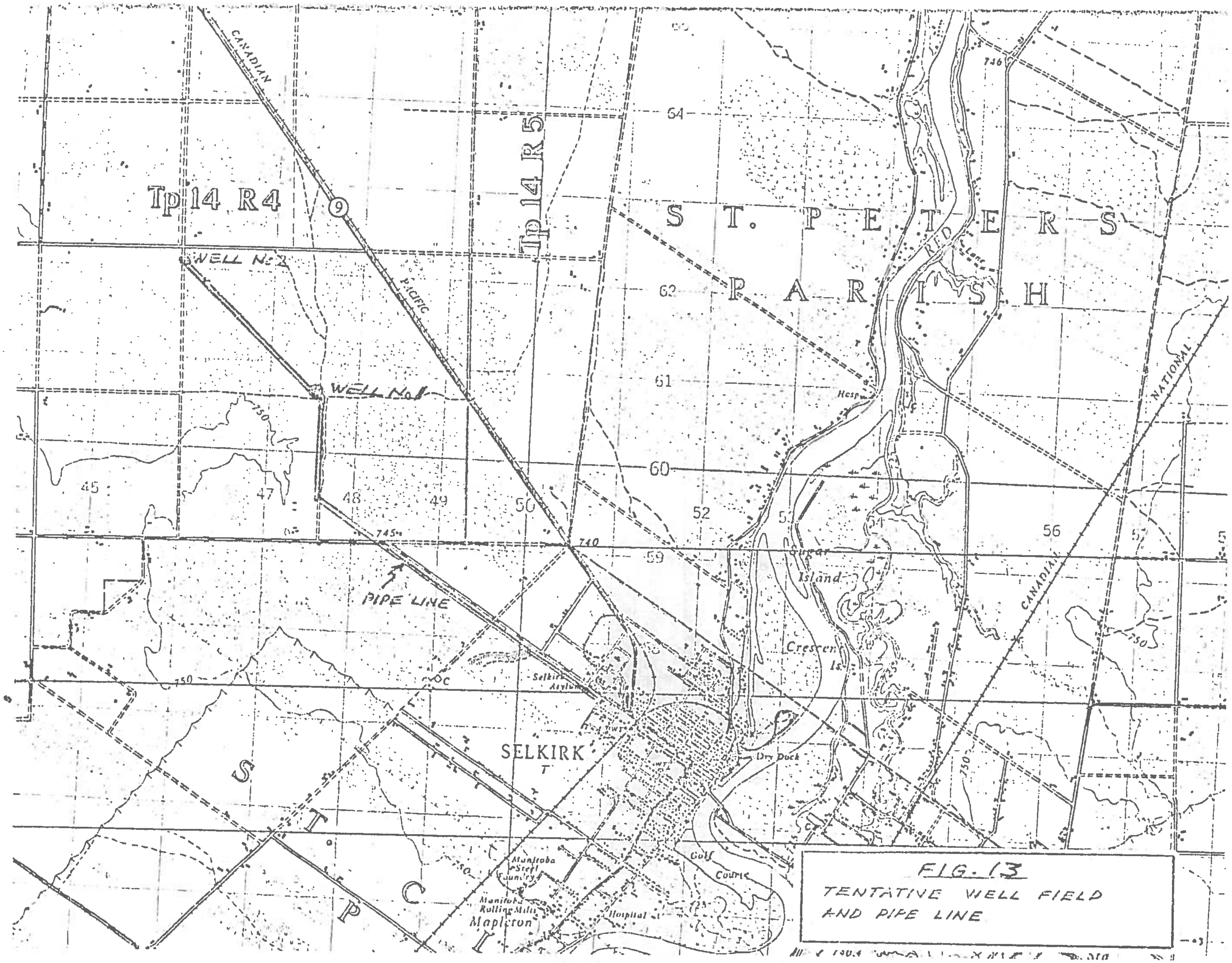


FIG. 13
TENTATIVE WELL FIELD AND PIPE LINE

Appendix H

Physical Well Inventory

Wells in the study area from GWDRILL (2014) database.

	Location	Driller	Well Use	Water Use	Coordinates		Year	Casing Depth (ft.)	Well Diam. (in.)	Screen Length (ft.)	Total Depth (ft.)	Grout Type	Pumping Rate (I.G.P.M.)	Static Water Level (ft.)	Pumping Water Level (ft.)	Duration of test (hr.)
					UTMX	UTMY										
1	14-14E	Ford Drilling Ltd.	Production	Domestic	NA	NA	1978	42	2	NA	55	NA	19.987	2	NA	1
2	14-14E	Selkirk Drillers	Production	Domestic	640533.0	5564127.0	2007	45.6	5	NA	55	NA	60	19	NA	NA
3	NE3-14-4E	NA	Production	NA	645640.0	5558982.0	1900	NA	4	NA	NA	NA	NA	NA	NA	NA
4	NE-3-14-4E	Ford Drilling Ltd.	Production	Domestic	645349.9	5558983.4	1979	55	4	NA	60	NA	15	0	12	2.5
5	4-14-4E	Hygaard's Well Drilling	Production	Industrial	643528.2	5558281.5	1994	25	5	NA	70	NA	99.96	11	12	2
6	NW4-14-4E	Selkirk Drillers	Production	Domestic	643113.0	5558675.0	2008	37	5	NA	80	NA	60	20	NA	NA
7	NW4-14-4E	Selkirk Drillers	Production	Domestic	643112.2	5558678.9	1999	34	5	NA	83	NA	15	22	NA	NA
8	SE4-14-4E	Paul Slusarchuk	Production	Domestic (Air conditionin g)	643939.1	5557889.9	1996	60.5	5.5	NA	290	Bentonite	20	19	NA	1.5
9	SW4-14-4E	Stonewall Drilling	Production	Domestic	643132.6	5557872.3	2005	38	4.2	NA	65	NA	100	12	NA	0.25
10	SW-4-14-4E	Hygaard	Production	Domestic	643132.6	5557872.3	1980	34	4	NA	79.9	NA	12.995	15	25	0.5
11	SW4-14-4E	Stonewall Drilling	Production	Irrigation	643132.6	5557872	2006	36.4	4.2	NA	81	Bentonite	100	20	20	10 mins
12	9-14-4E	Aquarius Well Drilling	Production	Domestic	643485.1	5559924	1974	62	4.5	NA	133.9	NA	44.987	8	NA	1
13	NE-9-14-4E	Aquarius Well Drilling	Production	Domestic	643878.5	5560341	1978	39	4.25	NA	50	NA	24.987	0	15	1

Wells in the study area from GWDRILL (2014) database.

14	NE-9-14-4E	Hygaard's Well Drilling	Production	Domestic	643878.5	5560341	1992	62	5	NA	279.8	NA	10	13	NA	0.5
15	NW-9-14-4E	Ford Drilling Ltd.	Production	Domestic	643068.9	5560320	1969	44	4	NA	61	NA	29.987	20	NA	2
16	NW9-14-4E	Ford Drilling Ltd.	Production	Domestic	641939	5609679	2010	74	2	NA	120	NA	30	6	NA	NA
17	SE9-14-4E	Selkirk Drillers	Production	Domestic	644200	5559825	2011	61.1	5	NA	200	Bentonite	15	13	NA	NA
18	SE-9-14-4E	Hygaard's Well Drilling	Production	Domestic	643901.2	5559535	1977	53	4	NA	199.9	NA	6.003	20	27	2
19	SE-9-14-4E	Hygaard's Well Drilling	Production	Domestic	643901.2	5559535	1976	57	4	NA	94.9	NA	10	20	23	1
20	SW9-14-4E	Hygaard's Well Drilling	Production	NA	642842	5559146	1985	NA	4	NA	NA	NA	NA	NA	NA	NA
21	NE-10-14-4E	Ford Drilling Ltd.	Production	Domestic	645520.7	5560385	1972	47	2	NA	57	NA	6.992	5	5	0.5
22	NE-10-14-4E	Ford Drilling Ltd.	Production	Domestic (Livestock)	645520.7	5560385	1976	37	2	NA	57	NA	21.992	12	NA	1
23	NW-10-14-4E	Hygaard's Well Drilling	Production	Domestic	644716.1	5560362	1976	59	NA	NA	99.9	NA	10	12	NA	1
24	NW-10-14-4E	Paul Slusarchuk Well Drilling Ltd.	Production	Domestic	644716.1	5560362	1994	60.5	5.5	NA	127.9	NA	99.96	10	NA	1
25	NW10-14-4E	Selkirk Drillers	Production	Domestic	644717	5560358	2009	56	5	NA	120	Bentonite	60	14	NA	NA
26	11-14-4E	Ford Drilling Ltd.	Production	Domestic	646767	5560006	1979	52	2	NA	67	NA	15	10	10	1

Wells in the study area from GWDRILL (2014) database.

27	SE-11-14-4E	Hygaard's Well Drilling	Production	Domestic	647176.3	5559615	1980	47	4	NA	199.9	NA	3.997	18	28	1.5
28	SE11-14-4E	Ford Drilling Ltd.	Production	Domestic	646862	5559130	2011	41	5.3	NA	260	NA	25	9	NA	1
29	SE-11-14-4E	John B. Caswell Drilling	Production	Domestic	647176.3	5559615	1975	52	4.25	NA	189.9	NA	19.987	0	NA	0.5
30	12-14-4E	Selkirk Drillers	Production	Domestic	648396	5560040	2009	50	5	NA	140	Bentonite	60	1	NA	NA
31	12-14-4E	Hygaard's Well Drilling	Production	Domestic	648396	5560040	1964	45.9	4	NA	77.9	NA	24.987	24	24	2.25
32	12-14-4E	Selkirk Drillers	Production	Other	648396	5560040	2003	45	5	NA	250	Bentonite	15	27	NA	NA
33	NE-12-14-4E	Hygaard's Well Drilling	Production	Domestic	648785.1	5560456	1982	46	4	NA	94.9	NA	17.995	15	35	1
34	NW-12-14-4E	Perimeter Drilling Ltd.	Production	Domestic	647984.6	5560438	1988	54	5	NA	201.9	NA	21.992	41	41	0.75
35	NW-12-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	647984.6	5560438	1975	47	4	NA	71	NA	6.003	7	9	0.5
36	SE-12-14-4E	Hygaard's Well Drilling	Production	Domestic	648804.3	5559649	1971	42	4	NA	99.9	NA	7.995	27	40	7
37	SE-12-14-4E	Ford Drilling Ltd.	Production	Domestic	648804.3	5559649	1969	37	2	NA	156.9	NA	0.501	25	NA	6
38	SE-12-14-4E	Hygaard's Well Drilling	Production	Domestic	648804.3	5559649	1964	45.9	4	NA	65	NA	24.987	24	26	1.75
39	SE-12-14-4E	Ford Drilling Ltd.	Production	Domestic	648804.3	5559649	1969	44	2	NA	186.9	NA	3.997	25	NA	3
40	SE12-14-4E	Karl Stasiuk and Son	Test Well	NA	648804.3	5559649	1973	NA	NA	NA	206.9	NA	29.987	29	NA	NA

Wells in the study area from GWDRILL (2014) database.

41	SW12-14-4E	Selkirk Drillers	Production	Domestic	647709	5559094	2010	52.6	5	NA	200	Bentonite	10	NA	NA	NA
42	SW-12-14-4E	Hygaard's Well Drilling	Production	Domestic	648005.9	5559632	1973	41	4	NA	70	NA	10	23	NA	1
43	13-14-4E	Aquarius Well Drilling	Production	Domestic	648359.5	5561681	1972	44	2	NA	86.9	NA	6.003	3	7	NA
44	13-14-4E	Selkirk Drillers	Production	Domestic	648359.5	5561681	2005	49.5	5	NA	81	Bentonite	100	1	NA	NA
45	13-14-4E	Hygaard's Well Drilling	Production	Domestic	648359.5	5561681	1993	47	5	NA	144.9	NA	15	1	NA	0.5
46	NE-13-14-4E	Echo Drilling Ltd.	Production	Domestic	648751.5	5562097	1990	134.9	5.1	NA	199.9	NA	7.995	33	119.9	2
47	NE13-14-4E	Selkirk Drillers	Other	NA	648744.2	5562417	2013	40	5	NA	100	NA	50	NA	5	NA
48	NE-13-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	648751.5	5562097	1963	45	4	NA	71	NA	30	4	NA	1
49	NE13-14-4E	Hygaard's Well Drilling	Production	Domestic	648751.5	5562097	1997	45	5	NA	85	NA	38.997	3	NA	0.5
50	NE13-14-4E	NA	Production	NA	649113	5562459	1978	NA	NA	NA	NA	NA	NA	NA	NA	NA
51	NE-13-14-4E	Hygaard's Well Drilling	Production	Domestic	648751.5	5562097	1987	91.9	4	NA	144.9	NA	5	9	NA	0.5
52	NE13-14-4E	Selkirk Drillers	Production	Domestic	648737.4	5562444	2013	40	5	NA	100	Bentonite	50	5	NA	NA
53	NE-13-14-4E	Hygaard's Well Drilling	Production	Domestic	648751.5	5562097	1988	57	4	NA	119.9	NA	10	2	NA	0.5
54	NE-13-14-4E	Hygaard's Well Drilling	Production	Domestic	648751.5	5562097	1986	41	4.1	NA	97.9	NA	15	1	10	0.5

Wells in the study area from GWDRILL (2014) database.

55	NW-13-14-4E	Ford Drilling Ltd.	Production	Domestic (Livestock)	647944.4	5562079	1994	91.9	5.25	NA	159.9	NA	19.987	0	3	1
56	NW-13-14-4E	Hygaard's Well Drilling	Production	Domestic	647944.4	5562079	1963	52.3	4	NA	96.9	NA	49.974	0	12	1.25
57	NW-13-14-4E	Hygaard's Well Drilling	Production	Domestic	647944.4	5562079	1973	46	4	NA	74	NA	10	6	NA	1
58	NW13-14-4E	Stonewall Drilling	Production	Domestic (Air conditioning)	647944.4	5562079	1999	41	4.6	NA	47	NA	50	12	NA	NA
59	NW-13-14-4E	Hygaard's Well Drilling	Production	Domestic	647944.4	5562079	1963	47.8	4	NA	63	NA	50	1.3	NA	2
60	NW13-14-4E	Stonewall Drilling	Production	Domestic	647944.4	5562079	1999	88	4.6	NA	135	NA	20	12	NA	NA
61	NW-13-14-4E	Echo Drilling Ltd.	Production	Domestic	647944.4	5562079	1989	59	5	NA	124.9	NA	6.003	3	20	1
62	NW13-14-4E	Selkirk Drillers	Production	Domestic	647938	5562354	2011	46	5	NA	82	Cement	100	NA	2	NA
63	SE-13-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	648766.8	5561292	1974	51	4	NA	84.9	NA	7.995	2	2	0.5
64	SE13-14-4E	Paul Slusarchuk Well Drilling Ltd.	Production	Domestic	648766.8	5561292	1997	61	5	NA	144	Cement	20	3	NA	NA
65	SE-13-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	648766.8	5561292	1965	51	4	NA	94.9	NA	10	7	7	1
66	SE-13-14-4E	Ford Drilling Ltd.	Production	Domestic	648766.8	5561292	1980	46	2	NA	84.9	NA	11.992	6	6	2.5
67	SE13-14-4E	Selkirk Drillers	Production	Domestic	648503	5561379	2011	71.3	5	NA	80	Bentonite	25	NA	NA	NA

Wells in the study area from GWDRILL (2014) database.

68	SE13-14-4E	Karl Stasiuk and Son	Observation	NA	648360	5560879	1973	56	6	NA	83.9	NA	49.974	4	NA	NA
69	SW-13-14-4E	Hygaard's Well Drilling	Production	Domestic	647966.3	5561274	1994	62	5	NA	79.9	NA	24.987	4	NA	0.5
70	SW-13-14-4E	Hygaard's Well Drilling	Production	Domestic	647966.3	5561274	1986	65	4	NA	119.9	NA	10	6	30	0.5
71	SW13-14-4E	Perimeter Drilling Ltd.	Production	Domestic	647966.3	5561274	2004	57	5	NA	64	NA	90	NA	4	NA
72	14-14-4E	Selkirk Drillers	Production	Domestic	646721.3	5561647	2003	68.9	5	NA	140	Bentonite	15	NA	NA	NA
73	14-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	646721.3	5561647	1968	43.5	4	NA	71	NA	10	3	5	1
74	14-14-4E	Ford Drilling Ltd.	Production	Domestic	646721.3	5561647	1972	47	2	NA	57	NA	6.992	5	5	1
75	NE14-14-4E	Selkirk Drillers	Production	Domestic	647342	5562252	2012	46	5	NA	120	Bentonite	90	5	NA	NA
76	NE-14-14-4E	Hygaard's Well Drilling	Production	Domestic	647110.3	5562062	1965	48.4	4	NA	199.9	NA	7.995	3	6	6.5
77	NE14-14-4E	Karl Stasiuk and Son	Observation	NA	646910	5562460	1973	49	5	NA	104.9	NA	99.96	9	NA	NA
78	NW14-14-4E	Pruden Drilling Co. Ltd.	Observation	NA	645890	5562414	1973	34	10	NA	50	Bentonite	549.763	7	11	29
79	NW14-14-4E	Ford Drilling Ltd.	Observation	NA	645910	5561631	2011	37	2	NA	77	NA	60	3	NA	NA
80	SE14-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	647510	5560911	1979	53	4	NA	87.9	NA	24.987	4	29	0.5
81	SW14-14-4E	Stonewall Drilling	Production	NA	646331.3	5561240	2000	40	4.2	NA	65	Bentonite	50	12	NA	NA

Wells in the study area from GWDRILL (2014) database.

82	SW-14-14-4E	Ford Drilling Ltd.	Production	Domestic	646331.3	5561240	1967	37	2	NA	60	NA	6.003	19	NA	NA
83	15-14-4E	Echo Drilling Ltd.	Production	Domestic	645084.8	5561607	2001	42	5	NA	100	Cement	90	0	4	NA
84	NW15-14-4E	Hygaard's Well Drilling	Production	Domestic	644341	5561294	1995	40	5	NA	60	NA	15	3	NA	0.5
85	SE15-14-4E	Selkirk Drillers	Production	Domestic	645498	5561216	2007	75.4	5	NA	85	Bentonite	80	4.5	NA	NA
86	SW15-14-4E	NA	Production	Domestic	644497	5561072	1970	NA	NA	NA	NA	NA	NA	NA	NA	NA
87	NW-16-14-4E	Hygaard's Well Drilling	Production	Domestic	643024.9	5561961	1974	42	4	NA	75	NA	10	10	NA	1
88	NW-16-14-4E	Hygaard's Well Drilling	Production	Domestic	643024.9	5561961	1974	43	4	NA	75	NA	10	15	NA	2
89	NE21-14-4E	Selkirk Drillers	Production	Domestic (Air conditioning)	643787.2	5563621	2005	37	5	NA	100	Bentonite	100	2	NA	NA
90	NE21-14-4E	Selkirk Drillers	Production	Domestic	644043	5563301	2012	30	NA	NA	80	Bentonite	11.003	NA	NA	NA
91	NE21-14-4E	Selkirk Drillers	Recharge	NA	643787.2	5563621	2005	34	5	NA	42	Bentonite	100	1	NA	NA
92	NE-21-14-4E	Ford Drilling Ltd.	Production	Domestic	643787.2	5563621	1989	50	2	NA	299.8	NA	7.995	0	11	1
93	NW21-14-4E	Echo Drilling Ltd.	Production	Domestic	642980	5563600	2012	28	5.5	NA	40	Bentonite	20	21	23	1
94	SE-21-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	643813.2	5562816	1964	52	4	NA	84.9	NA	19.987	7	20	1
95	SW21-14-4E	Karl Stasiuk and Son	Observation	NA	642602	5562381	1973	41	4	NA	101.9	NA	59.974	15	NA	1

Wells in the study area from GWDRILL (2014) database.

96	22-14-4E	NA	Production	Domestic	645041	5563246	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA
97	22-14-4E	Perimeter Drilling Ltd.	Production	Domestic	644307	5562709	2001	66.6	5	NA	200	NA	40	28	28	NA
98	NE-22-14-4E	Hygaard's Well Drilling	Production	Domestic	645429.4	5563663	1982	39	4	NA	70	NA	10	6	20	0.5
99	NE-22-14-4E	Paul Slusarchuk Well Drilling Ltd.	Production	Domestic	645429.4	5563663	1985	45	4	NA	124.9	NA	29.987	7	NA	0.5
100	NW22-14-4E	Selkirk Drillers	Production	Domestic	644683	5563791	2011	69	5	NA	100	Bentonite	NA	NA	NA	NA
101	SE-22-14-4E	Hygaard's Well Drilling	Production	Domestic	645453.3	5562859	1974	32	4	NA	149.9	NA	10	1	29	1
102	SE-22-14-4E	Ford Drilling Ltd.	Production	Domestic	645453.3	5562859	1995	51	2	NA	119.9	NA	11.992	0	5	1
103	SE22-14-4E	Perimeter Drilling Ltd.	Production	NA	645453.3	5562859	2002	48	5	NA	55	NA	25	29	NA	NA
104	SE-22-14-4E	Hygaard's Well Drilling	Production	Domestic	645453.3	5562859	1965	40.2	4	NA	79.9	NA	10	0	NA	2
105	SE-22-14-4E	Ford Drilling Ltd.	Production	Domestic	645453.3	5562859	1981	30	4	NA	60	NA	19.987	0	15	NA
106	SW22-14-4E	Selkirk Drillers	Recharge	NA	644651.7	5562836	2004	51	5	NA	60	Bentonite	100	7	NA	NA
107	SW22-14-4E	Hygaard's Well Drilling	Production	Domestic	644651.7	5562836	1995	49	5	NA	60	NA	19.987	3	NA	0.5
108	SW22-14-4E	Ford Drilling Ltd.	Observation	NA	645061	5562440	2011	54	2	NA	67	NA	20	9	NA	NA
109	SW22-14-4E	Selkirk Drillers	Production	Domestic	644652	5562833	2007	50	5	NA	60	Bentonite	100	12	NA	NA

Wells in the study area from GWDRILL (2014) database.

110	23-14-4E	Selkirk Drillers	Production	Domestic	646672	5563286	2008	45.6	5	NA	100	Bentonite	22.005	6	NA	NA
111	23-14-4E	Ford Drilling Ltd.	Production	Domestic	646671.6	5563286	1988	43	4	NA	219.9	NA	24.987	0	4	1
112	23-14-4E	Echo Drilling Ltd.	Production	Domestic	646671.6	5563286	1999	129	5	NA	230	Bentonite	3.997	3	125	NA
113	NE-23-14-4E	Hygaard's Well Drilling	Production	Domestic	647058.5	5563700	1966	56	4	NA	70	NS	29.987	3.8	28	1.5
114	NW-23-14-4E	Stonewall Drilling	Production	Domestic	646259.8	5563683	1990	46	4.2	NA	79.9	NA	99.96	9	NA	20 mins
115	NW23-14-4E	Hygaard Water Services	Production	Domestic	646260	5563679	2010	49	5	NA	160	NA	15	7	NA	1
116	NW23-14-4E	Selkirk Drillers	Production	Domestic	646135	5564189	2007	58.1	5	NA	85	Bentonite	30	4	NA	NA
117	SE23-14-4E	NA	Production	NA	647086	5562892	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA
118	SE-23-14-4E	Pruden Drilling Co. Ltd.	Production	Domestic	647085.4	5562896	1980	114.4	4	NA	219.9	NA	19.987	4	20	1
119	SW23-14-4E	Hygaard's Well Drilling	Production	Domestic	645975	5562969	1989	51	4	NA	119.9	NA	11.992	8	NA	1
120	SW-23-14-4E	Hygaard's Well Drilling	Production	Domestic	646283.7	5562879	1986	41	4.1	NA	60	NA	19.987	6	6	1
121	SW23-14-4E	Selkirk Drillers	Production	Domestic	646509	5562520	2011	49	5	NA	100	Bentonite	30	1	NA	NA
122	SW23-14- 04E	Ford Drilling Ltd.	Production	Domestic	646283.7	5562879	1975	57	2	NA	81.9	NA	11.992	6	NA	1
123	SW23-14-4E	Selkirk Drillers	Production	Domestic	646283.7	5562879	1998	45	5	NA	143	NA	17.995	5	NA	0.5
124	SW-23-14-4E	Hygaard's Well Drilling	Production	Domestic (Livestock)	646283.7	5562879	1978	41	4	NA	79.9	NA	11.992	2	NA	1

Wells in the study area from GWDRILL (2014) database.

125	SW23-14-4E	Karl Stasiuk and Son	Observation	NA	645878	5562822	1973	49	4	11.9	280.8	NA	15	5	NA	4
126	SW23-14-4E	Karl Stasiuk and Son	Observation	NA	645878	5562822	1973	NA	NA	NA	NA	NA	NA	NA	NA	NA
127	24-14-4E	Ford Drilling Ltd.	Production	Domestic	648316.8	5563320	1990	113.9	5.1	NA	259.8	NA	19.987	5	NA	1
128	NE24-14-4E	Perimeter Drilling Ltd.	Production	NA	648709.4	5563735	2003	87	5	NA	120	NA	40	8	10	NA
129	SW24-14-4E	Selkirk Drillers	Production	Domestic	647922	5562910	2008	62	5	NA	120	NA	35	35	NA	NA
130	SW24-14-4E	Ford Drilling Ltd.	Production	Domestic (Livestock)	647923.1	5562913	2002	78	5.25	NA	240	NA	15	10	NA	NA
131	25-14-4E	Paul Slusarchuk Well Drilling Ltd.	Production	Domestic	648268.3	5564962	1988	36	4	NA	99.9	NA	16.992	8	10	1.25
132	NE25-14-4E	Ford Drilling Ltd.	Production	Domestic	648986	5565118	2003	139	5.25	NA	245	NA	20	NA	18	NA
133	26-14-4E	NA	Production	NA	646631.5	5564926	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA
134	NW-26-14-4E	Ford Drilling Ltd.	Production	Domestic	646219.6	5565323	1967	66	2	NA	84.9	NA	2.995	17	20	24
135	NW-26-14-4E	Hygaard's Well Drilling	Production	Domestic	646219.6	5565323	1982	105.9	4	NA	214.9	NA	8.997	16	NA	1
136	27-14-4E	Ford Drilling Ltd.	Production	Domestic	644995	5564887	1985	75	2	NA	256.8	NA	5	0	5	1.5
137	NE-27-14-4E	Hygaard's Well Drilling	Production	Domestic (Livestock)	645386.3	5565304	41	4	NA	NA	75	NA	15	6	NA	2

Wells in the study area from GWDRILL (2014) database.

138	NE27-14-4E	Interlake Water Supply	Production	Domestic	645386.3	5565304	2004	123	5	NA	145	Cement	NA	3	8	NA
139	NW-27-14-4E	Hygaard's Well Drilling	Production	Domestic	644578	5565281	1990	53	5	NA	79	NA	29.987	14	NA	1
140	SE-27-14-4E	Hygaard's Well Drilling	Production	Domestic	645406.4	5564499	1974	42	4	NA	79	NA	10	1	NA	1

Wells observed during well inventory

Well ID	Location	Driller	Well Use	Water Use	Coordinates		Year	Casing Depth (ft.)	Well Diam. (in.)	Screen Length (ft.)	Total Depth (ft.)	Grout Type	Pumping Rate (I.G.P.M.)	Static Water Level (ft.)	Pumping Water Level (ft.)	Duration of test (hr.)
					UTMX	UTMY										
HB1	SE 12-14-4E	N/A	Production	Domestic	648670	5559317	1960's	NO WELL LOG IN GWDRILL			N/A					
GB2	SE 11-14-4E	N/A	Production	Domestic	647393	5559266	N/A	NO WELL LOG IN GWDRILL			N/A					
DA1	NE 8-14-4E	N/A	Production	Domestic	642437.3	5560654	1980's	NO WELL LOG IN GWDRILL			40					
KA2	NE 13-14-4E	N/A	Production	Domestic	648681.2	5562485	N/A	NO WELL LOG IN GWDRILL			N/A					
KA4	NE 13-14-4E	Paul Slusarchuk Well Drilling	Production	Domestic	648268.3	5564962	1988	36	4		99.9	N/A	16.992	8	10	1 Hour 15 Mins
HC5-1	SW 12-14-4E	N/A	Production	Domestic	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			N/A					
HC5-2	SW 12-14-4E	N/A	Production	Domestic	648352.5	5559326	N/A	NO WELL LOG IN GWDRILL			N/A					
SA1	NE 23-14-4E	Echo Drilling Ltd.	Production	Domestic	647014.7	5563415	1999	129	5		230	Bentoni	3.997	3	125	N/A
SA2	NE 23-14-4E	N/A	Production	Domestic	647127	5563446	N/A	NO WELL LOG IN GWDRILL			N/A					
ED1	NW 9-14-4E	N/A	Production	Domestic	642719.8	5560628	1995	NO WELL LOG IN GWDRILL			N/A					
RD1-1	NW 22-14-4	N/A	Production	Domestic	644270.3	5563535	N/A	NO WELL LOG IN GWDRILL			N/A					
RD1-2	NW 22-14-4	N/A	Production	Domestic	644297.3	5563489	N/A	NO WELL LOG IN GWDRILL			N/A					
HA2	NE 12-14-4E	Pruden Drilling	Production	Domestic	647984.5	5560438	1975	47	4		71	N/A	6.003	7	9	30 Mins
KD7	NW 13-14-4	Hygaard's	Production	Domestic	648751.5	5562097	1988	57	4	N/A	119.9	N/A	10.000	2	N/A	30 Mins
QB1	SE 21-14-4E	N/A	Production	Domestic	644195.6	5562556	1940's	NO WELL LOG IN GWDRILL			N/A					
EB2	SE 9-14-4E	Hygaard's	Production	Domestic	644200	5559825	2011	61.1	5		200	Bentoni	15.000	13	N/A	N/A
RA3	NE 22-14-4E	N/A	Production	Domestic	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			N/A					
SC1	SW 23-14-4E	N/A	Production	Domestic	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			N/A					
MB1-1	SE 15-14-4E	N/A	N/A	N/A	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			N/A					
MB1-2	SE 15-14-4E	N/A	N/A	N/A	N/A	N/A	2011	NO WELL LOG IN GWDRILL			N/A					
HC1	SW 12-14-4E	Hygaard's	Production	Domestic	648804.2	5559649	1971	42	4	N/A	99.9	N/A	7.995	27	40	7 Hours
HC2-1	SW 12-14-4E	Selkirk Drillers	Production	Other (agricultural)	648396	5560040	2003	45	5	N/A	250	Bentoni	15.000	27	N/A	N/A
HC2-2	SW 12-14-4E	N/A	N/A	N/A	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			25					
HC2-3	SW 12-14-4E	N/A	N/A	N/A	N/A	N/A	1960	NO WELL LOG IN GWDRILL			65					
CB1-1	SE 5-14-4E	N/A	Production	Domestic	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			N/A					
CB1-2	SE 5-14-4E	N/A	Production	Domestic	N/A	N/A	N/A	NO WELL LOG IN GWDRILL			N/A					

Wells observed during well inventory

FA1-1	NE 10-14-4E	Ford Drilling Ltd.	Production	Domestic	645520.6	5560385	1972	47	2		57	N/A	6.992	5	5	30 Mins
FA1-2	NE 10-14-4E	Ford Drilling Ltd.	Production	Live Stock	645520.6	5560385	1976	37	2	N/A	57	N/A	21.992	12	N/A	1 Hour
HC3	SW 12-14-4E	Hygaard's	Production	Domestic	647857.9	5559124	1977	NO WELL LOG IN GWDRILL			75					
WD1-1	NW 28-14-4	Hygaard's	Production	N/A	647857.9	5559124	1960's	NO WELL LOG IN GWDRILL			N/A					
WD1-2	NW 28-14-4	Hygaard's	Production	N/A	647857.9	5559124	1960's	NO WELL LOG IN GWDRILL			N/A					
SB1	SE 23-14-4E	N/A	Production	Domestic	647401.8	5562907	1980's	NO WELL LOG IN GWDRILL			N/A					
SD1	NW 23-14-4	N/A	Production	Domestic	646128	5563635	1985	NO WELL LOG IN GWDRILL			80					
SD2	NW 23-14-4	Hygaard's	Production	Domestic	645915.9	5563487	2000	NO WELL LOG IN GWDRILL			145					
RA1-1	NE 22-14-4E	Aquarious Well Drilling	Production	Domestic	645070.7	5563640	1977	39	4.25		57	N/A	49.974	8	N/A	N/A
RA1-2	NE 22-14-4E	Hygaard's Well Drilling	Production	Domestic (Live Stock)	645044.5	5563583	1990	53	5	N/A	79.9	N/A	29.987	14	N/A	1 Hour
VD2-1	NW 27-14-4	Ford Drilling L	Production	Domestic	644115.7	5565579	1977	NO WELL LOG IN GWDRILL			40					
VD2-2	NW 27-14-4	Hygaard's	Production	Domestic	644305.6	5565594	1957	NO WELL LOG IN GWDRILL			109					
VD2-3	NW 27-14-4	Hygaard's	Production	Domestic (Live Stock)	644578	5565281	1990	NO WELL LOG IN GWDRILL			79.9					
EC1-1	SW 9-14-4E	Hygaard's Well Drilling	Production	Domestic	642842	5559146	1985	N/A	4	N/A	30	N/A	N/A	N/A	N/A	N/A
EC1-2	SW 9-14-4E	N/A	N/A	N/A	642828.8	5559154	1930's	NO WELL LOG IN GWDRILL			30					
HC3	SW 12-14-4E	Hygaard's	Production	Domestic	642938.5	5563863	1977	NO WELL LOG IN GWDRILL			75					
BD1	NW 4-14-4E	Selkirk Drillers	Production	Domestic	643112.2	5558678.9	1999	34	5	N/A	83	Bentonite and Cement	15.000	22	N/A	N/A
OB1-1	SE 17-14-4E	Stonewall Drilli	Production	Domestic	642535.9	5561195	1998	73	4.2	N/A	286	Bentoni	20.000	20	N/A	20
OB1-2	SE 17-14-4E	Friesen Drillers	N/A	N/A	642554.9	5561303	2013	NO WELL LOG IN GWDRILL			300					
OB1-3	SE 17-14-4E	Friesen Drillers	Production	Domestic (Live Stock)	642310	5561111	2003	42	5	N/A	220	Cement	50.000	20	40	N/A
HD1	NW 12-14-4	Perimeter Drilling Ltd.	Production	Domestic	647984.5	5560438	1988	54	5	N/A	201.9	N/A	21.992	41	41	45 Mins
KD2	NW 13-14-4	N/A	NO WELL LOG IN GW		647596.5	5562251	N/A			N/A	N/A					

Wells observed during well inventory

KD4	NW 13-14-4	Friesen Drillers Ltd.	Production	Domestic	647085.9	5562892	1990's	NO WELL LOG IN GWDRILL			200					
JD1	NW 18-14-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LB1	SE 14-14-4E	Selkirk Drillers	Production	Domestic	647177.7	5561469	2006	37	N/A	N/A	60	Cement	100.000	2	N/A	N/A
ND2-1	NW 16-14-4	Hygaard's Well Drilling	Production	Domestic	643024.8	5561961	1974	42	4	N/A	75	N/A	10.000	10	N/A	1 Hour
ND2-2	NW 16-14-4	Hygaard's Well Drilling	Production	Domestic	N/A	N/A	1974	43	4	N/A	75	N/A	10.000	15	N/A	2 Hours
ND1	NW 16-14-4	Hygaard's	N/A	N/A	642980.2	5562310	2008	NO WELL LOG IN GWDRILL			170					
KD8	NW 13-14-4	N/A	Production	Domestic	648375.1	5562149	N/A	NO WELL LOG IN GWDRILL			N/A					
KD3	NW 13-14-4	Selkirk Drillers	Production	Domestic	647562.1	5562132	2009	50	5	N/A	140	Bentoni	60.000	1	N/A	N/A
FD3	NW 10-14-4	Hygaard's Well Drilling	Production	Domestic	644375.1	5560107	1990's	NO WELL LOG IN GWDRILL			73					
GB1-1	SE 11-14-4E	N/A	Production	Domestic	647279.3	5559300	2000's	NO WELL LOG IN GWDRILL			N/A					
GB1-2	SE 11-14-4E	N/A	Production	Domestic	647280.3	5559266	2000	NO WELL LOG IN GWDRILL			11					
KD1	NW 13-14-4	N/A	Production	Domestic	647574.6	5562325	1990	NO WELL LOG IN GWDRILL			100+					
XC1-1	SW 29-14-4E	Aquarious Well Drilling	Production	Domestic	641575.9	5564164	1976	50.5	2	N/A	74	N/A	15.000	9	N/A	1 Hour
XC1-2	SW 29-14-4E	Hygaard's	Production	Domestic	641575.7	5564096	1960's	NO WELL LOG IN GWDRILL			70					
SC2	SW 23-14-4E	Hygaard's	Production	Domestic	645973.6	5562972	1989	51	4	N/A	119.9	N/A	11.992	8	N/A	1 Hour
RB1	SE 22-14-4E	N/A	Production	Domestic	645826.6	5562909	N/A	NO WELL LOG IN GWDRILL			N/A					
SC3-1	SW 23-14-4E	N/A	Production	Domestic	646419.1	5562570	N/A	NO WELL LOG IN GWDRILL			N/A					
SC3-2	SW 23-14-4E	N/A	Geothermal	N/A	646419.1	5562570	N/A	NO WELL LOG IN GWDRILL			50					
KC1-1	SW 13-14-4E	Hygaard's Well Drilling	Production	Domestic	647966.3	5561274	1994	62	5	N/A	79.9	N/A	24.987	4	N/A	30 Mins
KC1-2	SW 13-14-4E	Hygaard's	Production	Domestic	648135.8	5560909	2013	NO WELL LOG IN GWDRILL			81					
ID2	NW 7-14-5E	Hygaard's	Production	Domestic	649411.7	5560490	1980	NO WELL LOG IN GWDRILL			100					
ID1	NW 7-14-5E	N/A	Production	Domestic	649294.3	5560641	N/A	NO WELL LOG IN GWDRILL			100+					
BD2	NW 4-14-4E	Selkirk Drillers	Production	Domestic	643113.0	5558675.0	2008	37	5	N/A	80	N/A	60	20	N/A	N/A
QA1	NE 21-14-4E	N/A	Production	Domestic	644101.8	5563969	N/A	NO WELL LOG IN GWDRILL			N/A					
RA2	NE 22-14-4E	Selkirk Drillers	Production	Domestic	646672	5563286	2008	45.6	5	N/A	100	Bentoni	22.005	6	N/A	N/A
HA1	NE 12-14-4E	Friesen Drillers Ltd.	N/A	N/A	648485.8	5560810	2010	NO WELL LOG IN GWDRILL			120					

Wells observed during well inventory

LD1-1	NW 14-14-4	N/A	Production	Domestic	646189.2	5562419	N/A	NO WELL LOG IN GWDRILL			N/A					
LD1-2	NW 14-14-4	N/A	N/A	N/A	646187.5	5562193	N/A	NO WELL LOG IN GWDRILL			N/A					
UB1	SE 26-14-4E	Ford Drilling L	Production	Domestic (Live stock)	647923	5562913	2002	78	5.25	N/A	240	N/A	15	10	N/A	N/A
FD1	NW 10-14-4	Pruden Drilling	Production	Domestic	644387.4	5560679	1960	NO WELL LOG IN GWDRILL			100+					

Driller's Report

Contractor: Friesen Drillers Ltd. License #: 607-15 Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8 | Driller: Peter Friesen | Assistant: Greg Harder

Date well completed: August 12, 2015

Well Location

QTR	SEC	TWP	RGE	E	W
NE	14	14	4	✓	

R.L. Parish

Address of Well

GPS Reading

Lat. N°: N49°19088"

Lon W°: W96°95593'

Accuracy: ± 5

Sat Count:

Well Owner

Name: City of Selkirk/MWSB

Address: 200 Eaton Ave. Selkirk, MB Phone

Well Identification: South Production Well (Rutilus Well)

Well Use / Water Use

Production	✓	Test Well		Recharge		Irrigation	
Domestic		Livestock		Industrial			
Municipal	✓	Dewatering		Not Used			
Geothermal				Observation			

Other (Specify)

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Jeff Bell

Signature of Contractor

WELL LOG

Depth Below Ground in Feet From	To	DESCRIPTION	From	To		Water Record
0	10	grey clay				
10	28	brown till				
28	35	broken limestone				
35	98	limestone				

Water Temperature F° / C°:

Depth Below Ground Level From	To	Casing	Open Hole	Perforations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	31	x					12"			Black ERW	steel	Series 40
31	98		x				105/8"			Open hole		
10	31					x				cement	portland	Type 50

Top of Casing: 3 1/2 Feet above | x Below Ground Level | Well must be vented: X

Pitless Unit: Feet above | Below Ground Level | Not Installed: X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd.

Pump Installation By Drilling Contractor: Yes | No X

Field Test: Iron | Grains Hardness

PUMPING TEST

Date of Test: Sep. 18 2015

Air Lifting					
Bailing	-	Recovery	-	Flowing	-
Rate	- IGPM				
Other (Specify)				Pumping	x
Rate	660 IGPM				

Water level before pumping (Static) Feet: Above | Below 2 ft.

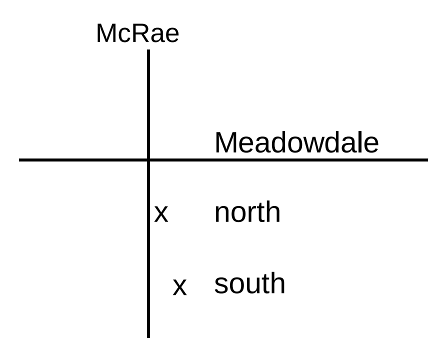
Pumping level at end of test Feet: Above | Below 10 ft.

Duration of test: 4 HRS 0 Minutes

Recommended pumping rate I.G.P.M.: 660

With pump intake at (feet) below ground level: 30 ft.

Location Sketch of Well



Driller's Report

Contractor: Friesen Drillers Ltd. License #: 607-15 Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8	Driller: Jonathan Brelis	Assistant:	Mason Friesen
Date well completed:	June 29, 2015		

Well Location	QTR NE	SEC 19	TWP 14	RGE 3	E ✓	W	GPS Reading		
	R.L.	Parish					Lat. N°	N50°11'57.11"	
	Address of Well						Lon W°	W96°54'35.14"	

Well Owner	Name	City of Selkirk/MWSB		Accuracy: ± 5
	Address	200 Eaton Ave. Selkirk, MB	Phone	Sat Count:

Well Identification: OBS-24

Well Use	Production		Test Well	✓	Recharge		Irrigation	
	Domestic		Livestock		Industrial			
Water Use	Municipal		Dewatering		Not Used			
	Geothermal				Observation	x		
	Other (Specify)							

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Jeff Bell

Signature of Contractor

Depth Below Ground in Feet From	To	DESCRIPTION WELL LOG	From	To		Water Record
0	12	grey clay				
12	29	brown till				
29	98	limestone				

Water Temperature F° / C°:

Depth Below Ground Level From	To	Casing	Open Hole	Perforations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	31	x					5"			Insert glued	PVC	Series 40
31	98		x				4.75"			Open hole		
10	30					x				cement	portland	Type 50

Top of Casing:	2 1/2	Feet above	x	Below Ground Level		Well must be vented	X
Pitless Unit:		Feet above		Below Ground Level		Not Installed	X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd. Well abandoned Oct. 2015

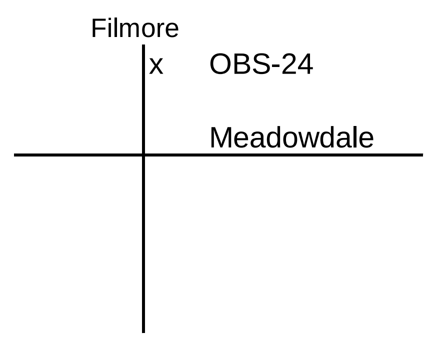
Pump Installation By Drilling Contractor: Yes | No X

Field Test: Iron x | Grains Hardness x

PUMPING TEST

Date of Test:	Sep. 18 2015		Air Lifting			
Bailing -	Recovery -	Flowing	x	Rate	x	IGPM
Other (Specify)		Pumping	x		x	IGPM
Water level before pumping (Static) Feet		Above	-	Below	0.05	
Pumping level at end of test Feet		Above	-	Below	-	
Duration of test	-	HRS	-	Minutes		
Recommended pumping rate I.G.P.M.				-		
With pump intake at (feet) below ground level				-		

Location Sketch of Well



Driller's Report

Contractor: Friesen Drillers Ltd. License #: 607-15 Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8 | Driller: Peter Friesen | Assistant: Greg Harder

Date well completed: August 21, 2015

Well Location	QTR NE SEC 14 TWP 14 RGE 4 E ✓ W	GPS Reading	
		Lat. N°	N49°19607"
	R.L. Parish	Lon W°	W96°95608'
	Address of Well		
Well Owner	Name: City of Selkirk/MWSB	Accuracy: ± 5	
	Address: 200 Eaton Ave. Selkirk, MB Phone	Sat Count:	

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Jeff Bell

Signature of Contractor

Well Identification: North Production Well (Render W

Well Use / Water Use							
Production	✓	Test Well		Recharge		Irrigation	
Domestic		Livestock		Industrial			
Municipal	✓	Dewatering		Not Used			
Geothermal				Observation			
Other (Specify)							

Depth Below Ground in Feet From	To	DESCRIPTION WELL LOG	From	To		Water Record
0	10	grey clay				
10	27	brown till				
27	34	broken limestone				
34	98	limestone - major fractures (34-45 ft.)				

Water Temperature F° / C°:

Depth Below Ground Level From	To	Casing	Open Hole	Perfor-ations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	35	x					12"			Black ERW	steel	Series 40
25	45			x					100 slot	U-wire	stainless steel	vanperm
45	98		x				105/8"			Open hole		
32	45				x					3/8" washed	gravel/clean	
10	32					x				cement	portland	type 50

Top of Casing:	3	Feet above	x	Below Ground Level	Well must be vented	X
Pitless Unit:		Feet above		Below Ground Level	Not Installed	X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd.

Pump Installation By Drilling Contractor: Yes No X

Field Test: Iron Grains Hardness

PUMPING TEST

Date of Test: Sep. 21-28, 2015 Air Lifting

Bailing - Recovery - Flowing - Rate - IGPM

Other (Specify) Pumping x 661 IGPM

Water level before pumping (Static) Feet Above Below 2.3 ft.

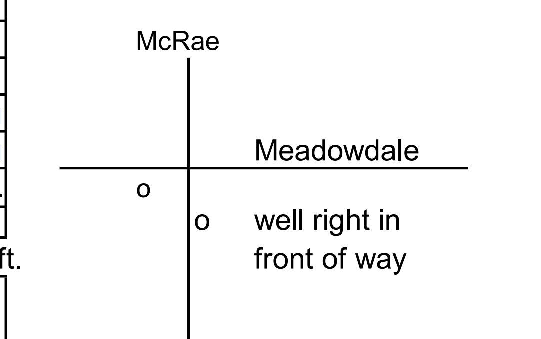
Pumping level at end of test Feet Above Below 9.25 ft.

Duration of test 168 HRS 0 Minutes

Recommended pumping rate I.G.P.M. 661

With pump intake at (feet) below ground level 30 ft.

Location Sketch of Well



Driller's Report

Contractor: Friesen Drillers Ltd. License #: 607-15 Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8	Driller: Jonathan Brelis	Assistant:	Mason Friesen
Date well completed:	June 22, 2015		

Well Location	QTR SE SEC 36 TWP 14 RGE 4 E ✓ W	GPS Reading	
	R.L. Parish	Lat. N°	N50°13'32.47"
	Address of Well	Lon W°	W96°54'45.88"
Well Owner	Name City of Selkirk/MWSB	Accuracy: ±	5
	Address 200 Eaton Ave. Selkirk, MB Phone	Sat Count:	
		CONTRACTOR AFFADAVIT	

Well Identification OBS-36

Well Use	Production		Test Well	✓	Recharge		Irrigation
	Domestic		Livestock		Industrial		
Water Use	Municipal		Dewatering		Not Used		
	Geothermal				Observation	x	
	Other (Specify)						

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Jeff Bell

Signature of Contractor

Depth Below Ground in Feet		DESCRIPTION WELL LOG				Water Record
From	To		From	To		
0	9	grey clay				
9	29	brown till				
29	32	broken bedrock				
32	99	limestone bedrock				

Water Temperature F° / C°:

Depth Below Ground Level		Casing	Open Hole	Perfor-ations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	34	x					5"			Insert glued	PVC	Series 100
34	99		x				4.75"			Open hole		
10	30					x				cement	portland	Type 50

Top of Casing:	2 1/2	Feet above	x	Below Ground Level	Well must be vented	X
Pitless Unit:		Feet above		Below Ground Level	Not Installed	X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd. Well abandoned Oct. 2015

Pump Installation By Drilling Contractor:	Yes	N/A	No	X
Field Test: Iron	N/A	Grains Hardness	N/A	

Location Sketch of Well

ditch

x

dirt road

Filmore Road

PUMPING TEST

Date of Test:	June 22/15	Air Lifting			
Bailing N/A	Recovery	Flowing	N/A	Rate -	IGPM
Other (Specify)		Pumping	-	-	IGPM
Water level before pumping (Static) Feet		Above	-	Below	4.76 ft.
Pumping level at end of test Feet		Above	-	Below	-
Duration of test	-	HRS	-	Minutes	
Recommended pumping rate I.G.P.M.				-	
With pump intake at (feet) below ground level				-	

Driller's Report

Contractor	Friesen Drillers Ltd.	License #: 607-15	Phone: (204) 326-2485
Address: 307 PTH 12 N Steinbach, MB R5G 1T8		Driller:	Assistant:
Date well completed:	June 24, 2015		

Well Location	QTR SW SEC 32 TWP 14 RGE 4 E ✓ W	GPS Reading	
	R.L. Parish	Lat. N°	N50°13'33.32"
	Address of Well	Lon W°	W97°01'24.61"
Well Owner	Name City of Selkirk/MWSB	Accuracy: ± 5	
	Address 200 Eaton Ave. Selkirk, MB Phone	Sat Count:	
		CONTRACTOR AFFADAVIT	
Well Identification	OBS-32		

Well Use	Production		Test Well	✓	Recharge		Irrigation
	Domestic		Livestock		Industrial		
Water Use	Municipal		Dewatering		Not Used		
	Geothermal				Observation	x	
	Other (Specify)						

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Jeff Bell

Signature of Contractor

Depth Below Ground in Feet From	To	DESCRIPTION WELL LOG	From	To		Water Record
0	9	grey clay				
9	35	brown till				
35	38	broken bedrock				
38	96	limestone bedrock				

Water Temperature F° / C°:

Depth Below Ground Level		Casing	Open Hole	Perfor-ations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	40	x					5"			Insert glued	PVC	Series 100
40	96		x				4.75"			Open hole		
10	40					x				cement	portland	Type 50

Top of Casing:	2 1/2	Feet above	x	Below Ground Level	Well must be vented X
Pitless Unit:		Feet above		Below Ground Level	Not Installed X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd. Well abandoned Oct. 2015

Pump Installation By Drilling Contractor: Yes N/A No X

Field Test: Iron N/A Grains Hardness N/A

PUMPING TEST

Date of Test: Air Lifting

Bailing N/A Recovery Flowing N/A Rate - IGPM

Other (Specify) Pumping - - IGPM

Water level before pumping (Static) Feet Above - Below 10.5

Pumping level at end of test Feet Above - Below -

Duration of test - HRS - Minutes

Recommended pumping rate I.G.P.M. -

With pump intake at (feet) below ground level -

Location Sketch of Well

well
x

Pigeon Bluff Road

Linnlater

Driller's Report

Contractor: Friesen Drillers Ltd. License #: 607-15 Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8 | Driller: Jonathan Brelis | Assistant: Mason Friesen

Date well completed: June 25, 2015

Well Location	QTR nw SEC 22 TWP 14 RGE 4 E ✓ W	GPS Reading
		Lat. N° N50°12'39.03"
	R.L. Parish Address of Well	Lon W° W96°58'37.30"
Well Owner	Name City of Selkirk/MWSB	Accuracy: ± 5
	Address 200 Eaton Ave. Selkirk, MB Phone	Sat Count:

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Signature of Contractor

Well Identification OBS-21

Well Use	Production		Test Well	✓	Recharge		Irrigation	
	Domestic		Livestock		Industrial			
Water Use	Municipal		Dewatering		Not Used			
	Geothermal				Observation	x		
	Other (Specify)							

Depth Below Ground in Feet From	To	DESCRIPTION WELL LOG	From	To		Water Record
0	14	grey clay				
14	33	brown till				
33	38	broken rock				
38	97	limestone				

Water Temperature F° / C°:

Depth Below Ground Level From	To	Casing	Open Hole	Perfor-ations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	40	x					5"			Insert glued	PVC	Series 100
40	97		x				4.75"			Open hole		
10	35					x				cement	portland	Type 50

Top of Casing:	2 1/2	Feet above	x	Below Ground Level		Well must be vented	X	
Pitless Unit:		Feet above		Below Ground Level		Not Installed		X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd. Well abandoned Oct. 2015

Pump Installation By Drilling Contractor: Yes [ ] No [X]

Field Test: Iron N/A Grains Hardness N/A

PUMPING TEST

Date of Test: Air Lifting

Bailing - Recovery - Flowing - Rate - IGPM

Other (Specify) Pumping - - IGPM

Water level before pumping (Static) Feet Above - Below 0.5

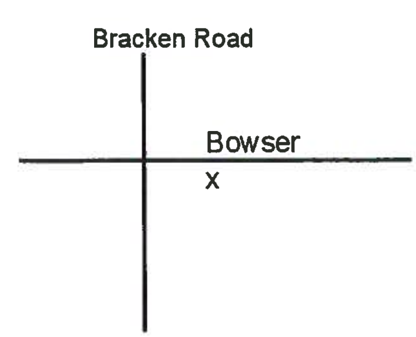
Pumping level at end of test Feet Above - Below -

Duration of test - HRS - Minutes

Recommended pumping rate I.G.P.M. -

With pump intake at (feet) below ground level -

Location Sketch of Well



Driller's Report

Contractor: Friesen Drillers Ltd. License #: 607-15 Phone: (204) 326-2485

Address: 307 PTH 12 N Steinbach, MB R5G 1T8 | Driller: Jonathan Brelis | Assistant: Mason Friesen

Date well completed: June 23, 2015

Well Location		GPS Reading
QTR nw SEC 27 TWP 14 RGE 4 E ✓ W		Lat. N° N50°13'31.81"
R.L. Parish		Lon W° W96°58'15.77"
Address of Well		

Well Owner		
Name	City of Selkirk/MWSB	Accuracy: ± 5
Address	200 Eaton Ave. Selkirk, MB Phone	Sat Count:

Well Identification OBS- 34

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Signature of Contractor

Well Use / Water Use						
Production		Test Well	✓	Recharge		Irrigation
Domestic		Livestock		Industrial		
Municipal		Dewatering		Not Used		
Geothermal				Observation	x	
Other (Specify)						

Depth Below Ground in Feet From	To	DESCRIPTION WELL LOG	From	To		Water Record
0	12	grey clay				
12	33	grey/brown till				
33	97	limestone				

Water Temperature F° / C°:

Depth Below Ground Level		Casing	Open Hole	Perforations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	35	x					5"			Insert glued	PVC	Series 100
35	97		x				4.75"			Open hole		
10	35					x				cement	portland	Type 50

Top of Casing:	2 1/2	Feet above	x	Below Ground Level		Well must be vented	X
Pitless Unit:		Feet above		Below Ground Level		Not Installed	X

Remarks: **City of Selkirk water supply project. MWSR Project**

Report by Friesen Drillers Ltd. Well abandoned Oct. 2015

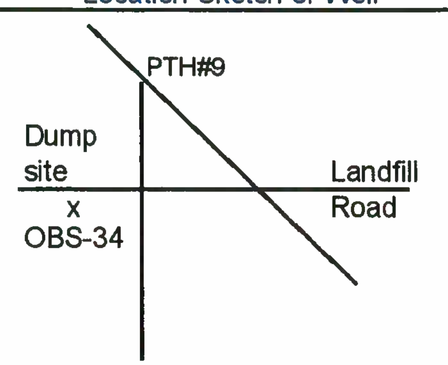
Pump Installation By Drilling Contractor: Yes [ ] No [X]

Field Test: Iron N/A Grains Hardness N/A

PUMPING TEST

Date of Test:			Air Lifting			
Bailing N/A	Recovery N/A	Flowing	N/A	Rate	N/A	IGPM
Other (Specify)		Pumping	N/A		-	IGPM
Water level before pumping (Static) Feet		Above	-	Below	13.2	
Pumping level at end of test Feet		Above	-	Below	N/A	
Duration of test	-	HRS	-	Minutes		
Recommended pumping rate I.G.P.M.					N/A	
With pump intake at (feet) below ground level					N/A	

Location Sketch of Well



Driller's Report

Contractor	Friesen Drillers Ltd.	License #: 607-15	Phone: (204) 326-2485
Address: 307 PTH 12 N Steinbach, MB R5G 1T8		Driller: Jonathan Brelis	Assistant: Mason Friesen
Date well completed:	June 26, 2015		

Well Location	QTR NE SEC 15 TWP 14 RGE 4 E ✓ W	GPS Reading	
	R.L. Parish	Lat. N°	N50°11'45.64"
	Address of Well	Lon W°	W96°57'23.35"
Well Owner	Name: City of Selkirk/MWSB	Accuracy:	± 5
	Address: 200 Eaton Ave. Selkirk, MB Phone	Sat Count:	
Well Identification	OBS-22		

Well Use	Production		Test Well	✓	Recharge		Irrigation
	Domestic		Livestock		Industrial		
Water Use	Municipal		Dewatering		Not Used		
	Geothermal				Observation	x	
	Other (Specify)						

CONTRACTOR AFFADAVIT

I certify that to the best of my knowledge the information provided herein is accurate and true and complies with The Ground Water ans Water Well Act and Well Drilling Regulation

Signature of Contractor

Depth Below Ground in Feet From	To	DESCRIPTION WELL LOG	From	To		Water Record
0	11	grey clay				
11	27	brown sandy till				
27	34	broken bedrock				
34	75	limestone (collapsing)				
					Water Temperature F° / C°:	

Depth Below Ground Level From	To	Casing	Open Hole	Perforations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	35	x					5"			Insert glued	PVC	Series 100
35	75		x				4.75"			Open hole		
10	30					x				cement	portland	Type 50

Top of Casing:	2 1/2	Feet above	x	Below Ground Level		Well must be vented	X
Pitless Unit:		Feet above		Below Ground Level		Not Installed	X

Remarks: **City of Selkirk water supply project. MWSR Project**

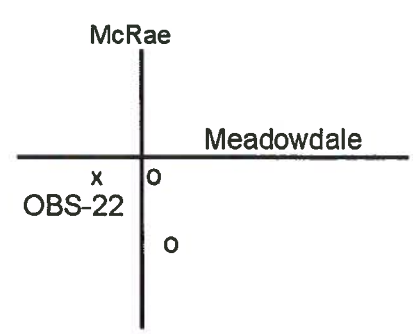
Report by Friesen Drillers Ltd. Well abandoned Oct. 2015

Pump Installation By Drilling Contractor:	Yes		No	X
Field Test:	Iron	x	Grains Hardness	x

PUMPING TEST

Date of Test:				Air Lifting		
Bailing	-	Recovery	-	Flowing	-	Rate - IGPM
Other (Specify)				Pumping	-	- IGPM
Water level before pumping (Static) Feet				Above	-	Below 0.5
Pumping level at end of test Feet				Above	-	Below -
Duration of test	-	HRS			-	Minutes
Recommended pumping rate I.G.P.M.						-
With pump intake at (feet) below ground level						-

Location Sketch of Well



Friesen Drillers Ltd.

307 PTH 12 North
Steinbach, MB. R5G 1T8
Phone 1-204-326-2485
Toll Free 1-888-794-9355

Driller: Peter Friesen | Helper: Greg Harder

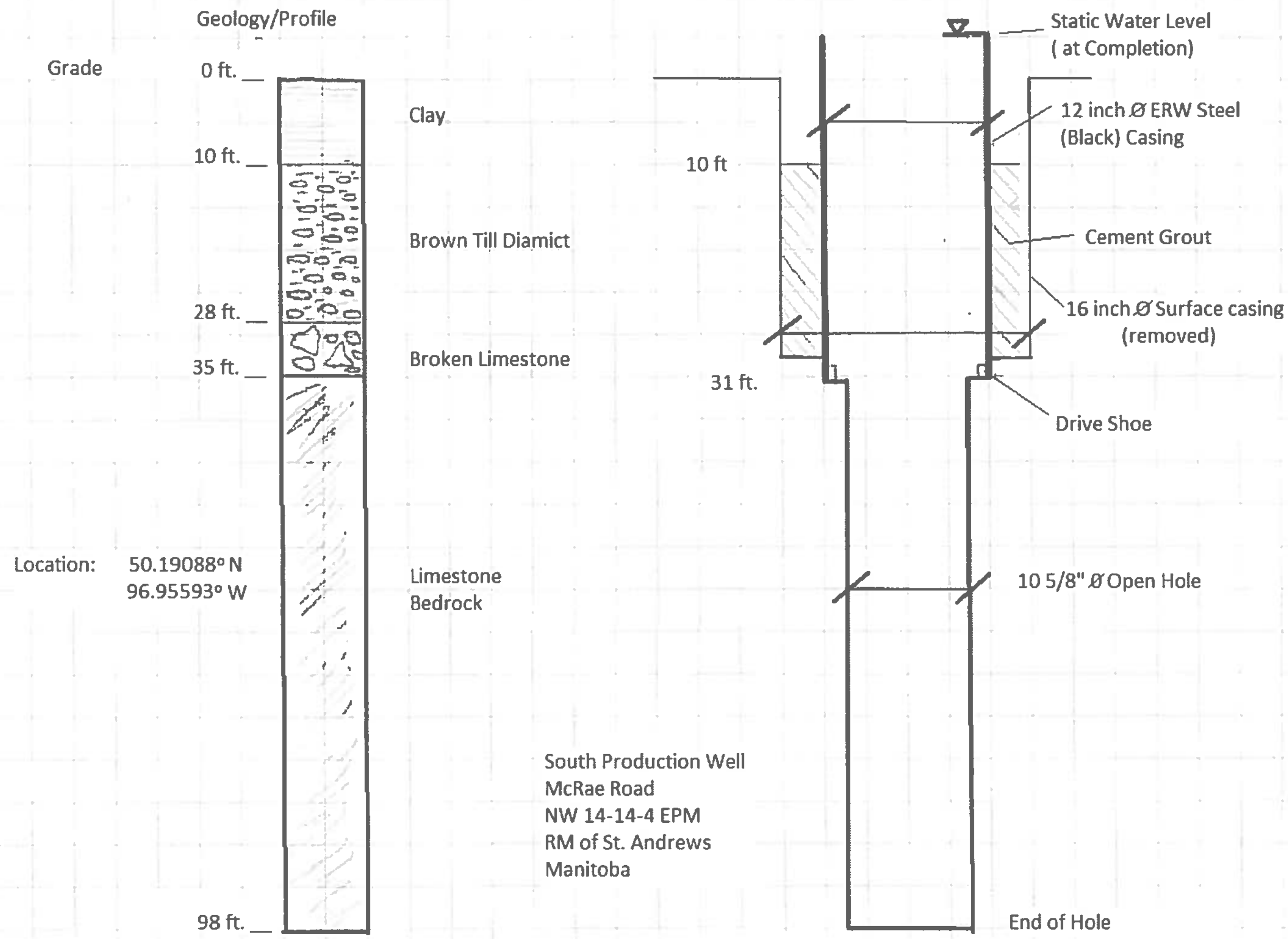
Date: Aug. 12/2015 | Sheet No. 1 of 1

Designed By: JJB | Checked By: N/A

Client: City of Selkirk

Project: City of Selkirk Water Supply Project

South Production Well



CLEARLY IDENTIFY, INITIAL AND DATE ALL REVISED, SUPERSEDED OR VOID CALCULATIONS

Friesen Drillers Ltd.

307 PTH 12 North Phone 1-204-326-2485
Steinbach, MB. R5G 1T8 Toll Free 1-888-794-9355

Driller Peter Friesen Helper Greg Harder

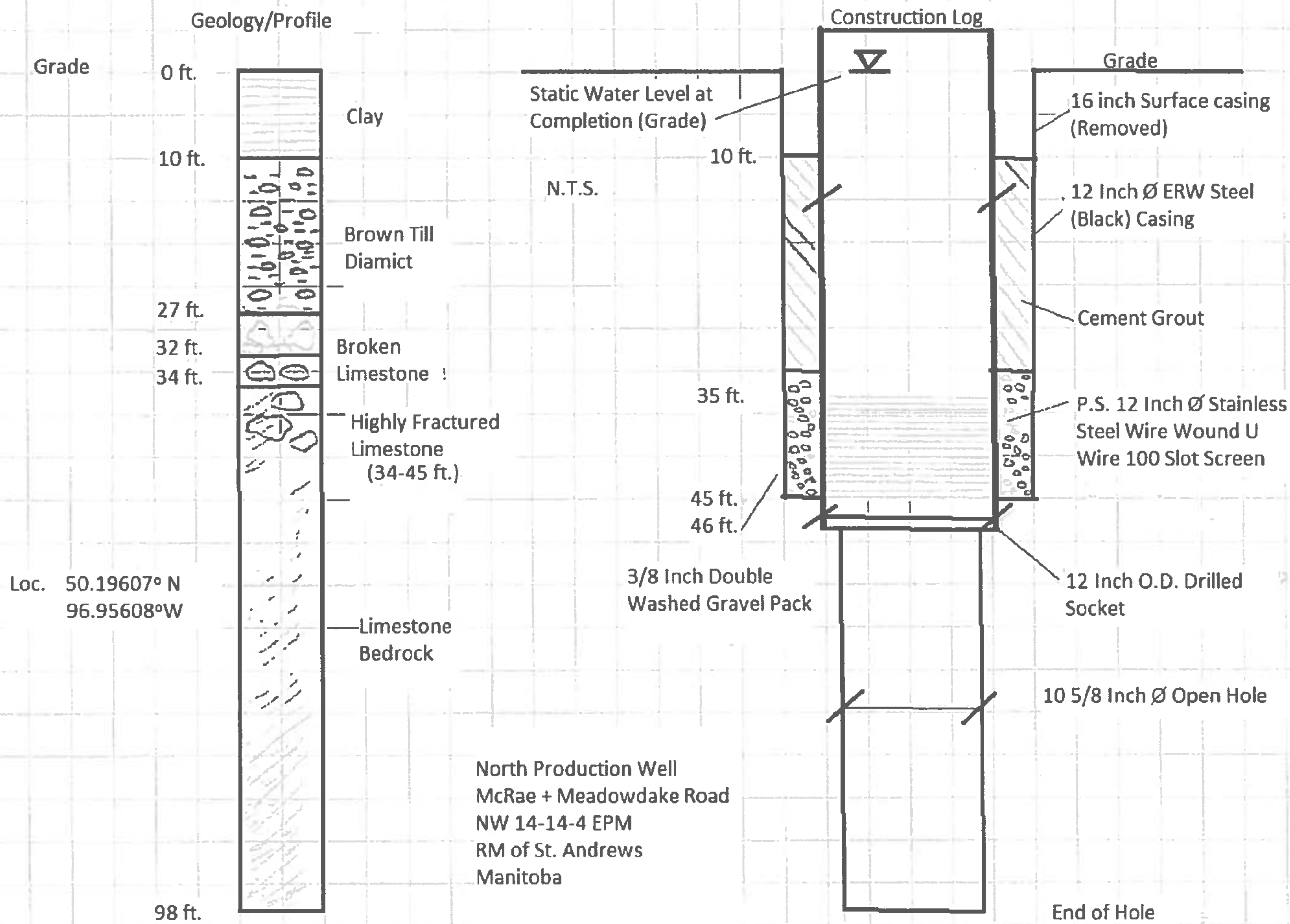
Date Aug. 12/2015 Sheet No. 1 of 1

Designed By: JJB Checked By: N/A

Client: City of Selkirk 2014 Contract

Project: City of Selkirk Water Supply Project

North Production Well



Abandoned Well Report

Manitoba
Water Stewardship

WELL LOCATION	QTR. SW SEC. 32 TWP. 14 RGE. 04 E. ✔ W. R. LOT PARISH REMARKS
WELL OWNER	NAME City of Selkirk/ MWSB ADDRESS 200 Eaton Avenue Selkirk, MB PHONE

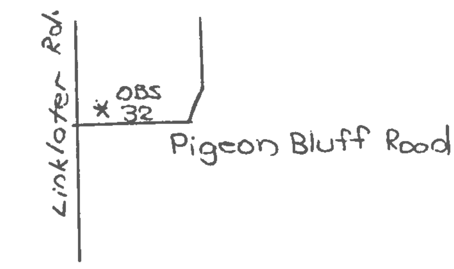
WELL IDENTIFICATION (NO., NAME) OBS - 32

WELL USE	PRODUCTION TEST WELL ✔ RECHARGE OBSERVATION WELL ✔
WATER USE	DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION AIR-CONDITIONING OTHER ✔ Specify monitoring

DATE WELL CLOSED DAY 28 MONTH October 2015

ORIGINAL DATE WELL COMPLETED DAY 22 MONTH June 2015

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE

N 50°13' 33.32"

X EASTING / LONGITUDE

W 96°01' 24.61"

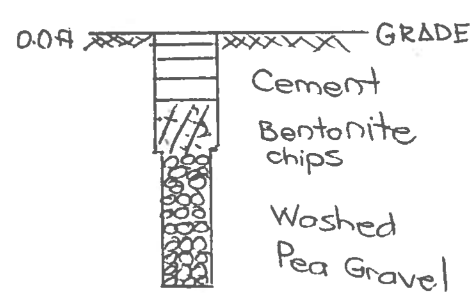
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	40 ft.	✓								5" PVC Casing	
40	96 ft.		✓							Open Hole	
10	40 ft.						✓			Cement - Portland	
96	40 ft.				✓					Washed Pea Gravel	
40	24 ft.					✓				Bentonite Envirogrout	
24	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 607 15

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR Ashley Friesen

Ashley Friesen
Signature of Contractor

WELL INFORMATION

SWL 10.50 ft. ABOVE GRD ✔ BELOW GRD

CASING SIZE 5 "

CASING TYPE PVC

CASING CUT OFF AT 2 feet BELOW GRD.

Abandoned Well Report

Manitoba
Water Stewardship

WELL LOCATION

QTR. NW SEC. 27 TWP. 14 RGE. 04 E. ✔ W.

R. LOT ______ PARISH ______

REMARKS ______

WELL OWNER

NAME City of Selkirk/ MWSB

ADDRESS 200 Eaton Avenue Selkirk, MB

PHONE ______

WELL IDENTIFICATION (NO., NAME) OBS - 34

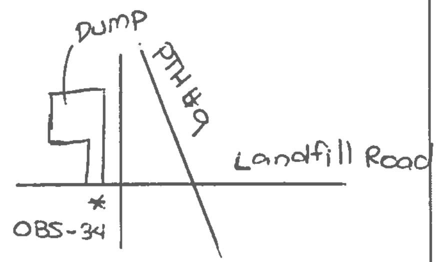
WELL USE PRODUCTION TEST WELL ✔ RECHARGE OBSERVATION WELL ✔

WATER USE DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION AIR-CONDITIONING OTHER ✔ Specify monitoring

DATE WELL CLOSED DAY 27 MONTH October 20 15

ORIGINAL DATE WELL COMPLETED DAY 23 MONTH June 20 15

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE

N 50°13' 31.81"

X EASTING / LONGITUDE

W 96°58' 15.77"

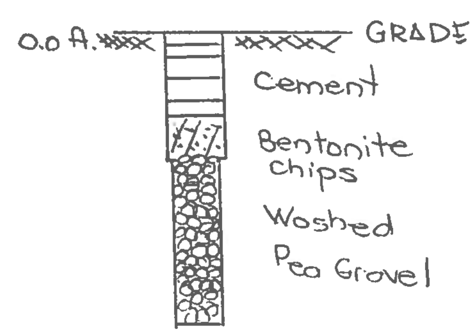
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	35 ft.	✓								5" PVC Casing	
35	97 ft.		✓							Open Hole	
10	30 ft.						✓			Cement - Portland	
97	34 ft.				✓					Washed Pea Gravel	
34	24 ft.					✓				Bentonite Envirogrout	
24	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 6 0 7 1 5

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR Ashley Friesen

Ashley Friesen

Signature of Contractor

WELL INFORMATION

SWL 13.20 ft. ABOVE GRD ✔ BELOW GRD

CASING SIZE 5 "

CASING TYPE PVC

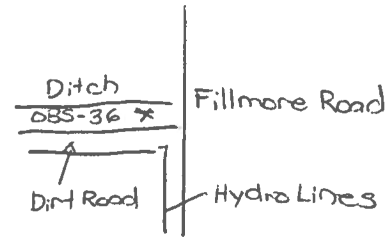
CASING CUT OFF AT 2 feet BELOW GRD.

Abandoned Well Report

Manitoba Water Stewardship

WELL LOCATION	
QTR. SE SEC. 36 TWP. 14 RGE. 04 E. ✔ W.	
R. LOT PARISH	
REMARKS	
WELL OWNER	NAME City of Selkirk/ MWSB ADDRESS 200 Eaton Avenue Selkirk, MB PHONE
WELL IDENTIFICATION (NO., NAME) OBS - 36	
WELL USE	PRODUCTION TEST WELL ✔ RECHARGE OBSERVATION WELL ✔
WATER USE	DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION AIR-CONDITIONING OTHER ✔ Specify monitoring
DATE WELL CLOSED	DAY 28 MONTH October 2015
ORIGINAL DATE WELL COMPLETED	DAY 22 MONTH June 2015

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE: N 50°13' 32.47"

X EASTING / LONGITUDE: W 96°54' 45.99"

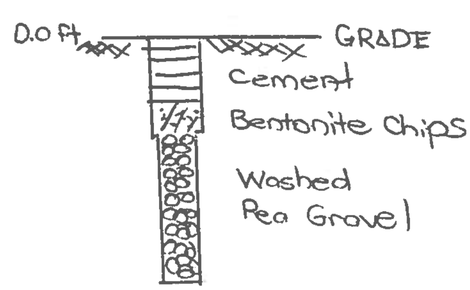
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	34 ft.	✓								5" PVC Casing	
34	99 ft.		✓							Open Hole	
10	30 ft.						✓			Cement - Portland	
99	34 ft.				✓					Washed Pea Gravel	
34	24 ft.					✓				Bentonite Envirogrout	
24	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 607 15

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR Ashley Friesen

Ashley Friesen
Signature of Contractor

WELL INFORMATION

SWL 4.76 ft. ABOVE GRD ✔ BELOW GRD

CASING SIZE 5 "

CASING TYPE PVC

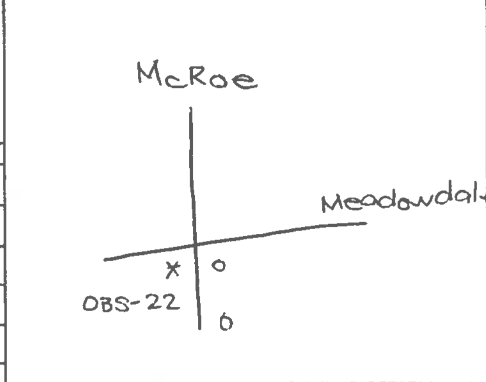
CASING CUT OFF AT 2 feet BELOW GRD.

Abandoned Well Report

Manitoba Water Stewardship

WELL LOCATION	
QTR. NE SEC. 15 TWP. 14 RGE. 04 E. ✔ W.	
R. LOT	PARISH
REMARKS	
WELL OWNER	NAME City of Selkirk/ MWSB
	ADDRESS 200 Eaton Avenue Selkirk, MB
	PHONE
WELL IDENTIFICATION (NO., NAME)	OBS - 22
WELL USE	PRODUCTION; TEST WELL ✔; RECHARGE; OBSERVATION WELL ✔
WATER USE	DOMESTIC; LIVESTOCK; MUNICIPAL; INDUSTRIAL; IRRIGATION; AIR-CONDITIONING; OTHER ✔ Specify monitoring
DATE WELL CLOSED	DAY 20 MONTH October 2015
ORIGINAL DATE WELL COMPLETED	DAY 26 MONTH June 2015

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE: N 50°11' 45.64"

X EASTING / LONGITUDE: W 96°57' 23.35"

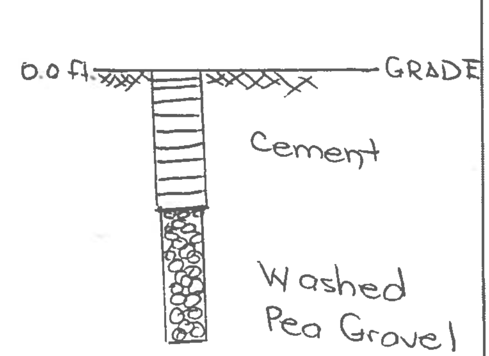
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	35 ft.	✓								5" PVC Casing	
35	75 ft.		✓							Open Hole	
10	30 ft.						✓			Cement - Portland	
75	30 ft.				✓					Washed Pea Gravel	
30	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 607 15

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR Ashley Friesen

Ashley Friesen
Signature of Contractor

WELL INFORMATION

SWL 0.5 ft. ABOVE GRD ✔ BELOW GRD

CASING SIZE 5"

CASING TYPE PVC

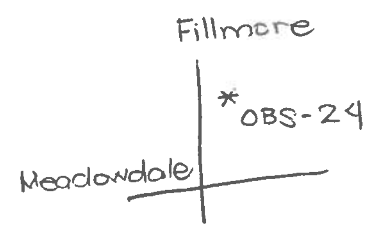
CASING CUT OFF AT 2 feet BELOW GRD.

Manitoba Water Stewardship

Abandoned Well Report

WELL LOCATION	QTR. SW SEC. 19 TWP. 14 RGE. 03 E. ✔ W. R. LOT ____ PARISH ____ REMARKS ____
WELL OWNER	NAME City of Selkirk/ MWSB ADDRESS 200 Eaton Avenue Selkirk, MB PHONE
WELL IDENTIFICATION (NO., NAME)	OBS - 24
WELL USE	PRODUCTION TEST WELL ✔ RECHARGE OBSERVATION WELL ✔
WATER USE	DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION AIR-CONDITIONING OTHER ✔ Specify monitoring
DATE WELL CLOSED	DAY 26 MONTH October 20 15
ORIGINAL DATE WELL COMPLETED	DAY 29 MONTH June 20 15

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE: N 50°11' 57.11"

X EASTING / LONGITUDE: W 96°54' 35.14"

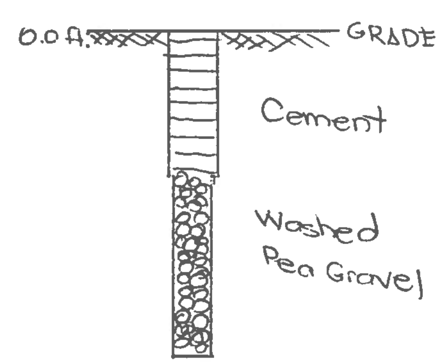
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	31 ft.	✓								5" PVC Casing	
31	98 ft.		✓							Open Hole	
10	30 ft.						✓			Cement - Portland	
98	30 ft.				✓					Washed Pea Gravel	
30	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 607 15

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR Ashley Friesen

Ashley Friesen

Signature of Contractor

WELL INFORMATION

SWL 0.05 ft. ABOVE GRD ✔ BELOW GRD

CASING SIZE 5 "

CASING TYPE PVC

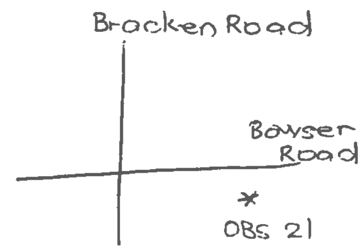
CASING CUT OFF AT 2 feet BELOW GRD.

Abandoned Well Report

Manitoba Water Stewardship

WELL LOCATION
QTR. NW SEC. 22 TWP. 14 RGE. 04 E. ✔ W.
R. LOT PARISH
REMARKS

LOCATION SKETCH OF WELL



WELL OWNER
NAME City of Selkirk/ MWSB
ADDRESS 200 Eaton Avenue Selkirk, MB
PHONE

WELL IDENTIFICATION (NO., NAME) OBS - 21

WELL USE PRODUCTION TEST WELL ✔ RECHARGE OBSERVATION WELL ✔

WATER USE DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION
AIR-CONDITIONING OTHER ✔ Specify monitoring

WELL CO-ORDINATES
Y NORTHING / LATITUDE
N 50°12' 39.03"
X EASTING / LONGITUDE
W 96°58' 97.30"

DATE WELL CLOSED DAY 27 MONTH October 2015

ORIGINAL DATE WELL COMPLETED DAY 25 MONTH June 2015

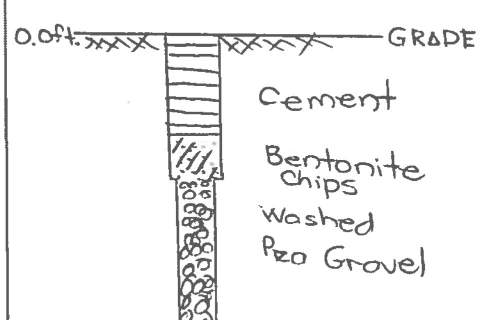
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	40 ft.	✓								5" PVC Casing	
40	97 ft.		✓							Open Hole	
10	35 ft.						✓			Cement - Portland	
97	40 ft.				✓					Washed Pea Gravel	
40	30 ft.					✓				Bentonite Envirogrout	
30	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project

ABANDONED WELL SKETCH



CONTRACTOR
LICENCE NO. 607 15
NAME FRIESEN DRILLERS LTD.
ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8
OPERATOR Ashley Friesen
Ashley Friesen
Signature of Contractor

WELL INFORMATION
SWL 2.60 ft. ABOVE GRD ✔ BELOW GRD
CASING SIZE 5"
CASING TYPE PVC
CASING CUT OFF AT 2 feet BELOW GRD.

Abandoned Well Report

Manitoba Water Stewardship

WELL LOCATION	QTR. S W SEC. 14 TWP. 1 4 RGE. 0 4 E. ✔ W.
	R. LOT PARISH
	REMARKS
WELL OWNER	NAME City of Selkirk/ MWSB
	ADDRESS 200 Eaton Avenue Selkirk, MB
	PHONE

WELL IDENTIFICATION (NO., NAME) MW 11-01

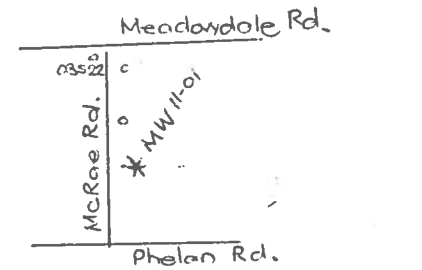
WELL USE: PRODUCTION TEST WELL RECHARGE OBSERVATION WELL ✔

WATER USE: DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION AIR-CONDITIONING OTHER ✔ Specify monitoring

DATE WELL CLOSED DAY 2 8 MONTH October 20 15

ORIGINAL DATE WELL COMPLETED DAY 1 3 MONTH September 20 1 1

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE: N 50°11'20.01"

X EASTING / LONGITUDE: W 96°57'21.65"

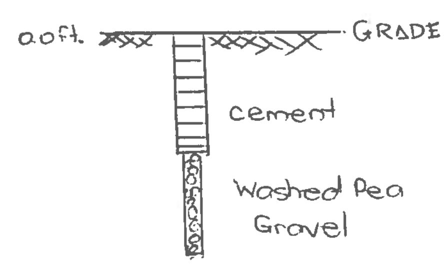
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	37 ft.	✓								2" Galvanized Steel Casing	
37	77 ft.		✓							Open Hole	
77	37 ft.				✓					Washed Pea Gravel	
37	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project.

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 6 0 7 1 5

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR for Ashley Friesen

Signature of Contractor

WELL INFORMATION

SWL 0.05 ABOVE GRD ✔ BELOW GRD

CASING SIZE 2"

CASING TYPE Steel

CASING CUT OFF AT 2 feet BELOW GRD.

Abandoned Well Report

Manitoba Water Stewardship

WELL LOCATION	
QTR. S W	SEC. 14 · TWP. 1 4 · RGE. 0 4 · E. ✔ W.
R. LOT	PARISH
REMARKS	

WELL OWNER	
NAME	City of Selkirk/ MWSB
ADDRESS	200 Eaton Avenue Selkirk, MB
PHONE	

WELL IDENTIFICATION (NO., NAME) MW 11-02

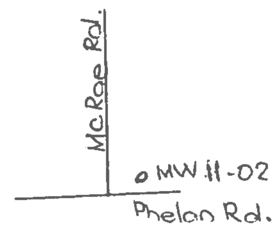
WELL USE: PRODUCTION · TEST WELL · RECHARGE · OBSERVATION WELL ✔

WATER USE: DOMESTIC · LIVESTOCK · MUNICIPAL · INDUSTRIAL · IRRIGATION · AIR-CONDITIONING · OTHER ✔ Specify monitoring

DATE WELL CLOSED: DAY 28 MONTH October 2015

ORIGINAL DATE WELL COMPLETED: DAY 13 MONTH September 2011

LOCATION SKETCH OF WELL



WELL CO-ORDINATES

Y NORTHING / LATITUDE: N 50°10'53.75"

X EASTING / LONGITUDE: W 96°57'19.25"

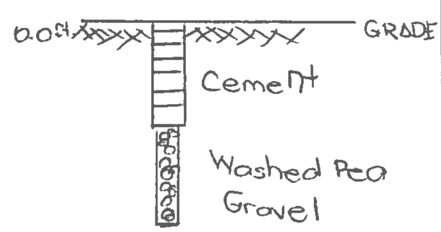
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	41 ft.	✓								2" Galvanized Steel Casing	
41	75 ft.		✓							Open Hole	
75	41 ft.				✓					Washed Pea Gravel	
41	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project.

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 607 15

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N
Steinbach, MB R5G 1T8

OPERATOR for Ashley Friesen

Signature of Contractor

WELL INFORMATION

SWL 1.45 ABOVE GRD ✔ BELOW GRD

CASING SIZE 2"

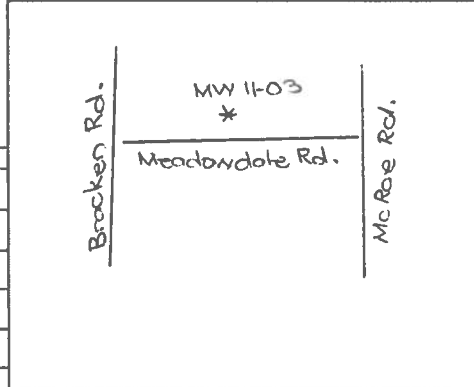
CASING TYPE Steel

CASING CUT OFF AT 2 feet BELOW GRD.

Manitoba Water Stewardship

Abandoned Well Report

LOCATION SKETCH OF WELL



WELL LOCATION

QTR. SE SEC. 22 TWP. 14 RGE. 04 E. ✔ W.

R. LOT PARISH

REMARKS

WELL OWNER

NAME City of Selkirk/ MWSB

ADDRESS 200 Eaton Avenue Selkirk, MB

PHONE

WELL IDENTIFICATION (NO., NAME) MW 11-03

WELL USE PRODUCTION TEST WELL RECHARGE OBSERVATION WELL ✔

WATER USE DOMESTIC LIVESTOCK MUNICIPAL INDUSTRIAL IRRIGATION AIR-CONDITIONING OTHER ✔ Specify monitoring

DATE WELL CLOSED DAY 28 MONTH October 20 15

ORIGINAL DATE WELL COMPLETED DAY 14 MONTH September 20 11

WELL CO-ORDINATES

Y NORTHING / LATITUDE

N 50°11'47.24"

X EASTING / LONGITUDE

W 96°58'2.97"

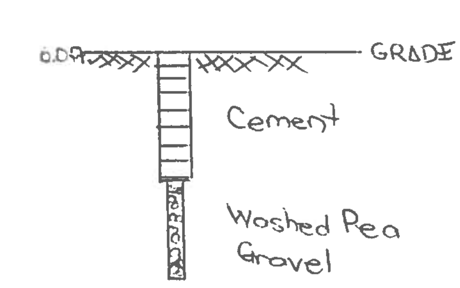
WELL ABANDONMENT

DEPTH BELOW GROUND IN FEET FROM	TO	CASING	OPEN HOLE	SAND	GRAVEL	BENTONITE	CEMENT	CLAY	OTHER	MATERIAL	OTHER
0	52 ft.	✓								2" Galvanized Steel Casing	
52	67 ft.		✓							Open Hole	
67	52 ft.				✓					Washed Pea Gravel	
52	0 ft.						✓			Cement - Portland	

TOP OF CASING OR PITLESS UNIT 2 FEET ABOVE BELOW ✔ GROUND LEVEL

City of Selkirk Water Supply Project.

ABANDONED WELL SKETCH



CONTRACTOR

LICENCE NO. 607 15

NAME FRIESEN DRILLERS LTD.

ADDRESS 307 PTH 12N

Steinbach, MB R5G 1T8

OPERATOR for Ashley Friesen

Signature of Contractor

WELL INFORMATION

SWL 1.20 ABOVE GRD ✔ BELOW GRD

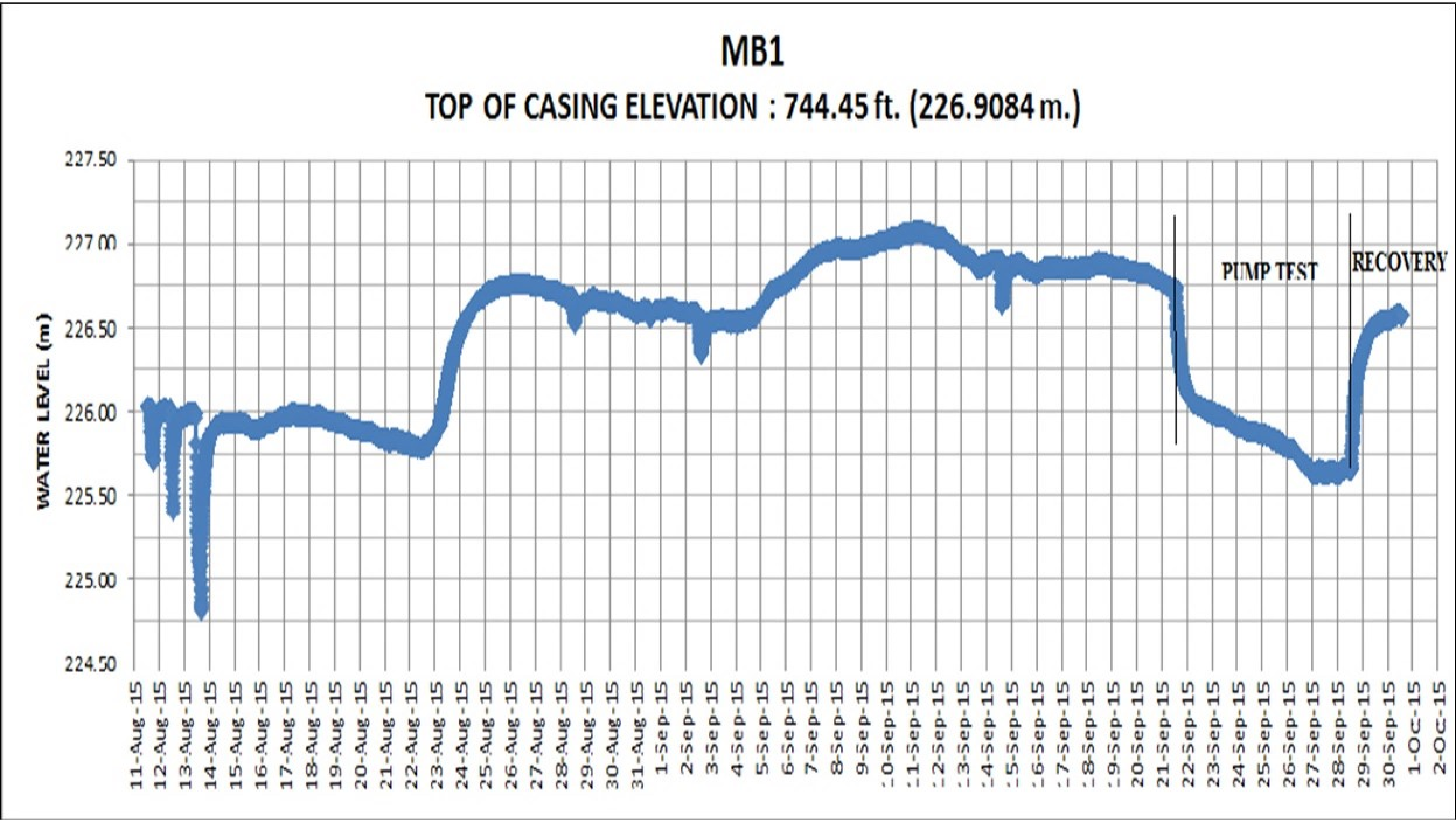
CASING SIZE 2"

CASING TYPE Steel

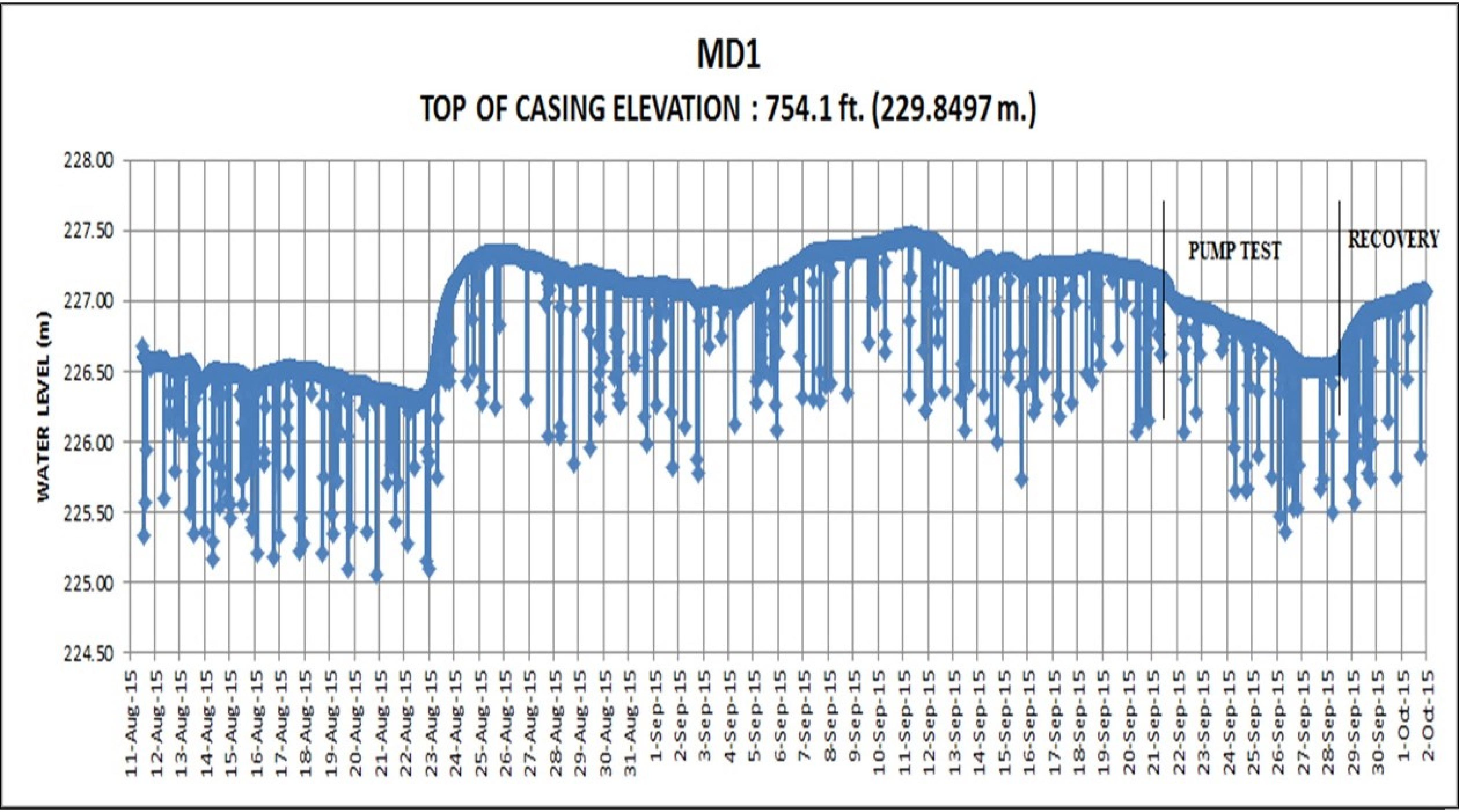
CASING CUT OFF AT 2 feet BELOW GRD.

Appendix J

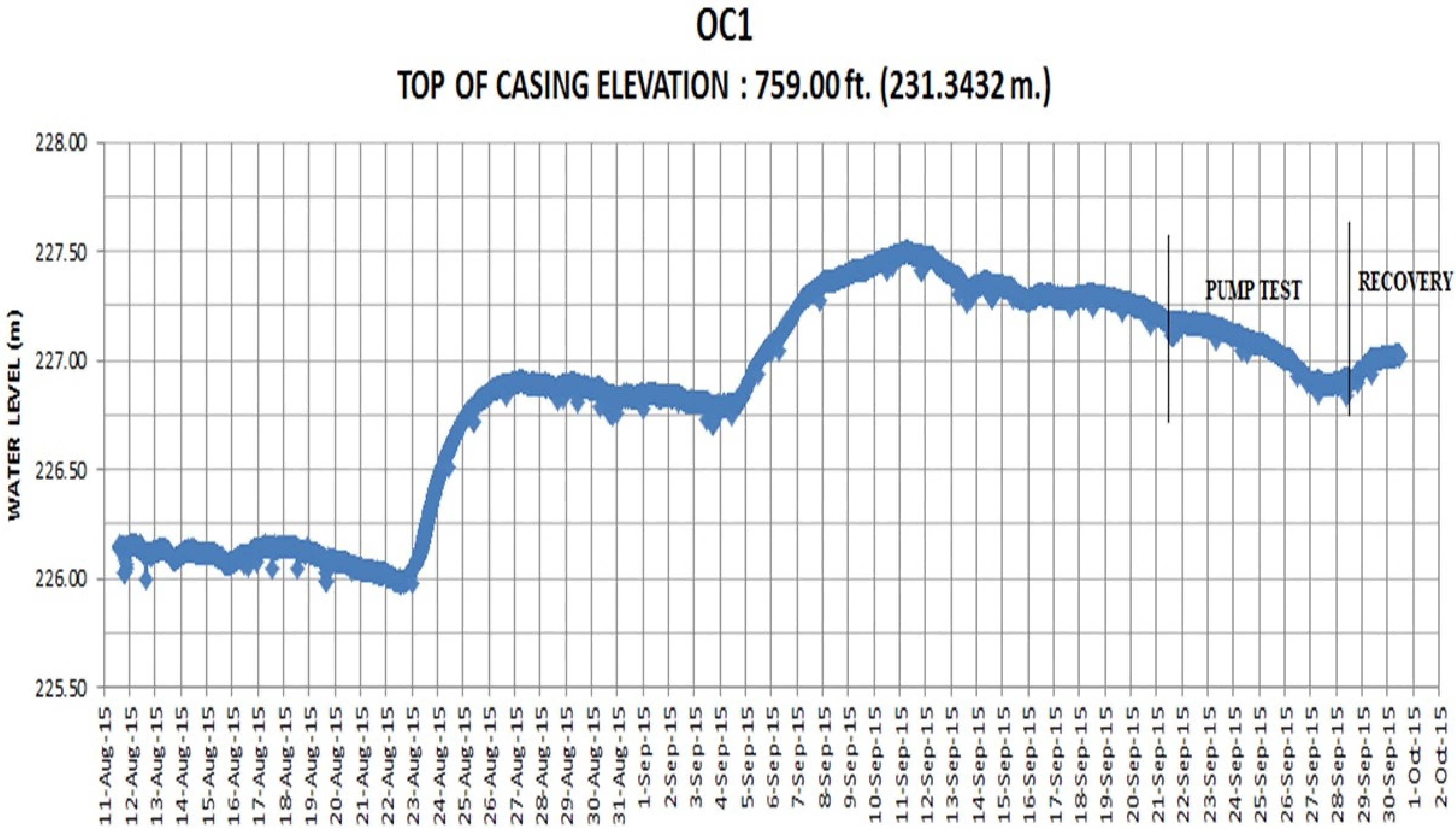
Local Hydrographs from Private Wells



MB1
TOP OF CASING ELEVATION : 744.45 ft. (226.9084 m.)
WATER LEVEL (m)
227.50
227.00
226.50
226.00
225.50
225.00
224.50
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
23-Aug-15
24-Aug-15
25-Aug-15
26-Aug-15
27-Aug-15
28-Aug-15
29-Aug-15
30-Aug-15
31-Aug-15
1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
5-Sep-15
6-Sep-15
7-Sep-15
8-Sep-15
9-Sep-15
20-Sep-15
21-Sep-15
22-Sep-15
23-Sep-15
24-Sep-15
25-Sep-15
26-Sep-15
27-Sep-15
28-Sep-15
29-Sep-15
30-Sep-15
1-Oc-15
2-Oc-15



MD1
TOP OF CASING ELEVATION : 754.1 ft. (229.8497 m.)
WATER LEVEL (m)
228.00
227.50
227.00
226.50
226.00
225.50
225.00
224.50
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
23-Aug-15
24-Aug-15
25-Aug-15
26-Aug-15
27-Aug-15
28-Aug-15
29-Aug-15
30-Aug-15
31-Aug-15
1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
5-Sep-15
6-Sep-15
7-Sep-15
8-Sep-15
9-Sep-15
10-Sep-15
11-Sep-15
12-Sep-15
13-Sep-15
14-Sep-15
15-Sep-15
16-Sep-15
17-Sep-15
18-Sep-15
19-Sep-15
20-Sep-15
21-Sep-15
22-Sep-15
23-Sep-15
24-Sep-15
25-Sep-15
26-Sep-15
27-Sep-15
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15


OC1
TOP OF CASING ELEVATION : 759.00 ft. (231.3432 m.)
WATER LEVEL (m)
228.00
227.50
227.00
226.50
226.00
225.50
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
23-Aug-15
24-Aug-15
25-Aug-15
26-Aug-15
27-Aug-15
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1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
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8-Sep-15
9-Sep-15
10-Sep-15
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23-Sep-15
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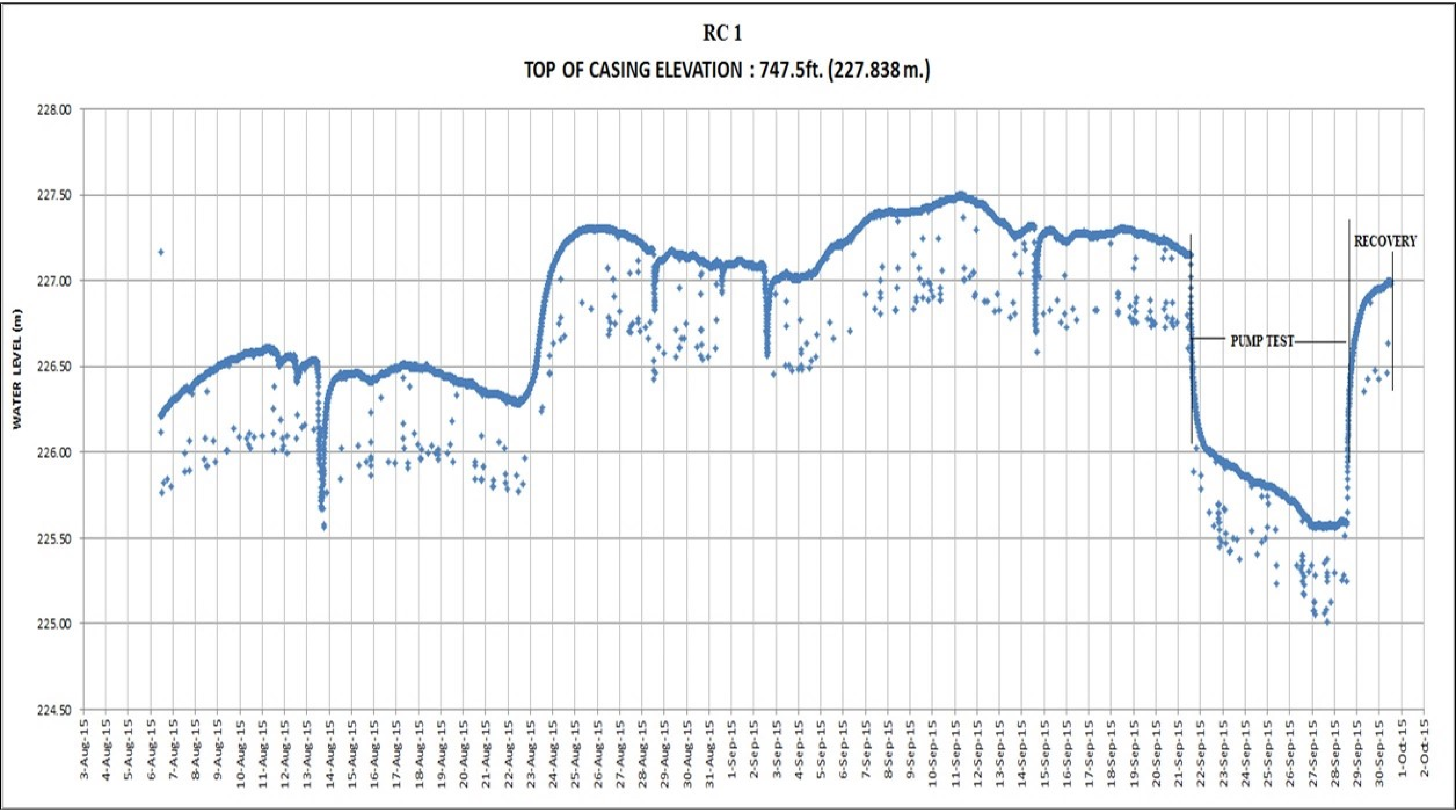
27-Sep-15
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15



RC 1
TOP OF CASING ELEVATION : 747.5ft. (227.838 m.)
WATER LEVEL (m)
228.00
227.50
227.00
226.50
226.00
225.50
225.00
224.50
PUMP TEST
RECOVERY
3-Aug-15
4-Aug-15
5-Aug-15
6-Aug-15
7-Aug-15
8-Aug-15
9-Aug-15
10-Aug-15
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
23-Aug-15
24-Aug-15
25-Aug-15
26-Aug-15
27-Aug-15
28-Aug-15
29-Aug-15
30-Aug-15
31-Aug-15
1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
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6-Sep-15
7-Sep-15
8-Sep-15
9-Sep-15
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11-Sep-15
12-Sep-15
13-Sep-15
14-Sep-15
15-Sep-15
16-Sep-15
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23-Sep-15
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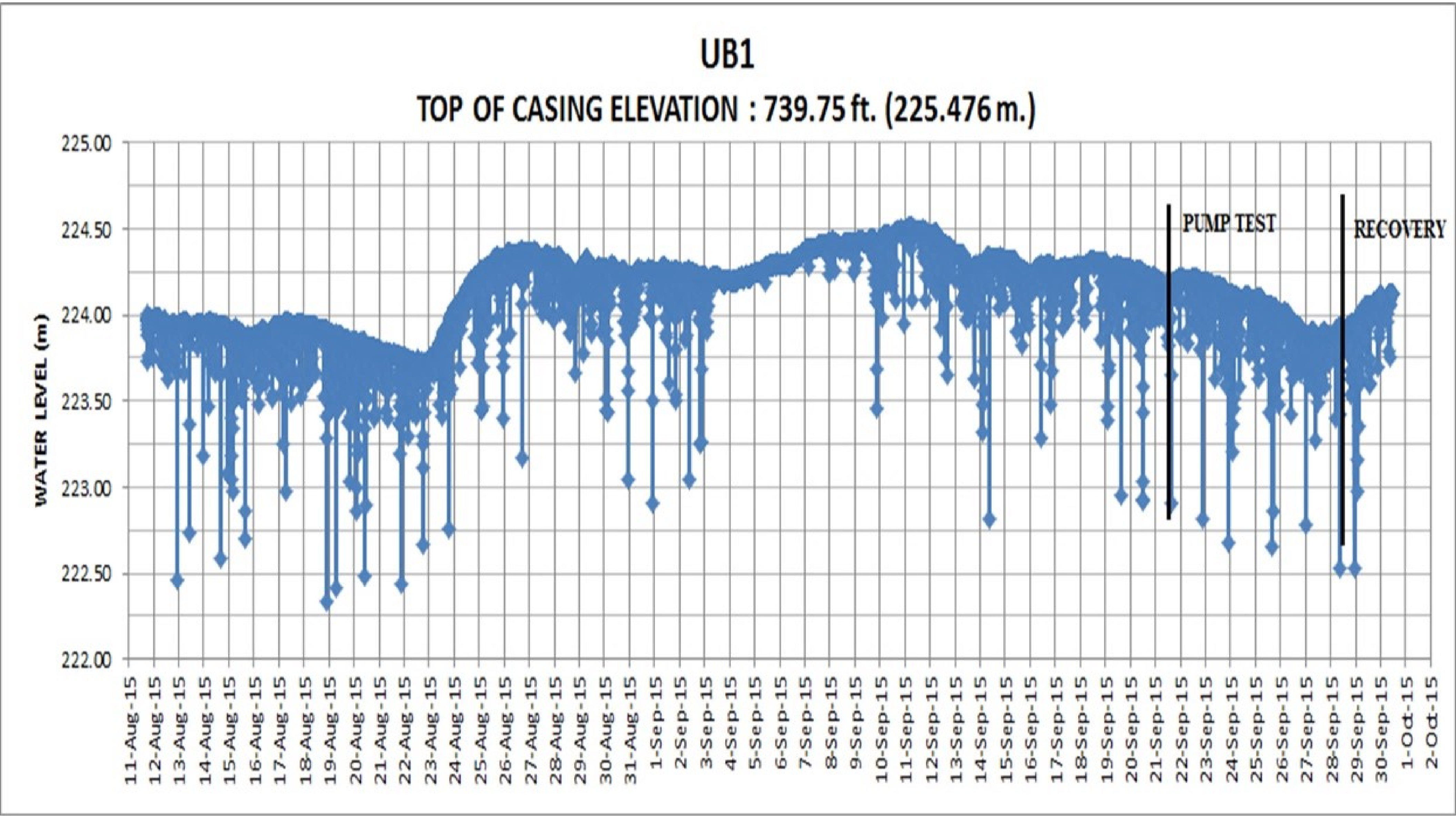
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15


UB1
TOP OF CASING ELEVATION : 739.75 ft. (225.476 m.)
WATER LEVEL (m)
225.00
224.50
224.00
223.50
223.00
222.50
222.00
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
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22-Aug-15
23-Aug-15
24-Aug-15
25-Aug-15
26-Aug-15
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30-Aug-15
31-Aug-15
1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
5-Sep-15
6-Sep-15
7-Sep-15
8-Sep-15
9-Sep-15
10-Sep-15
11-Sep-15
12-Sep-15
13-Sep-15
14-Sep-15
15-Sep-15
16-Sep-15
17-Sep-15
18-Sep-15
19-Sep-15
20-Sep-15
21-Sep-15
22-Sep-15
23-Sep-15
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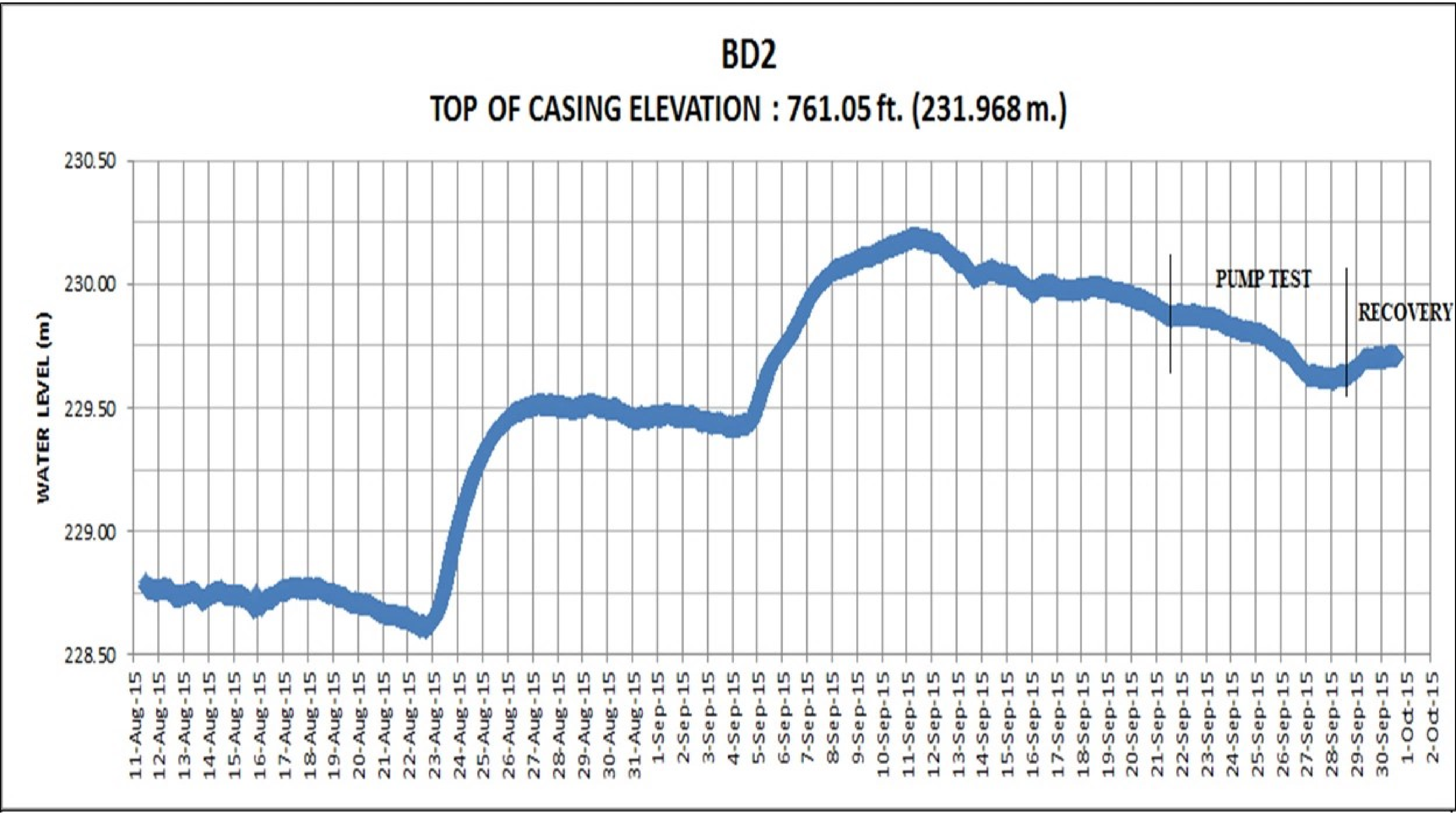
30-Sep-15
1-Oct-15
2-Oct-15



BD2
TOP OF CASING ELEVATION : 761.05 ft. (231.968 m.)
WATER LEVEL (m)
230.50
230.00
229.50
229.00
228.50
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
23-Aug-15
24-Aug-15
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28-Aug-15
29-Aug-15
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31-Aug-15
1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
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12-Sep-15
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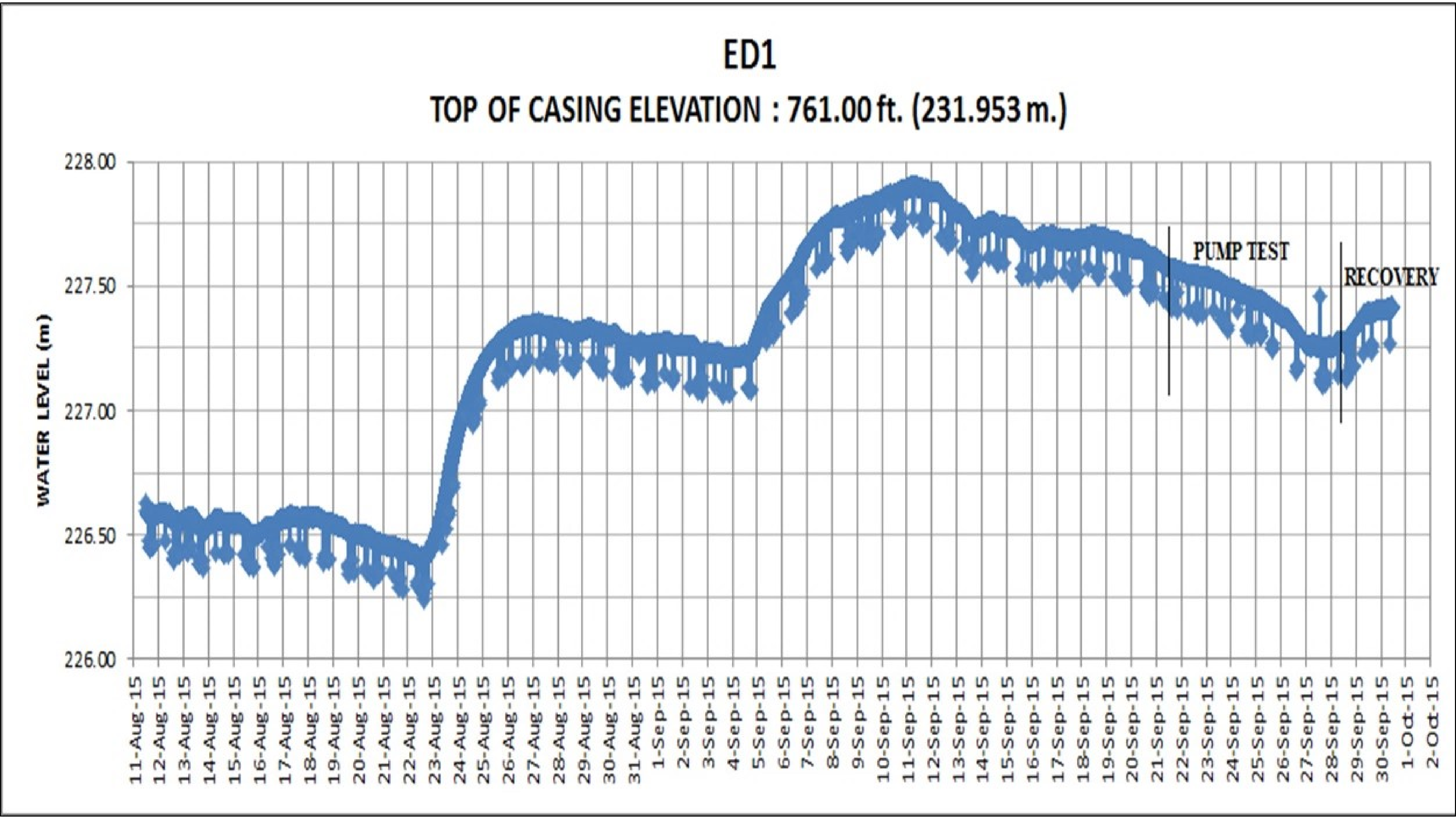
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15


ED1
TOP OF CASING ELEVATION : 761.00 ft. (231.953 m.)
WATER LEVEL (m)
228.00
227.50
227.00
226.50
226.00
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
23-Aug-15
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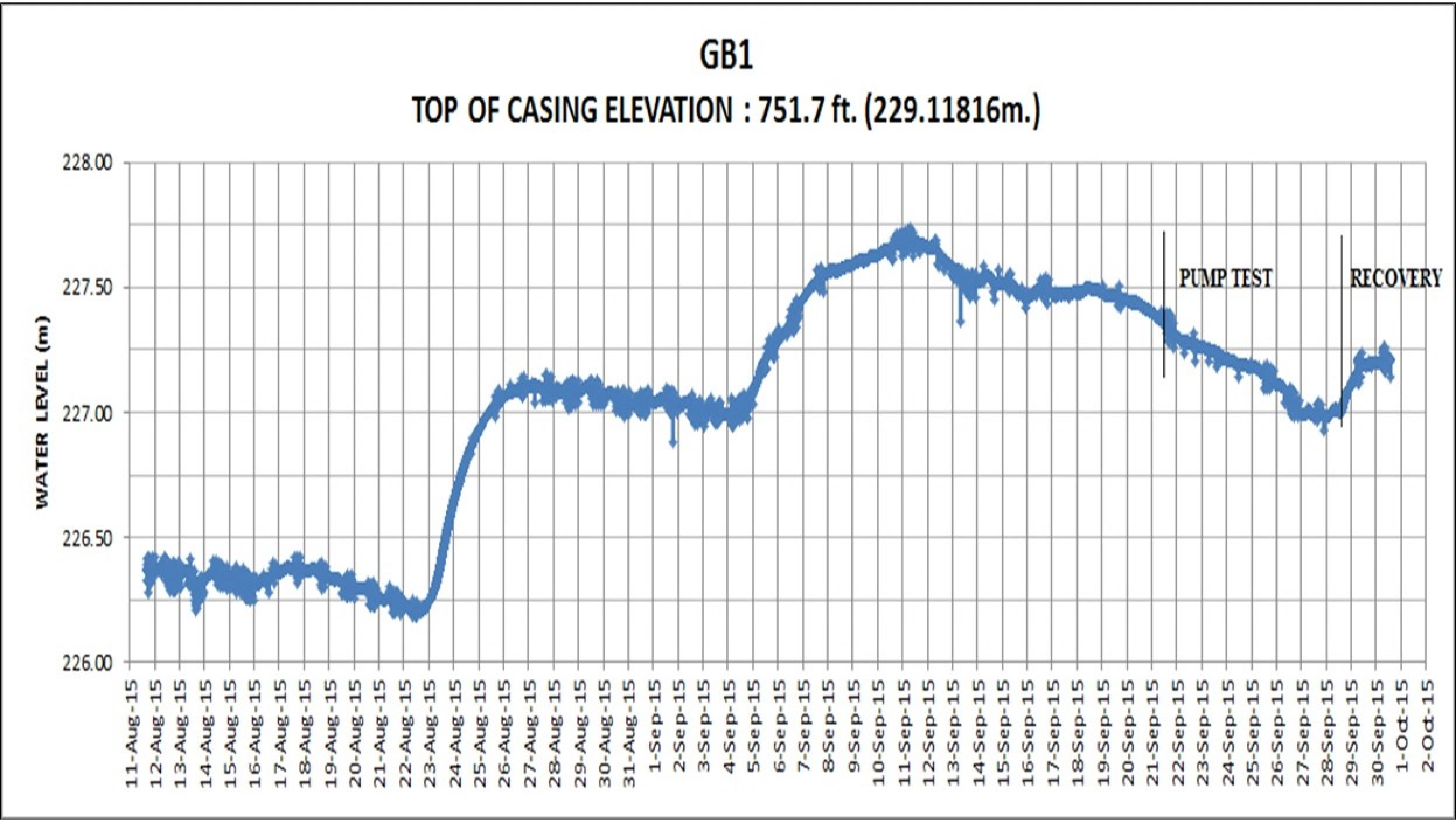
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15



GB1
TOP OF CASING ELEVATION : 751.7 ft. (229.11816m.)
228.00
227.50
227.00
226.50
226.00
WATER LEVEL (m)
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
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28-Aug-15
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30-Aug-15
31-Aug-15
1-Sep-15
2-Sep-15
3-Sep-15
4-Sep-15
5-Sep-15
6-Sep-15
7-Sep-15
8-Sep-15
9-Sep-15
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25-Sep-15
26-Sep-15
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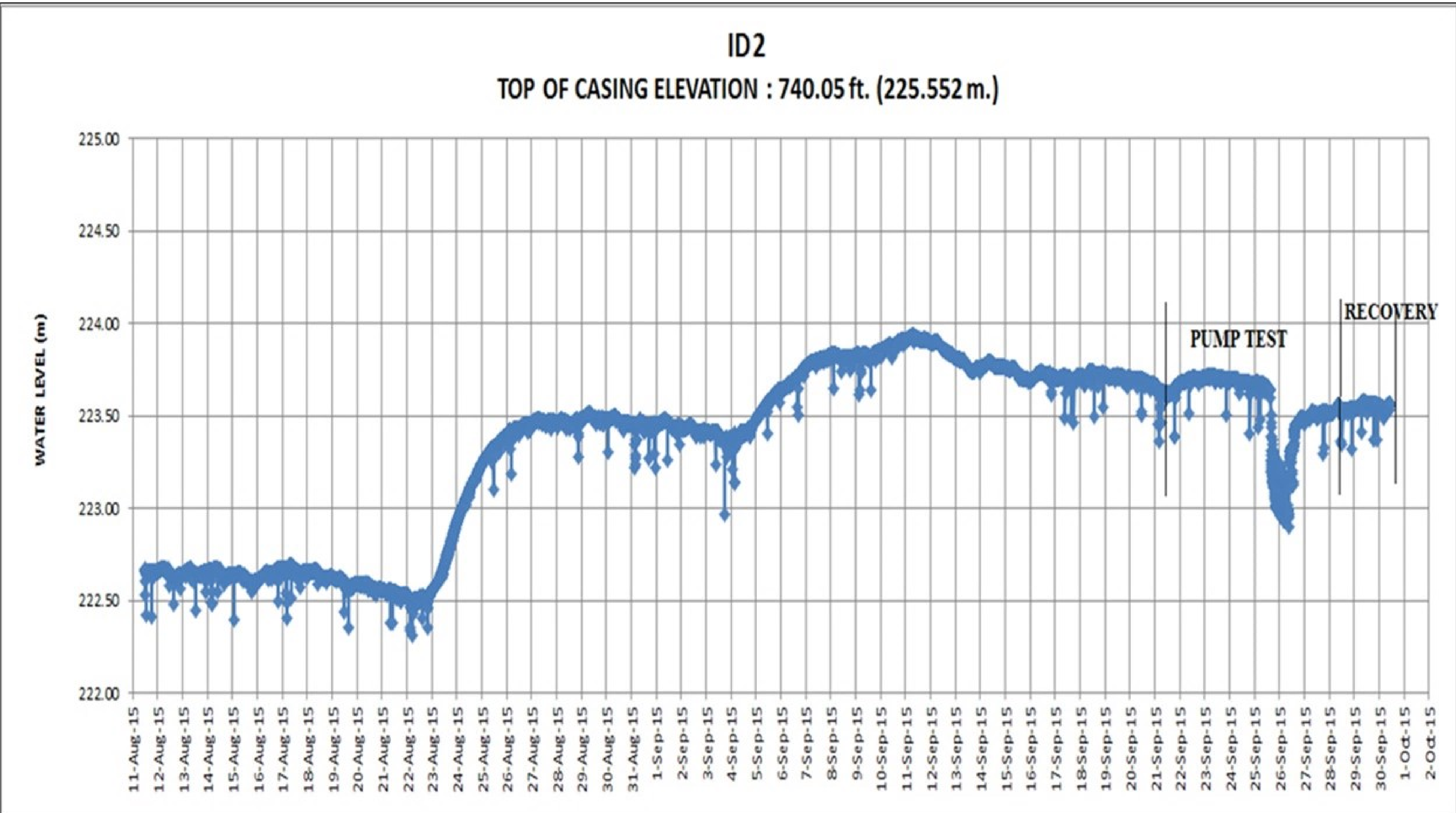
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15


ID2
TOP OF CASING ELEVATION : 740.05 ft. (225.552 m.)
WATER LEVEL (m)
225.00
224.50
224.00
223.50
223.00
222.50
222.00
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
21-Aug-15
22-Aug-15
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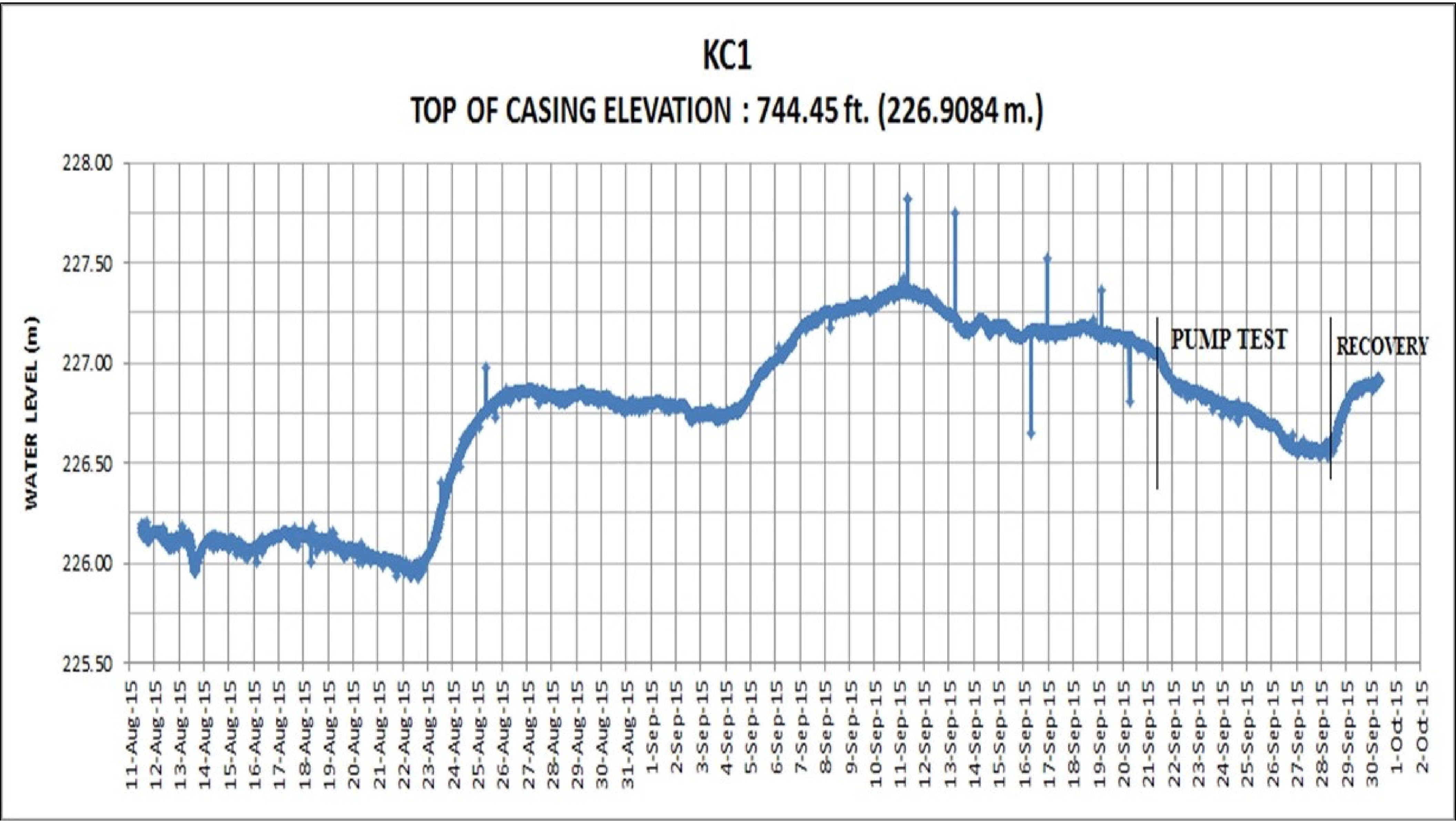
24-Sep-15
25-Sep-15
26-Sep-15
27-Sep-15
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15


KC1
TOP OF CASING ELEVATION : 744.45 ft. (226.9084 m.)
WATER LEVEL (m)
228.00
227.50
227.00
226.50
226.00
225.50
PUMP TEST
RECOVERY
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15
17-Aug-15
18-Aug-15
19-Aug-15
20-Aug-15
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1-Sep-15
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25-Sep-15
26-Sep-15
27-Sep-15
28-Sep-15
29-Sep-15
30-Sep-15
1-Oct-15
2-Oct-15

Appendix K

Geodetic Survey Data

ISAAC & DENCHUK
Manitoba Land Surveyors
www.idsurveys.com • info@idsurveys.com

__SELKIRK__, Manitoba, 200 Clandeboye Avenue, R1A 0X1
Telephone: (204) 785-2924; Fax: (204) 482-4015
Toll Free: 1-800-325-5963

Peter W.P. Isaac, M.L.S
E-Mail: pisaac@idsurveys.com

__GIMLI__ - Consultation Office - 33 Centre Street
9:00 - 4:00, Wednesdays, May 1 - October 31
Tel/Fax: (204) 642-5341

Dwayne Denchuk, M.L.S., C.L.S.
E-Mail: ddenchuk@idsurveys.com

File No. 15-351

Lat/Long Coords, Geodetic Elevations For Well Heads And Adjacent Ground Heights In Feet CGVD28 Datum
RM of St Andrews

50°11'46.10093"N	96°57'23.05262"W	NE 15-14-4E Meadowdale Rd & McRae Rd	746.2	744.9
50°12'03.17738"N	96°57'16.60841"W	RC1	747.5	746.2
50°12'42.34803"N	96°56'29.37338"W	UB1	739.75	738.1
50°10'39.86974"N	96°54'26.48844"W	ID2	740.05	739.1
50°09'49.69112"N	97°00'04.67824"W	BD2	761.05	759.9
50°10'50.29562"N	97°00'03.67058"W	ED1	761.0	759.7
50°10'56.34572"N	97°00'51.53987"W	OC1	759.9	757.0
50°11'44.62895"N	96°59'48.22353"W	ND1	754.1	752.8
50°10'55.16168"N	96°55'32.46857"W	KC1	744.45	742.8
50°11'01.51543"N	96°57'48.21625"W	MD1	749.25	748.3
50°11'11.60480"N	96°57'47.58530"W	MB1	749.55	747.4
50°12'39.37993"N	96°58'36.72425"W	NW 22-14-4E Bowser Road	747.35	746.5
50°13'32.35348"N	96°58'19.24562"W	NW 27-14-4E Landfill Road	746.8	746.1
50°13'33.46716"N	97°01'26.76704"W	SE 32-14-4E Ame Road	757.2	756.4
50°11'58.08003"N	96°54'35.97179"W	SW 19-14-5E Fillmore Road	734.0	733.1
50°13'32.50898"N	96°54'37.85355"W	SE 36-14-4E	729.3	728.0
50°10'03.35062"N	96°56'15.52080"W	GB1	751.7	748.6
50°11'45.72281"N	96°57'21.24310"W	NW 14-14-4E McRae & Meadowdale	749.0	745.3
50°11'27.18569"N	96°57'21.31556"W	NW 14-14-4E ½ mile S. Meadowdale	746.25	743.9
50°11'47.01123"N	96°58'03.02333"W	N. side Meadowdale Road(MW 11-03)	748.25	745.9
50°11'19.99772"N	96°57'21.43710"W	E. side of McRae(MW 11-01) well damaged		744.6
50°10'53.65518"N	96°57'19.96281"W	N side of Phelan E. of McRae (MW 11-02)	751.6	748.7

Appendix L

Pumping Test Data

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrew	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: North Supply Well	Static Water Level [ft]: 2.30	Radial Distance to PW [ft]: -

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	2.30	0.00
2	1	4.40	2.10
3	2	4.65	2.35
4	3	4.84	2.54
5	4	5.01	2.71
6	5	5.11	2.81
7	6	5.19	2.89
8	7	5.26	2.96
9	8	5.32	3.02
10	9	5.39	3.09
11	10	5.45	3.15
12	12	5.56	3.26
13	14	5.65	3.35
14	16	5.75	3.45
15	18	5.84	3.54
16	20	5.86	3.56
17	25	6.03	3.73
18	30	6.16	3.86
19	35	6.28	3.98
20	40	6.34	4.04
21	50	6.55	4.25
22	60	6.69	4.39
23	75	6.88	4.58
24	90	7.00	4.70
25	105	7.21	4.91
26	120	7.33	5.03
27	135	7.43	5.13
28	150	7.58	5.28
29	165	7.68	5.38
30	180	7.75	5.45
31	195	7.83	5.53
32	210	7.89	5.59
33	225	7.98	5.68
34	240	8.03	5.73
35	300	8.29	5.99
36	360	8.51	6.21
37	420	8.69	6.39
38	480	8.75	6.45
39	540	8.90	6.60
40	600	8.99	6.69
41	660	9.04	6.74
42	720	9.05	6.75
43	780	9.21	6.91
44	840	9.32	7.02
45	900	9.40	7.10
46	960	9.47	7.17
47	1020	9.52	7.22
48	1080	9.59	7.29
49	1140	9.59	7.29
50	1200	9.65	7.35
51	1260	9.70	7.40
52	1320	9.70	7.40
53	1380	9.70	7.40
54	1440	9.70	7.40
55	1560	9.76	7.46
56	1680	9.81	7.51
57	1800	9.84	7.54

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	1920	9.86	7.56
59	2040	9.87	7.57
60	2160	9.91	7.61
61	2280	9.97	7.67
62	2400	10.02	7.72
63	2520	10.00	7.70
64	2640	10.09	7.79
65	2760	10.06	7.76
66	2880	10.03	7.73
67	3000	10.03	7.73
68	3120	10.04	7.74
69	3240	10.09	7.79
70	3360	10.11	7.81
71	3480	10.10	7.80
72	3600	10.15	7.85
73	3720	10.18	7.88
74	3840	10.22	7.92
75	3960	10.23	7.93
76	4080	10.25	7.95
77	4200	10.25	7.95
78	4320	10.24	7.94
79	4440	10.23	7.93
80	4560	10.22	7.92
81	4680	10.25	7.95
82	4800	10.34	8.04
83	4920	10.36	8.06
84	5040	10.38	8.08
85	5160	10.38	8.08
86	5280	10.38	8.08
87	5400	10.39	8.09
88	5520	10.43	8.13
89	5640	10.44	8.14
90	5760	10.41	8.11
91	5880	10.35	8.05
92	6000	10.30	8.00
93	6120	10.30	8.00
94	6240	10.35	8.05
95	6360	10.37	8.07
96	6480	10.36	8.06
97	6600	10.35	8.05
98	6720	10.35	8.05
99	6840	10.36	8.06
100	7080	10.41	8.11
101	7200	10.36	8.06
102	7320	10.30	8.00
103	7440	10.30	8.00
104	7560	10.31	8.01
105	7680	10.34	8.04
106	7800	10.38	8.08
107	7920	10.37	8.07
108	8040	10.39	8.09
109	8160	10.40	8.10
110	8280	10.44	8.14
111	8400	10.47	8.17
112	8520	10.51	8.21
113	8640	10.55	8.25
114	8760	10.61	8.31
115	8880	10.46	8.16
116	9000	10.50	8.20
117	9120	10.53	8.23
118	9240	10.64	8.34
119	9360	10.57	8.27
120	9480	10.56	8.26

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	9600	10.58	8.28
122	9720	10.64	8.34
123	9840	10.73	8.43
124	9960	10.78	8.48
125	10080	9.25	6.95
126	10081	8.70	6.40
127	10082	8.51	6.21
128	10083	8.30	6.00
129	10084	8.10	5.80
130	10085	7.98	5.68
131	10086	7.85	5.55
132	10087	7.81	5.51
133	10088	7.75	5.45
134	10089	7.69	5.39
135	10090	7.68	5.38
136	10091	7.55	5.25
137	10092	7.52	5.22
138	10093	7.48	5.18
139	10094	7.44	5.14
140	10095	7.40	5.10
141	10096	7.38	5.08
142	10097	7.34	5.04
143	10098	7.30	5.00
144	10099	7.26	4.96
145	10100	7.23	4.93
146	10102	7.21	4.91
147	10104	7.10	4.80
148	10106	7.05	4.75
149	10108	7.00	4.70
150	10110	6.95	4.65
151	10115	6.86	4.56
152	10120	6.76	4.46
153	10125	7.65	5.35
154	10130	6.60	4.30
155	10135	6.51	4.21
156	10140	6.41	4.11
157	10150	6.31	4.01
158	10160	6.20	3.90
159	10170	6.10	3.80
160	10180	6.00	3.70
161	10190	5.95	3.65
162	10200	5.82	3.52
163	10215	5.75	3.45
164	10230	5.65	3.35
165	10245	5.55	3.25
166	10260	5.50	3.20
167	10275	5.40	3.10
168	10290	5.35	3.05
169	10305	5.29	2.99
170	10320	5.23	2.93
171	10335	5.15	2.85
172	10350	5.09	2.79
173	10365	5.05	2.75
174	10380	5.01	2.71
175	10410	4.91	2.61
176	10440	4.83	2.53
177	10470	4.80	2.50
178	10500	4.72	2.42
179	10530	4.64	2.34
180	10560	4.64	2.34
181	10590	4.60	2.30
182	10620	4.56	2.26
183	10650	4.49	2.19

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-22	Static Water Level [ft]: -0.75	Radial Distance to PW [ft]: 113

	Time [min]	Water Level [ft]	Drawdown [ft]
1	1	3.70	4.45
2	2	4.15	4.90
3	240	4.45	5.20
4	300	4.64	5.39
5	360	4.83	5.58
6	420	4.95	5.70
7	480	5.20	5.95
8	540	5.25	6.00
9	600	5.33	6.08
10	660	5.42	6.17
11	720	5.45	6.20
12	780	5.56	6.31
13	840	5.64	6.39
14	900	5.71	6.46
15	960	5.78	6.53
16	1020	5.82	6.57
17	1080	5.88	6.63
18	1140	5.92	6.67
19	1200	5.95	6.70
20	1260	5.97	6.72
21	1320	6.01	6.76
22	1380	6.00	6.75
23	1440	6.02	6.77
24	1560	6.06	6.81
25	1680	6.12	6.87
26	1800	6.17	6.92
27	1920	6.21	6.96
28	2040	6.23	6.98
29	2160	6.29	7.04
30	2280	6.30	7.05
31	2400	6.33	7.08
32	2520	6.40	7.15
33	2640	6.43	7.18
34	2760	6.52	7.27
35	2880	6.40	7.15
36	3000	6.36	7.11
37	3120	6.40	7.15
38	3240	6.40	7.15
39	3360	6.45	7.20
40	3480	6.46	7.21
41	3600	6.48	7.23
42	3720	6.50	7.25
43	3840	6.58	7.33
44	3960	6.59	7.34
45	4080	6.59	7.34
46	4200	6.63	7.38
47	4320	6.58	7.33
48	4440	6.57	7.32
49	4560	6.61	7.36
50	4680	6.64	7.39
51	4800	6.67	7.42
52	4920	6.69	7.44
53	5040	6.71	7.46
54	5160	6.70	7.45
55	5280	6.70	7.45
56	5400	6.72	7.47
57	5520	6.78	7.53

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	5640	6.77	7.52
59	5760	6.75	7.50
60	5880	6.69	7.44
61	6000	6.69	7.44
62	6120	6.69	7.44
63	6240	6.72	7.47
64	6360	6.71	7.46
65	6480	6.70	7.45
66	6600	6.66	7.41
67	6720	6.67	7.42
68	6840	6.69	7.44
69	6960	6.71	7.46
70	7080	6.71	7.46
71	7200	6.69	7.44
72	7320	6.65	7.40
73	7440	6.60	7.35
74	7560	6.62	7.37
75	7680	6.67	7.42
76	7800	6.72	7.47
77	7920	6.72	7.47
78	8040	6.77	7.52
79	8160	6.76	7.51
80	8280	6.78	7.53
81	8400	6.82	7.57
82	8520	6.86	7.61
83	8640	6.92	7.67
84	8760	6.89	7.64
85	8880	6.85	7.60
86	9000	6.85	7.60
87	9120	6.94	7.69
88	9240	6.96	7.71
89	9360	6.95	7.70
90	9480	6.96	7.71
91	9600	6.99	7.74
92	9720	7.03	7.78
93	9840	7.08	7.83
94	9960	7.13	7.88
95	10080	7.095	7.845
96	10090	5.20	5.95
97	10100	4.71	5.46
98	10115	4.52	5.27
99	10130	4.28	5.03
100	10145	4.06	4.81
101	10160	3.88	4.63
102	10175	3.76	4.51
103	10190	3.59	4.34
104	10230	3.29	4.04
105	10245	3.20	3.95
106	10260	3.14	3.89
107	10275	3.07	3.82
108	10290	2.99	3.74
109	10305	2.92	3.67
110	10320	2.87	3.62
111	10335	2.80	3.55
112	10350	2.74	3.49
113	10365	2.71	3.46
114	10380	2.66	3.41
115	10410	2.61	3.36
116	10440	2.53	3.28
117	10470	2.46	3.21
118	10500	2.40	3.15
119	10530	2.34	3.09
120	10560	2.32	3.07

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	10590	2.25	3.00
122	10620	2.21	2.96
123	10650	2.17	2.92
124	10680	2.14	2.89
125	10710	2.11	2.86
126	10770	2.05	2.80
127	10830	1.96	2.71
128	10890	1.93	2.68
129	10950	1.85	2.60
130	11010	1.81	2.56
131	11070	1.77	2.52
132	11130	1.73	2.48
133	11190	1.69	2.44
134	11250	1.66	2.41
135	12810	1.30	2.05

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: South Supply Well	Static Water Level [ft]: 0.00	Radial Distance to PW [ft]: 1577

	Time [min]	Water Level [ft]	Drawdown [ft]
1	1	1.05	1.05
2	2	1.41	1.41
3	3	1.75	1.75
4	240	2.01	2.01
5	300	2.06	2.06
6	360	2.43	2.43
7	420	2.61	2.61
8	480	2.72	2.72
9	540	2.81	2.81
10	600	2.99	2.99
11	660	3.00	3.00
12	720	3.05	3.05
13	780	3.13	3.13
14	840	3.20	3.20
15	900	3.28	3.28
16	960	3.35	3.35
17	1020	3.44	3.44
18	1080	3.47	3.47
19	1140	3.52	3.52
20	1200	3.54	3.54
21	1260	3.55	3.55
22	1320	3.62	3.62
23	1380	3.62	3.62
24	1440	3.60	3.60
25	1560	3.67	3.67
26	1680	3.75	3.75
27	1800	3.79	3.79
28	1920	3.76	3.76
29	2040	3.81	3.81
30	2160	3.87	3.87
31	2280	3.91	3.91
32	2400	3.92	3.92
33	2520	3.96	3.96
34	2640	4.02	4.02
35	2760	4.03	4.03
36	2880	4.01	4.01
37	3000	3.96	3.96
38	3120	4.01	4.01
39	3240	4.00	4.00
40	3360	4.03	4.03
41	3480	4.18	4.18
42	3600	4.17	4.17
43	3720	4.15	4.15
44	3840	4.12	4.12
45	3960	4.16	4.16
46	4080	4.17	4.17
47	4200	4.19	4.19
48	4320	4.22	4.22
49	4440	4.20	4.20
50	4560	4.21	4.21
51	4680	4.25	4.25
52	4800	4.30	4.30
53	4920	4.31	4.31
54	5040	4.29	4.29
55	5160	4.29	4.29
56	5280	4.28	4.28
57	5400	4.27	4.27

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	5520	4.34	4.34
59	5640	4.35	4.35
60	5760	4.33	4.33
61	5880	4.30	4.30
62	6000	4.29	4.29
63	6120	4.30	4.30
64	6240	4.30	4.30
65	6360	4.30	4.30
66	6480	4.28	4.28
67	6600	4.26	4.26
68	6720	4.27	4.27
69	6840	4.27	4.27
70	6960	4.31	4.31
71	7080	4.31	4.31
72	7200	4.30	4.30
73	7320	4.28	4.28
74	7440	4.24	4.24
75	7560	4.245	4.245
76	7680	4.24	4.24
77	7800	4.31	4.31
78	7920	4.30	4.30
79	8040	4.31	4.31
80	8160	4.31	4.31
81	8280	4.34	4.34
82	8400	4.38	4.38
83	8520	4.44	4.44
84	8640	4.49	4.49
85	8760	4.48	4.48
86	8880	4.50	4.50
87	9000	4.50	4.50
88	9120	4.55	4.55
89	9240	4.58	4.58
90	9360	4.56	4.56
91	9480	4.57	4.57
92	9600	4.57	4.57
93	9720	4.59	4.59
94	9840	4.61	4.61
95	9960	4.72	4.72
96	10080	4.75	4.75
97	10090	4.64	4.64
98	10100	4.51	4.51
99	10115	4.40	4.40
100	10130	4.23	4.23
101	10145	4.08	4.08
102	10160	3.93	3.93
103	10175	3.81	3.81
104	10190	3.67	3.67
105	10230	3.38	3.38
106	10245	3.31	3.31
107	10260	3.32	3.32
108	10275	3.17	3.17
109	10290	3.10	3.10
110	10305	3.02	3.02
111	10320	3.01	3.01
112	10335	2.90	2.90
113	10350	2.88	2.88
114	10365	2.84	2.84
115	10380	2.76	2.76
116	10410	2.69	2.69
117	10440	2.62	2.62
118	10470	2.53	2.53
119	10500	2.54	2.54
120	10530	2.50	2.50

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	10560	2.43	2.43
122	10590	2.41	2.41
123	10620	2.40	2.40
124	10650	2.38	2.38
125	10680	2.30	2.30
126	10710	2.33	2.33
127	10770	2.19	2.19
128	10830	2.17	2.17
129	10890	2.13	2.13
130	10950	2.03	2.03
131	11010	2.00	2.00
132	11070	2.02	2.02
133	12810	1.79	1.79

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: MW-11-01	Static Water Level [ft]: 0.50	Radial Distance to PW [ft]: 2627

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	0.50	0.00
2	1	0.94	0.44
3	2	1.35	0.85
4	240	1.50	1.00
5	300	1.68	1.18
6	360	1.85	1.35
7	420	2.00	1.50
8	480	2.14	1.64
9	540	2.25	1.75
10	600	2.32	1.82
11	660	2.41	1.91
12	720	2.45	1.95
13	840	2.62	2.12
14	900	2.66	2.16
15	960	2.69	2.19
16	1020	2.73	2.23
17	1080	2.77	2.27
18	1140	2.85	2.35
19	1200	2.88	2.38
20	1260	2.92	2.42
21	1320	2.95	2.45
22	1380	2.95	2.45
23	1440	2.99	2.49
24	1560	3.01	2.51
25	1800	3.11	2.61
26	1920	3.12	2.62
27	2040	3.16	2.66
28	2160	3.25	2.75
29	2280	3.27	2.77
30	2400	3.31	2.81
31	2520	3.35	2.85
32	2640	3.36	2.86
33	2760	3.42	2.92
34	2880	3.31	2.81
35	3000	3.32	2.82
36	3120	3.39	2.89
37	3240	3.38	2.88
38	3360	3.40	2.90
39	3600	3.45	2.95
40	3720	3.47	2.97
41	3960	3.51	3.01
42	4080	3.53	3.03
43	4200	3.55	3.05
44	4320	3.52	3.02
45	4440	3.50	3.00
46	4560	3.51	3.01
47	4680	3.57	3.07
48	4800	3.60	3.10
49	4920	3.62	3.12
50	5040	3.67	3.17
51	5160	3.63	3.13
52	5280	3.64	3.14
53	5400	3.68	3.18
54	5520	3.72	3.22
55	5640	3.72	3.22
56	5760	3.67	3.17
57	5880	3.61	3.11

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	6000	3.60	3.10
59	6120	3.62	3.12
60	6240	3.65	3.15
61	6360	3.66	3.16
62	6480	3.64	3.14
63	6600	3.63	3.13
64	6720	3.61	3.11
65	6840	3.63	3.13
66	6960	3.67	3.17
67	7080	3.68	3.18
68	7200	3.64	3.14
69	7320	3.59	3.09
70	7440	3.55	3.05
71	7560	3.55	3.05
72	7680	3.60	3.10
73	7800	3.69	3.19
74	7920	3.64	3.14
75	8040	3.67	3.17
76	8160	3.67	3.17
77	8280	3.73	3.23
78	8400	3.78	3.28
79	8520	3.81	3.31
80	8640	3.82	3.32
81	8760	3.85	3.35
82	8880	3.80	3.30
83	9000	3.81	3.31
84	9120	3.90	3.40
85	9240	3.94	3.44
86	9360	3.91	3.41
87	9480	3.91	3.41
88	9600	3.92	3.42
89	9720	3.95	3.45
90	9840	4.03	3.53
91	9960	4.07	3.57
92	10080	4.13	3.63
93	10090	3.95	3.45
94	10100	3.85	3.35
95	10115	3.75	3.25
96	10130	3.60	3.10
97	10145	3.46	2.96
98	10160	3.29	2.79
99	10175	3.16	2.66
100	10190	3.07	2.57
101	10230	2.79	2.29
102	10245	2.66	2.16
103	10260	2.60	2.10
104	10275	2.51	2.01
105	10290	2.47	1.97
106	10305	2.44	1.94
107	10320	2.38	1.88
108	10335	2.31	1.81
109	10350	2.24	1.74
110	10365	2.23	1.73
111	10380	2.17	1.67
112	10410	2.10	1.60
113	10440	2.04	1.54
114	10470	1.94	1.44
115	10500	1.89	1.39
116	10530	1.86	1.36
117	10560	1.83	1.33
118	10590	1.77	1.27
119	10620	1.77	1.27
120	10650	1.70	1.20

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	10680	1.67	1.17
122	10710	1.65	1.15
123	10770	1.63	1.13
124	10830	1.50	1.00
125	10890	1.40	0.90
126	10950	1.43	0.93
127	11010	1.40	0.90
128	11070	1.38	0.88
129	11130	1.33	0.83
130	11190	1.33	0.83
131	11250	1.29	0.79

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-RC1	Static Water Level [ft]: 2.28	Radial Distance to PW [ft]: 1810

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	2.277	0.00
2	5	2.443	0.166
3	10	2.676	0.399
4	15	2.876	0.599
5	20	3.043	0.766
6	25	3.176	0.899
7	30	3.276	0.999
8	35	3.375	1.098
9	40	3.475	1.198
10	45	3.575	1.298
11	50	3.642	1.365
12	55	3.708	1.431
13	60	3.775	1.498
14	65	3.841	1.564
15	70	3.908	1.631
16	75	3.975	1.698
17	80	4.008	1.731
18	85	4.041	1.764
19	90	4.108	1.831
20	95	4.141	1.864
21	100	4.208	1.931
22	105	4.241	1.964
23	110	4.308	2.031
24	115	4.308	2.031
25	120	4.374	2.097
26	125	4.407	2.13
27	130	4.441	2.164
28	135	4.474	2.197
29	140	4.507	2.23
30	145	4.507	2.23
31	150	4.574	2.297
32	155	4.574	2.297
33	160	4.607	2.33
34	165	4.64	2.363
35	170	4.674	2.397
36	175	4.707	2.43
37	180	4.707	2.43
38	185	4.74	2.463
39	190	4.774	2.497
40	195	4.774	2.497
41	200	4.807	2.53
42	205	4.84	2.563
43	210	4.84	2.563
44	215	6.405	4.128
45	220	4.907	2.63
46	225	4.907	2.63
47	230	4.94	2.663
48	235	4.94	2.663
49	240	4.973	2.696
50	245	4.973	2.696
51	250	5.007	2.73
52	255	5.007	2.73
53	260	5.04	2.763
54	265	5.04	2.763
55	270	5.073	2.796
56	275	5.073	2.796
57	280	5.073	2.796

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	5.106	2.829
59	290	5.106	2.829
60	295	5.14	2.863
61	300	5.14	2.863
62	305	5.173	2.896
63	310	5.173	2.896
64	315	5.173	2.896
65	320	5.206	2.929
66	325	5.206	2.929
67	330	5.206	2.929
68	335	5.24	2.963
69	340	5.24	2.963
70	345	5.273	2.996
71	350	5.273	2.996
72	355	5.273	2.996
73	360	5.306	3.029
74	365	5.306	3.029
75	370	5.339	3.062
76	375	5.339	3.062
77	380	5.339	3.062
78	385	5.339	3.062
79	390	5.373	3.096
80	395	5.939	3.662
81	400	5.373	3.096
82	405	5.406	3.129
83	410	5.406	3.129
84	415	5.406	3.129
85	420	5.406	3.129
86	425	5.406	3.129
87	430	5.439	3.162
88	435	5.439	3.162
89	440	5.439	3.162
90	445	5.439	3.162
91	450	5.473	3.196
92	455	5.473	3.196
93	460	5.473	3.196
94	465	5.473	3.196
95	470	5.506	3.229
96	475	5.506	3.229
97	480	5.506	3.229
98	485	5.506	3.229
99	490	5.506	3.229
100	495	5.539	3.262
101	500	5.539	3.262
102	505	5.539	3.262
103	510	5.539	3.262
104	515	5.539	3.262
105	520	5.539	3.262
106	525	5.572	3.295
107	530	5.572	3.295
108	535	5.572	3.295
109	540	5.572	3.295
110	545	5.572	3.295
111	550	5.606	3.329
112	555	5.606	3.329
113	560	5.606	3.329
114	565	5.606	3.329
115	570	5.606	3.329
116	575	5.639	3.362
117	580	5.639	3.362
118	585	5.639	3.362
119	590	5.639	3.362
120	595	5.639	3.362

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	5.672	3.395
122	605	5.672	3.395
123	610	5.672	3.395
124	615	5.672	3.395
125	620	5.672	3.395
126	625	5.706	3.429
127	630	5.706	3.429
128	635	5.706	3.429
129	640	5.706	3.429
130	645	5.706	3.429
131	650	6.738	4.461
132	655	5.706	3.429
133	660	5.739	3.462
134	665	5.739	3.462
135	670	5.706	3.429
136	675	5.739	3.462
137	680	6.471	4.194
138	685	5.772	3.495
139	690	5.772	3.495
140	695	5.772	3.495
141	700	5.772	3.495
142	705	5.772	3.495
143	710	5.772	3.495
144	715	5.772	3.495
145	720	5.772	3.495
146	725	5.772	3.495
147	730	5.772	3.495
148	735	5.805	3.528
149	740	5.805	3.528
150	745	5.805	3.528
151	750	5.805	3.528
152	755	5.805	3.528
153	760	5.805	3.528
154	765	5.805	3.528
155	770	5.805	3.528
156	775	5.839	3.562
157	780	5.839	3.562
158	785	5.839	3.562
159	790	5.839	3.562
160	795	5.839	3.562
161	800	5.839	3.562
162	805	5.839	3.562
163	810	5.839	3.562
164	815	5.839	3.562
165	820	5.872	3.595
166	825	5.872	3.595
167	830	5.872	3.595
168	835	5.872	3.595
169	840	5.872	3.595
170	845	5.872	3.595
171	850	5.872	3.595
172	855	5.872	3.595
173	860	5.905	3.628
174	865	5.905	3.628
175	870	5.905	3.628
176	875	5.905	3.628
177	880	5.905	3.628
178	885	5.905	3.628
179	890	5.905	3.628
180	895	5.905	3.628
181	900	5.905	3.628
182	905	5.905	3.628
183	910	5.905	3.628

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	5.905	3.628
185	920	5.905	3.628
186	925	5.939	3.662
187	930	5.939	3.662
188	935	5.939	3.662
189	940	5.939	3.662
190	945	5.939	3.662
191	950	5.939	3.662
192	955	5.939	3.662
193	960	5.939	3.662
194	965	5.972	3.695
195	970	5.939	3.662
196	975	5.939	3.662
197	980	5.939	3.662
198	985	5.939	3.662
199	990	5.972	3.695
200	995	5.972	3.695
201	1000	5.972	3.695
202	1005	5.972	3.695
203	1010	5.972	3.695
204	1015	5.972	3.695
205	1020	5.972	3.695
206	1025	5.972	3.695
207	1030	5.972	3.695
208	1035	5.972	3.695
209	1040	5.972	3.695
210	1045	5.972	3.695
211	1050	5.972	3.695
212	1055	5.972	3.695
213	1060	5.972	3.695
214	1065	5.972	3.695
215	1070	5.972	3.695
216	1075	5.972	3.695
217	1080	5.972	3.695
218	1085	5.972	3.695
219	1090	5.972	3.695
220	1095	5.972	3.695
221	1100	6.005	3.728
222	1105	5.972	3.695
223	1110	5.972	3.695
224	1115	5.972	3.695
225	1120	6.005	3.728
226	1125	6.005	3.728
227	1130	6.005	3.728
228	1135	6.005	3.728
229	1140	6.005	3.728
230	1145	6.005	3.728
231	1150	6.005	3.728
232	1155	6.005	3.728
233	1160	6.005	3.728
234	1165	6.005	3.728
235	1170	6.005	3.728
236	1175	6.005	3.728
237	1180	6.005	3.728
238	1185	6.005	3.728
239	1190	6.005	3.728
240	1195	6.005	3.728
241	1200	7.17	4.893
242	1205	6.005	3.728
243	1210	6.039	3.762
244	1215	6.005	3.728
245	1220	6.005	3.728
246	1225	6.005	3.728

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	6.005	3.728
248	1235	6.005	3.728
249	1240	6.005	3.728
250	1245	6.005	3.728
251	1250	6.005	3.728
252	1255	6.005	3.728
253	1260	6.005	3.728
254	1265	6.005	3.728
255	1270	6.039	3.762
256	1275	6.005	3.728
257	1280	6.005	3.728
258	1285	6.039	3.762
259	1290	6.039	3.762
260	1295	6.005	3.728
261	1300	6.039	3.762
262	1305	6.039	3.762
263	1310	6.039	3.762
264	1315	6.039	3.762
265	1320	6.039	3.762
266	1325	6.039	3.762
267	1330	6.039	3.762
268	1335	6.039	3.762
269	1340	6.039	3.762
270	1345	6.039	3.762
271	1350	6.039	3.762
272	1355	6.039	3.762
273	1360	6.039	3.762
274	1365	6.039	3.762
275	1370	6.039	3.762
276	1375	6.039	3.762
277	1380	6.039	3.762
278	1385	6.039	3.762
279	1390	6.039	3.762
280	1395	6.039	3.762
281	1400	6.039	3.762
282	1405	6.039	3.762
283	1410	6.039	3.762
284	1415	6.039	3.762
285	1420	6.039	3.762
286	1425	6.039	3.762
287	1430	6.039	3.762
288	1435	6.039	3.762
289	1440	6.072	3.795
290	1445	6.072	3.795
291	1450	6.039	3.762
292	1455	6.072	3.795
293	1460	6.072	3.795
294	1465	6.072	3.795
295	1470	6.072	3.795
296	1475	6.072	3.795
297	1480	6.072	3.795
298	1485	6.039	3.762
299	1490	6.072	3.795
300	1495	6.072	3.795
301	1500	6.072	3.795
302	1505	6.072	3.795
303	1510	6.072	3.795
304	1515	6.072	3.795
305	1520	6.072	3.795
306	1525	6.072	3.795
307	1530	7.437	5.16
308	1535	6.072	3.795
309	1540	6.072	3.795

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	6.072	3.795
311	1550	6.105	3.828
312	1555	6.105	3.828
313	1560	6.105	3.828
314	1565	6.105	3.828
315	1570	6.105	3.828
316	1575	6.105	3.828
317	1580	6.105	3.828
318	1585	6.105	3.828
319	1590	6.105	3.828
320	1595	6.105	3.828
321	1600	6.105	3.828
322	1605	6.105	3.828
323	1610	6.205	3.928
324	1615	6.105	3.828
325	1620	6.105	3.828
326	1625	6.138	3.861
327	1630	6.105	3.828
328	1635	6.105	3.828
329	1640	6.105	3.828
330	1645	6.105	3.828
331	1650	6.105	3.828
332	1655	6.105	3.828
333	1660	6.138	3.861
334	1665	6.138	3.861
335	1670	6.138	3.861
336	1675	6.138	3.861
337	1680	6.138	3.861
338	1685	6.138	3.861
339	1690	6.138	3.861
340	1695	6.138	3.861
341	1700	6.138	3.861
342	1705	6.138	3.861
343	1710	6.138	3.861
344	1715	6.138	3.861
345	1720	6.138	3.861
346	1725	6.138	3.861
347	1730	6.138	3.861
348	1735	6.138	3.861
349	1740	6.138	3.861
350	1745	6.138	3.861
351	1750	6.172	3.895
352	1755	6.172	3.895
353	1760	6.172	3.895
354	1765	6.172	3.895
355	1770	7.037	4.76
356	1775	7.037	4.76
357	1780	7.004	4.727
358	1785	7.037	4.76
359	1790	7.037	4.76
360	1795	7.037	4.76
361	1800	7.037	4.76
362	1805	7.204	4.927
363	1810	7.303	5.026
364	1815	7.37	5.093
365	1820	7.17	4.893
366	1825	7.303	5.026
367	1830	7.37	5.093
368	1835	7.503	5.226
369	1840	7.67	5.393
370	1845	7.836	5.559
371	1850	6.172	3.895
372	1855	6.172	3.895

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	Page 7 of 42
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	6.172	3.895
374	1865	6.172	3.895
375	1870	6.172	3.895
376	1875	6.172	3.895
377	1880	6.172	3.895
378	1885	6.172	3.895
379	1890	6.205	3.928
380	1895	6.172	3.895
381	1900	6.205	3.928
382	1905	6.172	3.895
383	1910	6.205	3.928
384	1915	6.172	3.895
385	1920	6.172	3.895
386	1925	6.172	3.895
387	1930	6.172	3.895
388	1935	6.172	3.895
389	1940	6.172	3.895
390	1945	6.172	3.895
391	1950	6.205	3.928
392	1955	6.172	3.895
393	1960	6.205	3.928
394	1965	6.205	3.928
395	1970	6.205	3.928
396	1975	6.205	3.928
397	1980	6.205	3.928
398	1985	7.736	5.459
399	1990	6.205	3.928
400	1995	6.205	3.928
401	2000	6.205	3.928
402	2005	6.205	3.928
403	2010	6.205	3.928
404	2015	6.205	3.928
405	2020	6.205	3.928
406	2025	6.205	3.928
407	2030	6.205	3.928
408	2035	6.205	3.928
409	2040	6.205	3.928
410	2045	6.205	3.928
411	2050	6.205	3.928
412	2055	6.205	3.928
413	2060	6.205	3.928
414	2065	6.205	3.928
415	2070	6.205	3.928
416	2075	6.205	3.928
417	2080	6.238	3.961
418	2085	6.238	3.961
419	2090	6.205	3.928
420	2095	6.205	3.928
421	2100	6.205	3.928
422	2105	6.205	3.928
423	2110	6.205	3.928
424	2115	6.205	3.928
425	2120	6.205	3.928
426	2125	6.205	3.928
427	2130	6.205	3.928
428	2135	6.238	3.961
429	2140	6.205	3.928
430	2145	6.205	3.928
431	2150	6.205	3.928
432	2155	6.205	3.928
433	2160	6.205	3.928
434	2165	6.205	3.928
435	2170	6.205	3.928

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	6.238	3.961
437	2180	6.205	3.928
438	2185	7.104	4.827
439	2190	7.137	4.86
440	2195	6.305	4.028
441	2200	6.238	3.961
442	2205	6.238	3.961
443	2210	6.238	3.961
444	2215	6.238	3.961
445	2220	6.338	4.061
446	2225	6.238	3.961
447	2230	6.238	3.961
448	2235	6.238	3.961
449	2240	6.238	3.961
450	2245	7.77	5.493
451	2250	6.238	3.961
452	2255	6.238	3.961
453	2260	6.238	3.961
454	2265	6.238	3.961
455	2270	6.238	3.961
456	2275	6.238	3.961
457	2280	7.57	5.293
458	2285	6.238	3.961
459	2290	6.238	3.961
460	2295	6.238	3.961
461	2300	6.238	3.961
462	2305	6.238	3.961
463	2310	6.238	3.961
464	2315	6.238	3.961
465	2320	6.238	3.961
466	2325	6.238	3.961
467	2330	6.238	3.961
468	2335	6.238	3.961
469	2340	6.238	3.961
470	2345	6.272	3.995
471	2350	6.238	3.961
472	2355	6.272	3.995
473	2360	6.238	3.961
474	2365	6.238	3.961
475	2370	6.238	3.961
476	2375	6.272	3.995
477	2380	6.238	3.961
478	2385	6.238	3.961
479	2390	6.238	3.961
480	2395	6.238	3.961
481	2400	6.238	3.961
482	2405	6.238	3.961
483	2410	6.238	3.961
484	2415	6.238	3.961
485	2420	6.238	3.961
486	2425	6.272	3.995
487	2430	6.272	3.995
488	2435	6.272	3.995
489	2440	6.272	3.995
490	2445	6.272	3.995
491	2450	6.272	3.995
492	2455	6.272	3.995
493	2460	6.272	3.995
494	2465	6.272	3.995
495	2470	6.272	3.995
496	2475	6.272	3.995
497	2480	6.272	3.995
498	2485	6.272	3.995

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	6.272	3.995
500	2495	6.272	3.995
501	2500	6.272	3.995
502	2505	6.272	3.995
503	2510	7.936	5.659
504	2515	6.272	3.995
505	2520	6.272	3.995
506	2525	6.272	3.995
507	2530	6.272	3.995
508	2535	6.272	3.995
509	2540	6.272	3.995
510	2545	6.272	3.995
511	2550	6.305	4.028
512	2555	7.903	5.626
513	2560	6.272	3.995
514	2565	6.305	4.028
515	2570	6.305	4.028
516	2575	6.305	4.028
517	2580	6.305	4.028
518	2585	6.305	4.028
519	2590	6.305	4.028
520	2595	6.305	4.028
521	2600	6.305	4.028
522	2605	6.305	4.028
523	2610	6.305	4.028
524	2615	6.305	4.028
525	2620	6.305	4.028
526	2625	6.305	4.028
527	2630	6.305	4.028
528	2635	6.305	4.028
529	2640	6.305	4.028
530	2645	6.305	4.028
531	2650	6.305	4.028
532	2655	6.305	4.028
533	2660	6.305	4.028
534	2665	6.305	4.028
535	2670	6.305	4.028
536	2675	6.305	4.028
537	2680	6.305	4.028
538	2685	6.305	4.028
539	2690	6.305	4.028
540	2695	6.305	4.028
541	2700	6.305	4.028
542	2705	6.305	4.028
543	2710	6.305	4.028
544	2715	6.305	4.028
545	2720	6.305	4.028
546	2725	6.305	4.028
547	2730	6.305	4.028
548	2735	6.305	4.028
549	2740	6.305	4.028
550	2745	6.305	4.028
551	2750	6.305	4.028
552	2755	6.305	4.028
553	2760	6.305	4.028
554	2765	6.305	4.028
555	2770	7.67	5.393
556	2775	6.305	4.028
557	2780	6.338	4.061
558	2785	6.305	4.028
559	2790	6.338	4.061
560	2795	6.305	4.028
561	2800	6.305	4.028

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	6.305	4.028
563	2810	6.305	4.028
564	2815	6.305	4.028
565	2820	6.305	4.028
566	2825	6.338	4.061
567	2830	6.338	4.061
568	2835	6.338	4.061
569	2840	6.305	4.028
570	2845	6.338	4.061
571	2850	6.338	4.061
572	2855	6.338	4.061
573	2860	6.338	4.061
574	2865	6.338	4.061
575	2870	6.338	4.061
576	2875	6.338	4.061
577	2880	6.338	4.061
578	2885	6.338	4.061
579	2890	6.338	4.061
580	2895	6.338	4.061
581	2900	6.338	4.061
582	2905	6.338	4.061
583	2910	6.338	4.061
584	2915	6.338	4.061
585	2920	6.338	4.061
586	2925	6.338	4.061
587	2930	6.338	4.061
588	2935	6.338	4.061
589	2940	6.338	4.061
590	2945	6.338	4.061
591	2950	6.338	4.061
592	2955	6.338	4.061
593	2960	6.338	4.061
594	2965	6.338	4.061
595	2970	6.338	4.061
596	2975	6.371	4.094
597	2980	6.338	4.061
598	2985	6.371	4.094
599	2990	6.371	4.094
600	2995	6.371	4.094
601	3000	6.371	4.094
602	3005	6.371	4.094
603	3010	6.371	4.094
604	3015	7.703	5.426
605	3020	6.371	4.094
606	3025	6.371	4.094
607	3030	6.371	4.094
608	3035	6.371	4.094
609	3040	6.371	4.094
610	3045	6.371	4.094
611	3050	6.371	4.094
612	3055	6.371	4.094
613	3060	6.371	4.094
614	3065	6.371	4.094
615	3070	6.371	4.094
616	3075	6.371	4.094
617	3080	6.371	4.094
618	3085	6.371	4.094
619	3090	6.371	4.094
620	3095	6.371	4.094
621	3100	6.371	4.094
622	3105	6.371	4.094
623	3110	6.371	4.094
624	3115	6.371	4.094

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	6.371	4.094
626	3125	6.405	4.128
627	3130	6.405	4.128
628	3135	6.405	4.128
629	3140	6.405	4.128
630	3145	6.405	4.128
631	3150	6.405	4.128
632	3155	6.405	4.128
633	3160	6.405	4.128
634	3165	6.405	4.128
635	3170	6.405	4.128
636	3175	6.438	4.161
637	3180	6.405	4.128
638	3185	6.438	4.161
639	3190	8.069	5.792
640	3195	6.438	4.161
641	3200	6.438	4.161
642	3205	6.438	4.161
643	3210	6.438	4.161
644	3215	6.438	4.161
645	3220	6.438	4.161
646	3225	6.438	4.161
647	3230	6.438	4.161
648	3235	6.471	4.194
649	3240	6.438	4.161
650	3245	6.438	4.161
651	3250	6.438	4.161
652	3255	6.438	4.161
653	3260	6.438	4.161
654	3265	6.471	4.194
655	3270	6.438	4.161
656	3275	6.438	4.161
657	3280	6.471	4.194
658	3285	6.471	4.194
659	3290	6.471	4.194
660	3295	6.471	4.194
661	3300	6.471	4.194
662	3305	6.471	4.194
663	3310	6.471	4.194
664	3315	6.471	4.194
665	3320	6.471	4.194
666	3325	6.471	4.194
667	3330	6.471	4.194
668	3335	6.471	4.194
669	3340	6.471	4.194
670	3345	6.471	4.194
671	3350	6.471	4.194
672	3355	6.471	4.194
673	3360	6.471	4.194
674	3365	6.471	4.194
675	3370	6.471	4.194
676	3375	6.471	4.194
677	3380	6.471	4.194
678	3385	6.471	4.194
679	3390	6.471	4.194
680	3395	6.471	4.194
681	3400	6.471	4.194
682	3405	6.471	4.194
683	3410	6.471	4.194
684	3415	6.471	4.194
685	3420	6.471	4.194
686	3425	6.471	4.194
687	3430	6.471	4.194

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	6.505	4.228
689	3440	6.505	4.228
690	3445	6.505	4.228
691	3450	6.505	4.228
692	3455	6.505	4.228
693	3460	6.505	4.228
694	3465	6.505	4.228
695	3470	6.505	4.228
696	3475	6.505	4.228
697	3480	6.505	4.228
698	3485	6.505	4.228
699	3490	6.505	4.228
700	3495	6.505	4.228
701	3500	6.505	4.228
702	3505	6.505	4.228
703	3510	6.505	4.228
704	3515	6.505	4.228
705	3520	6.505	4.228
706	3525	6.505	4.228
707	3530	6.505	4.228
708	3535	6.505	4.228
709	3540	6.505	4.228
710	3545	6.505	4.228
711	3550	6.505	4.228
712	3555	6.505	4.228
713	3560	6.505	4.228
714	3565	6.505	4.228
715	3570	6.505	4.228
716	3575	6.505	4.228
717	3580	6.505	4.228
718	3585	6.505	4.228
719	3590	6.505	4.228
720	3595	6.505	4.228
721	3600	6.505	4.228
722	3605	6.505	4.228
723	3610	6.505	4.228
724	3615	6.505	4.228
725	3620	6.505	4.228
726	3625	6.505	4.228
727	3630	6.505	4.228
728	3635	6.505	4.228
729	3640	6.505	4.228
730	3645	6.505	4.228
731	3650	6.505	4.228
732	3655	6.505	4.228
733	3660	6.505	4.228
734	3665	6.505	4.228
735	3670	6.505	4.228
736	3675	6.505	4.228
737	3680	6.505	4.228
738	3685	6.505	4.228
739	3690	6.505	4.228
740	3695	6.505	4.228
741	3700	6.505	4.228
742	3705	6.505	4.228
743	3710	6.505	4.228
744	3715	6.505	4.228
745	3720	6.505	4.228
746	3725	6.505	4.228
747	3730	6.505	4.228
748	3735	6.505	4.228
749	3740	6.505	4.228
750	3745	6.538	4.261

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	6.505	4.228
752	3755	6.538	4.261
753	3760	6.538	4.261
754	3765	6.538	4.261
755	3770	6.538	4.261
756	3775	6.538	4.261
757	3780	6.538	4.261
758	3785	6.538	4.261
759	3790	6.538	4.261
760	3795	6.538	4.261
761	3800	6.538	4.261
762	3805	6.538	4.261
763	3810	6.538	4.261
764	3815	6.538	4.261
765	3820	6.538	4.261
766	3825	6.538	4.261
767	3830	6.538	4.261
768	3835	6.538	4.261
769	3840	6.538	4.261
770	3845	6.538	4.261
771	3850	6.538	4.261
772	3855	6.538	4.261
773	3860	6.538	4.261
774	3865	6.538	4.261
775	3870	6.538	4.261
776	3875	6.538	4.261
777	3880	6.538	4.261
778	3885	6.571	4.294
779	3890	6.571	4.294
780	3895	6.571	4.294
781	3900	6.571	4.294
782	3905	6.571	4.294
783	3910	6.571	4.294
784	3915	6.571	4.294
785	3920	6.571	4.294
786	3925	6.571	4.294
787	3930	6.571	4.294
788	3935	6.638	4.361
789	3940	7.536	5.259
790	3945	6.671	4.394
791	3950	6.571	4.294
792	3955	6.571	4.294
793	3960	6.571	4.294
794	3965	6.571	4.294
795	3970	6.571	4.294
796	3975	6.571	4.294
797	3980	6.571	4.294
798	3985	6.571	4.294
799	3990	6.571	4.294
800	3995	6.571	4.294
801	4000	6.571	4.294
802	4005	6.571	4.294
803	4010	6.571	4.294
804	4015	6.571	4.294
805	4020	6.571	4.294
806	4025	6.604	4.327
807	4030	6.604	4.327
808	4035	6.604	4.327
809	4040	6.604	4.327
810	4045	6.604	4.327
811	4050	6.604	4.327
812	4055	6.604	4.327
813	4060	6.604	4.327

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	6.604	4.327
815	4070	6.604	4.327
816	4075	6.604	4.327
817	4080	6.604	4.327
818	4085	6.604	4.327
819	4090	6.604	4.327
820	4095	6.604	4.327
821	4100	6.604	4.327
822	4105	6.604	4.327
823	4110	6.604	4.327
824	4115	6.604	4.327
825	4120	6.604	4.327
826	4125	6.604	4.327
827	4130	6.604	4.327
828	4135	6.604	4.327
829	4140	6.604	4.327
830	4145	6.604	4.327
831	4150	6.604	4.327
832	4155	6.604	4.327
833	4160	6.604	4.327
834	4165	6.604	4.327
835	4170	6.604	4.327
836	4175	6.604	4.327
837	4180	6.604	4.327
838	4185	6.604	4.327
839	4190	6.604	4.327
840	4195	6.604	4.327
841	4200	6.604	4.327
842	4205	6.604	4.327
843	4210	6.604	4.327
844	4215	6.604	4.327
845	4220	6.604	4.327
846	4225	6.604	4.327
847	4230	6.604	4.327
848	4235	6.604	4.327
849	4240	6.604	4.327
850	4245	6.604	4.327
851	4250	6.604	4.327
852	4255	6.604	4.327
853	4260	6.604	4.327
854	4265	6.604	4.327
855	4270	6.604	4.327
856	4275	6.604	4.327
857	4280	6.604	4.327
858	4285	6.604	4.327
859	4290	6.604	4.327
860	4295	6.604	4.327
861	4300	6.604	4.327
862	4305	7.969	5.692
863	4310	6.604	4.327
864	4315	6.604	4.327
865	4320	6.604	4.327
866	4325	6.604	4.327
867	4330	6.604	4.327
868	4335	6.604	4.327
869	4340	6.604	4.327
870	4345	6.604	4.327
871	4350	6.604	4.327
872	4355	6.604	4.327
873	4360	6.604	4.327
874	4365	6.604	4.327
875	4370	6.604	4.327
876	4375	6.604	4.327

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	6.604	4.327
878	4385	6.604	4.327
879	4390	6.604	4.327
880	4395	6.604	4.327
881	4400	6.604	4.327
882	4405	6.604	4.327
883	4410	6.604	4.327
884	4415	6.604	4.327
885	4420	6.604	4.327
886	4425	6.604	4.327
887	4430	6.604	4.327
888	4435	6.604	4.327
889	4440	6.604	4.327
890	4445	6.604	4.327
891	4450	6.604	4.327
892	4455	6.604	4.327
893	4460	6.604	4.327
894	4465	6.604	4.327
895	4470	6.604	4.327
896	4475	6.604	4.327
897	4480	6.604	4.327
898	4485	6.604	4.327
899	4490	6.604	4.327
900	4495	6.604	4.327
901	4500	6.604	4.327
902	4505	6.604	4.327
903	4510	6.604	4.327
904	4515	6.604	4.327
905	4520	6.604	4.327
906	4525	6.604	4.327
907	4530	6.604	4.327
908	4535	6.604	4.327
909	4540	6.604	4.327
910	4545	6.604	4.327
911	4550	6.604	4.327
912	4555	6.604	4.327
913	4560	6.604	4.327
914	4565	6.671	4.394
915	4570	6.604	4.327
916	4575	6.638	4.361
917	4580	6.871	4.594
918	4585	6.638	4.361
919	4590	6.638	4.361
920	4595	7.736	5.459
921	4600	6.638	4.361
922	4605	6.638	4.361
923	4610	6.638	4.361
924	4615	6.638	4.361
925	4620	6.638	4.361
926	4625	6.638	4.361
927	4630	6.638	4.361
928	4635	6.638	4.361
929	4640	6.638	4.361
930	4645	6.638	4.361
931	4650	6.638	4.361
932	4655	6.638	4.361
933	4660	6.638	4.361
934	4665	6.638	4.361
935	4670	6.638	4.361
936	4675	6.638	4.361
937	4680	6.638	4.361
938	4685	6.638	4.361
939	4690	6.638	4.361

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	6.638	4.361
941	4700	6.638	4.361
942	4705	6.638	4.361
943	4710	6.638	4.361
944	4715	6.638	4.361
945	4720	6.638	4.361
946	4725	6.638	4.361
947	4730	6.638	4.361
948	4735	6.638	4.361
949	4740	6.638	4.361
950	4745	6.638	4.361
951	4750	6.671	4.394
952	4755	6.671	4.394
953	4760	6.671	4.394
954	4765	6.671	4.394
955	4770	6.671	4.394
956	4775	6.671	4.394
957	4780	6.671	4.394
958	4785	6.638	4.361
959	4790	6.671	4.394
960	4795	6.671	4.394
961	4800	6.671	4.394
962	4805	6.671	4.394
963	4810	6.671	4.394
964	4815	6.671	4.394
965	4820	6.671	4.394
966	4825	6.671	4.394
967	4830	6.671	4.394
968	4835	6.671	4.394
969	4840	6.671	4.394
970	4845	6.671	4.394
971	4850	7.67	5.393
972	4855	6.671	4.394
973	4860	6.671	4.394
974	4865	6.671	4.394
975	4870	6.671	4.394
976	4875	6.671	4.394
977	4880	6.671	4.394
978	4885	6.671	4.394
979	4890	6.671	4.394
980	4895	6.671	4.394
981	4900	6.671	4.394
982	4905	6.671	4.394
983	4910	6.671	4.394
984	4915	6.671	4.394
985	4920	6.671	4.394
986	4925	6.671	4.394
987	4930	6.671	4.394
988	4935	6.671	4.394
989	4940	6.671	4.394
990	4945	6.671	4.394
991	4950	6.671	4.394
992	4955	6.671	4.394
993	4960	6.671	4.394
994	4965	7.47	5.193
995	4970	6.871	4.594
996	4975	6.671	4.394
997	4980	6.671	4.394
998	4985	6.671	4.394
999	4990	6.671	4.394
1000	4995	6.671	4.394
1001	5000	7.004	4.727
1002	5005	6.671	4.394

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	6.671	4.394
1004	5015	6.671	4.394
1005	5020	6.671	4.394
1006	5025	6.671	4.394
1007	5030	6.671	4.394
1008	5035	6.671	4.394
1009	5040	6.671	4.394
1010	5045	6.671	4.394
1011	5050	6.671	4.394
1012	5055	6.671	4.394
1013	5060	6.671	4.394
1014	5065	6.671	4.394
1015	5070	6.671	4.394
1016	5075	6.671	4.394
1017	5080	6.671	4.394
1018	5085	6.671	4.394
1019	5090	6.671	4.394
1020	5095	6.671	4.394
1021	5100	6.671	4.394
1022	5105	6.671	4.394
1023	5110	6.671	4.394
1024	5115	6.671	4.394
1025	5120	6.671	4.394
1026	5125	6.671	4.394
1027	5130	6.671	4.394
1028	5135	6.671	4.394
1029	5140	6.671	4.394
1030	5145	6.671	4.394
1031	5150	6.671	4.394
1032	5155	6.671	4.394
1033	5160	6.671	4.394
1034	5165	6.671	4.394
1035	5170	6.671	4.394
1036	5175	6.671	4.394
1037	5180	6.671	4.394
1038	5185	6.671	4.394
1039	5190	6.671	4.394
1040	5195	6.671	4.394
1041	5200	6.671	4.394
1042	5205	6.671	4.394
1043	5210	6.671	4.394
1044	5215	6.671	4.394
1045	5220	6.671	4.394
1046	5225	6.671	4.394
1047	5230	6.671	4.394
1048	5235	6.671	4.394
1049	5240	6.671	4.394
1050	5245	6.704	4.427
1051	5250	6.704	4.427
1052	5255	6.704	4.427
1053	5260	6.671	4.394
1054	5265	6.704	4.427
1055	5270	6.671	4.394
1056	5275	6.704	4.427
1057	5280	6.704	4.427
1058	5285	6.704	4.427
1059	5290	6.704	4.427
1060	5295	6.704	4.427
1061	5300	6.704	4.427
1062	5305	6.704	4.427
1063	5310	6.704	4.427
1064	5315	6.704	4.427
1065	5320	6.704	4.427

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	6.704	4.427
1067	5330	6.704	4.427
1068	5335	6.704	4.427
1069	5340	6.704	4.427
1070	5345	6.704	4.427
1071	5350	6.704	4.427
1072	5355	6.704	4.427
1073	5360	6.704	4.427
1074	5365	6.704	4.427
1075	5370	6.704	4.427
1076	5375	6.704	4.427
1077	5380	6.704	4.427
1078	5385	6.704	4.427
1079	5390	6.704	4.427
1080	5395	6.704	4.427
1081	5400	6.704	4.427
1082	5405	6.704	4.427
1083	5410	6.704	4.427
1084	5415	6.738	4.461
1085	5420	6.738	4.461
1086	5425	6.738	4.461
1087	5430	6.738	4.461
1088	5435	6.738	4.461
1089	5440	6.738	4.461
1090	5445	6.738	4.461
1091	5450	6.738	4.461
1092	5455	7.503	5.226
1093	5460	6.738	4.461
1094	5465	6.738	4.461
1095	5470	6.738	4.461
1096	5475	6.738	4.461
1097	5480	6.738	4.461
1098	5485	6.738	4.461
1099	5490	6.738	4.461
1100	5495	6.738	4.461
1101	5500	6.771	4.494
1102	5505	6.738	4.461
1103	5510	6.738	4.461
1104	5515	6.771	4.494
1105	5520	8.202	5.925
1106	5525	8.535	6.258
1107	5530	6.771	4.494
1108	5535	6.771	4.494
1109	5540	6.771	4.494
1110	5545	6.771	4.494
1111	5550	6.771	4.494
1112	5555	6.771	4.494
1113	5560	6.771	4.494
1114	5565	6.771	4.494
1115	5570	6.771	4.494
1116	5575	6.771	4.494
1117	5580	6.771	4.494
1118	5585	6.771	4.494
1119	5590	6.771	4.494
1120	5595	6.771	4.494
1121	5600	6.771	4.494
1122	5605	6.771	4.494
1123	5610	6.771	4.494
1124	5615	6.771	4.494
1125	5620	6.771	4.494
1126	5625	6.771	4.494
1127	5630	6.771	4.494
1128	5635	6.771	4.494

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	6.804	4.527
1130	5645	6.771	4.494
1131	5650	6.771	4.494
1132	5655	6.771	4.494
1133	5660	6.804	4.527
1134	5665	6.771	4.494
1135	5670	6.804	4.527
1136	5675	6.804	4.527
1137	5680	6.804	4.527
1138	5685	6.804	4.527
1139	5690	6.804	4.527
1140	5695	6.771	4.494
1141	5700	6.804	4.527
1142	5705	6.804	4.527
1143	5710	6.804	4.527
1144	5715	6.804	4.527
1145	5720	6.771	4.494
1146	5725	6.804	4.527
1147	5730	6.804	4.527
1148	5735	6.804	4.527
1149	5740	6.804	4.527
1150	5745	6.804	4.527
1151	5750	6.804	4.527
1152	5755	6.804	4.527
1153	5760	6.804	4.527
1154	5765	6.804	4.527
1155	5770	6.804	4.527
1156	5775	6.804	4.527
1157	5780	6.804	4.527
1158	5785	6.804	4.527
1159	5790	6.804	4.527
1160	5795	6.804	4.527
1161	5800	6.804	4.527
1162	5805	6.804	4.527
1163	5810	6.804	4.527
1164	5815	6.804	4.527
1165	5820	6.804	4.527
1166	5825	6.804	4.527
1167	5830	6.804	4.527
1168	5835	6.804	4.527
1169	5840	6.804	4.527
1170	5845	6.804	4.527
1171	5850	6.804	4.527
1172	5855	6.804	4.527
1173	5860	6.804	4.527
1174	5865	6.837	4.56
1175	5870	6.804	4.527
1176	5875	6.804	4.527
1177	5880	6.837	4.56
1178	5885	6.837	4.56
1179	5890	6.804	4.527
1180	5895	6.804	4.527
1181	5900	6.804	4.527
1182	5905	6.804	4.527
1183	5910	6.804	4.527
1184	5915	6.837	4.56
1185	5920	6.804	4.527
1186	5925	6.837	4.56
1187	5930	6.804	4.527
1188	5935	6.837	4.56
1189	5940	6.837	4.56
1190	5945	6.837	4.56
1191	5950	6.837	4.56

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	6.837	4.56
1193	5960	6.837	4.56
1194	5965	6.837	4.56
1195	5970	6.837	4.56
1196	5975	6.837	4.56
1197	5980	6.837	4.56
1198	5985	6.837	4.56
1199	5990	6.837	4.56
1200	5995	6.837	4.56
1201	6000	6.837	4.56
1202	6005	6.837	4.56
1203	6010	6.837	4.56
1204	6015	6.837	4.56
1205	6020	6.837	4.56
1206	6025	6.837	4.56
1207	6030	6.837	4.56
1208	6035	6.837	4.56
1209	6040	6.837	4.56
1210	6045	6.837	4.56
1211	6050	6.837	4.56
1212	6055	6.837	4.56
1213	6060	6.837	4.56
1214	6065	6.837	4.56
1215	6070	6.837	4.56
1216	6075	6.837	4.56
1217	6080	6.871	4.594
1218	6085	6.837	4.56
1219	6090	6.837	4.56
1220	6095	6.837	4.56
1221	6100	6.837	4.56
1222	6105	6.837	4.56
1223	6110	6.871	4.594
1224	6115	6.871	4.594
1225	6120	6.871	4.594
1226	6125	6.871	4.594
1227	6130	6.871	4.594
1228	6135	6.871	4.594
1229	6140	6.871	4.594
1230	6145	6.871	4.594
1231	6150	6.871	4.594
1232	6155	6.871	4.594
1233	6160	6.871	4.594
1234	6165	6.871	4.594
1235	6170	6.904	4.627
1236	6175	6.871	4.594
1237	6180	6.871	4.594
1238	6185	6.904	4.627
1239	6190	6.904	4.627
1240	6195	6.904	4.627
1241	6200	6.904	4.627
1242	6205	6.904	4.627
1243	6210	6.904	4.627
1244	6215	6.904	4.627
1245	6220	6.904	4.627
1246	6225	6.904	4.627
1247	6230	6.904	4.627
1248	6235	6.904	4.627
1249	6240	6.904	4.627
1250	6245	6.904	4.627
1251	6250	6.904	4.627
1252	6255	6.904	4.627
1253	6260	6.904	4.627
1254	6265	6.904	4.627

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	6.937	4.66
1256	6275	6.937	4.66
1257	6280	6.904	4.627
1258	6285	6.937	4.66
1259	6290	6.937	4.66
1260	6295	6.937	4.66
1261	6300	6.937	4.66
1262	6305	6.937	4.66
1263	6310	6.937	4.66
1264	6315	6.937	4.66
1265	6320	6.937	4.66
1266	6325	6.937	4.66
1267	6330	6.937	4.66
1268	6335	6.937	4.66
1269	6340	6.937	4.66
1270	6345	6.937	4.66
1271	6350	6.937	4.66
1272	6355	6.937	4.66
1273	6360	6.937	4.66
1274	6365	6.937	4.66
1275	6370	6.937	4.66
1276	6375	6.937	4.66
1277	6380	6.937	4.66
1278	6385	6.971	4.694
1279	6390	6.971	4.694
1280	6395	6.971	4.694
1281	6400	6.971	4.694
1282	6405	6.971	4.694
1283	6410	6.971	4.694
1284	6415	6.971	4.694
1285	6420	6.971	4.694
1286	6425	6.971	4.694
1287	6430	6.971	4.694
1288	6435	6.971	4.694
1289	6440	6.971	4.694
1290	6445	6.971	4.694
1291	6450	6.971	4.694
1292	6455	6.971	4.694
1293	6460	6.971	4.694
1294	6465	6.971	4.694
1295	6470	6.971	4.694
1296	6475	6.971	4.694
1297	6480	6.971	4.694
1298	6485	6.971	4.694
1299	6490	6.971	4.694
1300	6495	6.971	4.694
1301	6500	6.971	4.694
1302	6505	6.971	4.694
1303	6510	6.937	4.66
1304	6515	6.971	4.694
1305	6520	6.937	4.66
1306	6525	6.971	4.694
1307	6530	6.971	4.694
1308	6535	6.971	4.694
1309	6540	6.971	4.694
1310	6545	6.937	4.66
1311	6550	6.971	4.694
1312	6555	6.971	4.694
1313	6560	6.971	4.694
1314	6565	6.971	4.694
1315	6570	6.971	4.694
1316	6575	6.971	4.694
1317	6580	6.971	4.694

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	6.971	4.694
1319	6590	6.971	4.694
1320	6595	6.971	4.694
1321	6600	6.971	4.694
1322	6605	6.971	4.694
1323	6610	6.971	4.694
1324	6615	6.971	4.694
1325	6620	6.971	4.694
1326	6625	6.971	4.694
1327	6630	6.971	4.694
1328	6635	6.971	4.694
1329	6640	6.971	4.694
1330	6645	6.971	4.694
1331	6650	6.971	4.694
1332	6655	6.971	4.694
1333	6660	6.971	4.694
1334	6665	6.971	4.694
1335	6670	6.971	4.694
1336	6675	6.971	4.694
1337	6680	6.971	4.694
1338	6685	6.971	4.694
1339	6690	6.971	4.694
1340	6695	6.971	4.694
1341	6700	6.971	4.694
1342	6705	6.971	4.694
1343	6710	6.971	4.694
1344	6715	6.971	4.694
1345	6720	6.971	4.694
1346	6725	6.971	4.694
1347	6730	7.004	4.727
1348	6735	7.004	4.727
1349	6740	7.004	4.727
1350	6745	7.004	4.727
1351	6750	7.004	4.727
1352	6755	7.004	4.727
1353	6760	7.004	4.727
1354	6765	7.004	4.727
1355	6770	7.004	4.727
1356	6775	7.004	4.727
1357	6780	7.004	4.727
1358	6785	7.004	4.727
1359	6790	7.004	4.727
1360	6795	7.004	4.727
1361	6800	7.004	4.727
1362	6805	7.004	4.727
1363	6810	7.004	4.727
1364	6815	7.004	4.727
1365	6820	7.004	4.727
1366	6825	7.004	4.727
1367	6830	8.202	5.925
1368	6835	7.037	4.76
1369	6840	7.037	4.76
1370	6845	7.037	4.76
1371	6850	7.037	4.76
1372	6855	7.037	4.76
1373	6860	7.037	4.76
1374	6865	7.037	4.76
1375	6870	7.037	4.76
1376	6875	7.037	4.76
1377	6880	7.037	4.76
1378	6885	7.037	4.76
1379	6890	7.037	4.76
1380	6895	7.037	4.76

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	7.037	4.76
1382	6905	7.07	4.793
1383	6910	7.07	4.793
1384	6915	7.07	4.793
1385	6920	7.07	4.793
1386	6925	7.07	4.793
1387	6930	7.07	4.793
1388	6935	7.07	4.793
1389	6940	7.07	4.793
1390	6945	7.07	4.793
1391	6950	7.07	4.793
1392	6955	7.104	4.827
1393	6960	7.104	4.827
1394	6965	7.104	4.827
1395	6970	7.104	4.827
1396	6975	7.104	4.827
1397	6980	7.104	4.827
1398	6985	7.104	4.827
1399	6990	7.104	4.827
1400	6995	7.137	4.86
1401	7000	7.104	4.827
1402	7005	7.104	4.827
1403	7010	7.104	4.827
1404	7015	7.104	4.827
1405	7020	7.104	4.827
1406	7025	7.137	4.86
1407	7030	7.137	4.86
1408	7035	7.137	4.86
1409	7040	7.137	4.86
1410	7045	7.137	4.86
1411	7050	7.137	4.86
1412	7055	7.137	4.86
1413	7060	7.137	4.86
1414	7065	7.137	4.86
1415	7070	7.137	4.86
1416	7075	7.137	4.86
1417	7080	7.137	4.86
1418	7085	7.137	4.86
1419	7090	7.17	4.893
1420	7095	7.137	4.86
1421	7100	7.17	4.893
1422	7105	7.17	4.893
1423	7110	8.269	5.992
1424	7115	7.17	4.893
1425	7120	7.17	4.893
1426	7125	7.17	4.893
1427	7130	7.17	4.893
1428	7135	7.17	4.893
1429	7140	7.17	4.893
1430	7145	7.17	4.893
1431	7150	7.204	4.927
1432	7155	7.204	4.927
1433	7160	7.204	4.927
1434	7165	7.204	4.927
1435	7170	7.204	4.927
1436	7175	7.204	4.927
1437	7180	7.204	4.927
1438	7185	7.204	4.927
1439	7190	7.337	5.06
1440	7195	8.003	5.726
1441	7200	8.102	5.825
1442	7205	8.202	5.925
1443	7210	8.335	6.058

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	8.502	6.225
1445	7220	8.003	5.726
1446	7225	8.102	5.825
1447	7230	7.204	4.927
1448	7235	7.204	4.927
1449	7240	7.204	4.927
1450	7245	7.237	4.96
1451	7250	7.204	4.927
1452	7255	7.237	4.96
1453	7260	7.204	4.927
1454	7265	8.735	6.458
1455	7270	7.237	4.96
1456	7275	7.204	4.927
1457	7280	7.204	4.927
1458	7285	7.237	4.96
1459	7290	7.237	4.96
1460	7295	7.237	4.96
1461	7300	8.568	6.291
1462	7305	8.768	6.491
1463	7310	7.237	4.96
1464	7315	7.204	4.927
1465	7320	7.237	4.96
1466	7325	7.237	4.96
1467	7330	7.237	4.96
1468	7335	8.402	6.125
1469	7340	7.237	4.96
1470	7345	7.237	4.96
1471	7350	7.237	4.96
1472	7355	7.237	4.96
1473	7360	7.237	4.96
1474	7365	7.237	4.96
1475	7370	7.237	4.96
1476	7375	7.237	4.96
1477	7380	7.237	4.96
1478	7385	7.237	4.96
1479	7390	7.237	4.96
1480	7395	7.237	4.96
1481	7400	7.27	4.993
1482	7405	7.27	4.993
1483	7410	7.27	4.993
1484	7415	7.27	4.993
1485	7420	7.27	4.993
1486	7425	7.27	4.993
1487	7430	7.27	4.993
1488	7435	7.27	4.993
1489	7440	7.27	4.993
1490	7445	7.27	4.993
1491	7450	7.27	4.993
1492	7455	7.27	4.993
1493	7460	7.27	4.993
1494	7465	7.27	4.993
1495	7470	7.27	4.993
1496	7475	7.27	4.993
1497	7480	7.303	5.026
1498	7485	7.27	4.993
1499	7490	7.27	4.993
1500	7495	7.27	4.993
1501	7500	7.27	4.993
1502	7505	7.27	4.993
1503	7510	7.303	5.026
1504	7515	7.27	4.993
1505	7520	7.303	5.026
1506	7525	7.303	5.026

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	7.303	5.026
1508	7535	7.303	5.026
1509	7540	7.303	5.026
1510	7545	7.303	5.026
1511	7550	7.303	5.026
1512	7555	7.303	5.026
1513	7560	7.303	5.026
1514	7565	7.303	5.026
1515	7570	7.303	5.026
1516	7575	7.303	5.026
1517	7580	7.303	5.026
1518	7585	7.303	5.026
1519	7590	7.303	5.026
1520	7595	7.303	5.026
1521	7600	7.303	5.026
1522	7605	7.337	5.06
1523	7610	7.337	5.06
1524	7615	7.337	5.06
1525	7620	7.337	5.06
1526	7625	7.337	5.06
1527	7630	7.337	5.06
1528	7635	7.37	5.093
1529	7640	8.302	6.025
1530	7645	7.337	5.06
1531	7650	7.37	5.093
1532	7655	7.37	5.093
1533	7660	7.337	5.06
1534	7665	7.37	5.093
1535	7670	7.37	5.093
1536	7675	7.437	5.16
1537	7680	7.37	5.093
1538	7685	7.37	5.093
1539	7690	7.37	5.093
1540	7695	7.37	5.093
1541	7700	7.37	5.093
1542	7705	7.37	5.093
1543	7710	7.37	5.093
1544	7715	7.37	5.093
1545	7720	7.37	5.093
1546	7725	7.37	5.093
1547	7730	7.37	5.093
1548	7735	7.37	5.093
1549	7740	7.37	5.093
1550	7745	7.403	5.126
1551	7750	7.403	5.126
1552	7755	7.37	5.093
1553	7760	7.403	5.126
1554	7765	7.403	5.126
1555	7770	7.403	5.126
1556	7775	7.403	5.126
1557	7780	7.403	5.126
1558	7785	7.403	5.126
1559	7790	7.403	5.126
1560	7795	7.403	5.126
1561	7800	7.403	5.126
1562	7805	7.437	5.16
1563	7810	8.202	5.925
1564	7815	7.403	5.126
1565	7820	7.437	5.16
1566	7825	7.437	5.16
1567	7830	7.437	5.16
1568	7835	7.437	5.16
1569	7840	7.437	5.16

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	7.437	5.16
1571	7850	7.437	5.16
1572	7855	7.437	5.16
1573	7860	7.437	5.16
1574	7865	7.437	5.16
1575	7870	7.437	5.16
1576	7875	7.437	5.16
1577	7880	7.437	5.16
1578	7885	7.437	5.16
1579	7890	7.437	5.16
1580	7895	7.47	5.193
1581	7900	7.437	5.16
1582	7905	7.437	5.16
1583	7910	7.437	5.16
1584	7915	7.437	5.16
1585	7920	7.437	5.16
1586	7925	7.437	5.16
1587	7930	7.437	5.16
1588	7935	7.437	5.16
1589	7940	7.47	5.193
1590	7945	9.068	6.791
1591	7950	9.068	6.791
1592	7955	8.901	6.624
1593	7960	7.437	5.16
1594	7965	7.437	5.16
1595	7970	7.437	5.16
1596	7975	7.437	5.16
1597	7980	8.901	6.624
1598	7985	7.437	5.16
1599	7990	7.437	5.16
1600	7995	7.437	5.16
1601	8000	7.437	5.16
1602	8005	7.437	5.16
1603	8010	7.437	5.16
1604	8015	9.134	6.857
1605	8020	7.47	5.193
1606	8025	7.437	5.16
1607	8030	7.47	5.193
1608	8035	7.47	5.193
1609	8040	8.369	6.092
1610	8045	7.47	5.193
1611	8050	7.437	5.16
1612	8055	7.437	5.16
1613	8060	7.437	5.16
1614	8065	7.437	5.16
1615	8070	7.437	5.16
1616	8075	7.437	5.16
1617	8080	7.437	5.16
1618	8085	7.437	5.16
1619	8090	7.47	5.193
1620	8095	7.47	5.193
1621	8100	7.437	5.16
1622	8105	7.437	5.16
1623	8110	7.437	5.16
1624	8115	7.437	5.16
1625	8120	7.437	5.16
1626	8125	7.437	5.16
1627	8130	7.437	5.16
1628	8135	7.437	5.16
1629	8140	7.437	5.16
1630	8145	7.437	5.16
1631	8150	7.437	5.16
1632	8155	7.437	5.16

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	7.437	5.16
1634	8165	7.437	5.16
1635	8170	7.437	5.16
1636	8175	7.437	5.16
1637	8180	7.437	5.16
1638	8185	7.437	5.16
1639	8190	7.437	5.16
1640	8195	7.437	5.16
1641	8200	7.437	5.16
1642	8205	7.437	5.16
1643	8210	7.403	5.126
1644	8215	7.403	5.126
1645	8220	7.403	5.126
1646	8225	7.403	5.126
1647	8230	7.403	5.126
1648	8235	7.403	5.126
1649	8240	7.403	5.126
1650	8245	7.403	5.126
1651	8250	7.403	5.126
1652	8255	7.403	5.126
1653	8260	7.403	5.126
1654	8265	7.403	5.126
1655	8270	7.403	5.126
1656	8275	7.403	5.126
1657	8280	7.403	5.126
1658	8285	7.403	5.126
1659	8290	7.403	5.126
1660	8295	7.403	5.126
1661	8300	7.437	5.16
1662	8305	7.437	5.16
1663	8310	7.437	5.16
1664	8315	7.403	5.126
1665	8320	7.403	5.126
1666	8325	7.403	5.126
1667	8330	7.403	5.126
1668	8335	7.403	5.126
1669	8340	7.437	5.16
1670	8345	7.437	5.16
1671	8350	7.437	5.16
1672	8355	7.437	5.16
1673	8360	7.437	5.16
1674	8365	7.437	5.16
1675	8370	7.437	5.16
1676	8375	7.437	5.16
1677	8380	7.437	5.16
1678	8385	7.437	5.16
1679	8390	7.437	5.16
1680	8395	7.437	5.16
1681	8400	7.437	5.16
1682	8405	7.437	5.16
1683	8410	7.437	5.16
1684	8415	7.437	5.16
1685	8420	7.437	5.16
1686	8425	7.437	5.16
1687	8430	7.437	5.16
1688	8435	7.437	5.16
1689	8440	7.437	5.16
1690	8445	7.437	5.16
1691	8450	7.437	5.16
1692	8455	7.437	5.16
1693	8460	7.437	5.16
1694	8465	7.437	5.16
1695	8470	7.437	5.16

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Page 28 of 42
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	7.437	5.16
1697	8480	7.47	5.193
1698	8485	7.47	5.193
1699	8490	7.47	5.193
1700	8495	7.47	5.193
1701	8500	7.47	5.193
1702	8505	7.47	5.193
1703	8510	7.47	5.193
1704	8515	7.47	5.193
1705	8520	7.47	5.193
1706	8525	7.437	5.16
1707	8530	7.47	5.193
1708	8535	7.47	5.193
1709	8540	7.47	5.193
1710	8545	7.47	5.193
1711	8550	7.47	5.193
1712	8555	7.47	5.193
1713	8560	7.47	5.193
1714	8565	7.47	5.193
1715	8570	7.437	5.16
1716	8575	7.437	5.16
1717	8580	7.437	5.16
1718	8585	7.437	5.16
1719	8590	7.437	5.16
1720	8595	7.437	5.16
1721	8600	7.47	5.193
1722	8605	9.101	6.824
1723	8610	7.437	5.16
1724	8615	7.437	5.16
1725	8620	7.47	5.193
1726	8625	7.437	5.16
1727	8630	8.136	5.859
1728	8635	7.47	5.193
1729	8640	7.47	5.193
1730	8645	7.437	5.16
1731	8650	7.437	5.16
1732	8655	7.47	5.193
1733	8660	7.437	5.16
1734	8665	7.437	5.16
1735	8670	7.437	5.16
1736	8675	7.437	5.16
1737	8680	7.437	5.16
1738	8685	7.437	5.16
1739	8690	7.437	5.16
1740	8695	7.437	5.16
1741	8700	7.437	5.16
1742	8705	7.437	5.16
1743	8710	7.437	5.16
1744	8715	7.437	5.16
1745	8720	7.437	5.16
1746	8725	7.437	5.16
1747	8730	7.437	5.16
1748	8735	7.47	5.193
1749	8740	7.437	5.16
1750	8745	7.437	5.16
1751	8750	7.437	5.16
1752	8755	7.437	5.16
1753	8760	7.437	5.16
1754	8765	9.034	6.757
1755	8770	7.437	5.16
1756	8775	7.437	5.16
1757	8780	8.335	6.058
1758	8785	8.402	6.125

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	9.268	6.991
1760	8795	8.502	6.225
1761	8800	8.069	5.792
1762	8805	7.47	5.193
1763	8810	7.437	5.16
1764	8815	7.437	5.16
1765	8820	7.437	5.16
1766	8825	7.437	5.16
1767	8830	7.437	5.16
1768	8835	7.437	5.16
1769	8840	7.437	5.16
1770	8845	7.437	5.16
1771	8850	7.437	5.16
1772	8855	7.437	5.16
1773	8860	7.437	5.16
1774	8865	7.437	5.16
1775	8870	7.437	5.16
1776	8875	7.437	5.16
1777	8880	7.437	5.16
1778	8885	7.437	5.16
1779	8890	7.437	5.16
1780	8895	7.437	5.16
1781	8900	7.437	5.16
1782	8905	7.403	5.126
1783	8910	7.437	5.16
1784	8915	7.437	5.16
1785	8920	7.437	5.16
1786	8925	7.437	5.16
1787	8930	7.403	5.126
1788	8935	7.403	5.126
1789	8940	7.437	5.16
1790	8945	7.403	5.126
1791	8950	7.437	5.16
1792	8955	7.403	5.126
1793	8960	7.437	5.16
1794	8965	7.403	5.126
1795	8970	7.437	5.16
1796	8975	7.403	5.126
1797	8980	7.403	5.126
1798	8985	7.437	5.16
1799	8990	7.437	5.16
1800	8995	7.437	5.16
1801	9000	7.437	5.16
1802	9005	7.437	5.16
1803	9010	7.437	5.16
1804	9015	7.437	5.16
1805	9020	7.437	5.16
1806	9025	7.403	5.126
1807	9030	7.403	5.126
1808	9035	7.403	5.126
1809	9040	8.901	6.624
1810	9045	7.437	5.16
1811	9050	7.437	5.16
1812	9055	7.403	5.126
1813	9060	7.403	5.126
1814	9065	7.437	5.16
1815	9070	7.403	5.126
1816	9075	7.437	5.16
1817	9080	7.437	5.16
1818	9085	7.437	5.16
1819	9090	7.437	5.16
1820	9095	7.437	5.16
1821	9100	7.437	5.16

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	7.437	5.16
1823	9110	7.437	5.16
1824	9115	7.437	5.16
1825	9120	7.437	5.16
1826	9125	7.437	5.16
1827	9130	7.437	5.16
1828	9135	7.437	5.16
1829	9140	7.437	5.16
1830	9145	7.437	5.16
1831	9150	7.437	5.16
1832	9155	7.437	5.16
1833	9160	7.437	5.16
1834	9165	7.437	5.16
1835	9170	7.437	5.16
1836	9175	7.437	5.16
1837	9180	7.437	5.16
1838	9185	7.437	5.16
1839	9190	7.437	5.16
1840	9195	7.437	5.16
1841	9200	7.437	5.16
1842	9205	7.437	5.16
1843	9210	7.437	5.16
1844	9215	7.437	5.16
1845	9220	7.437	5.16
1846	9225	7.437	5.16
1847	9230	7.437	5.16
1848	9235	7.437	5.16
1849	9240	7.437	5.16
1850	9245	7.437	5.16
1851	9250	7.437	5.16
1852	9255	7.437	5.16
1853	9260	7.437	5.16
1854	9265	7.437	5.16
1855	9270	7.437	5.16
1856	9275	7.437	5.16
1857	9280	7.437	5.16
1858	9285	8.335	6.058
1859	9290	7.437	5.16
1860	9295	7.47	5.193
1861	9300	7.437	5.16
1862	9305	7.437	5.16
1863	9310	7.437	5.16
1864	9315	7.437	5.16
1865	9320	7.437	5.16
1866	9325	7.437	5.16
1867	9330	7.437	5.16
1868	9335	7.437	5.16
1869	9340	7.47	5.193
1870	9345	7.437	5.16
1871	9350	7.437	5.16
1872	9355	7.437	5.16
1873	9360	7.437	5.16
1874	9365	7.437	5.16
1875	9370	7.437	5.16
1876	9375	7.437	5.16
1877	9380	7.437	5.16
1878	9385	7.437	5.16
1879	9390	7.437	5.16
1880	9395	7.437	5.16
1881	9400	7.437	5.16
1882	9405	7.437	5.16
1883	9410	7.437	5.16
1884	9415	7.437	5.16

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data	
Project: OBS-853	
Number: 2014-078-11472	
Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	7.437	5.16
1886	9425	7.437	5.16
1887	9430	7.437	5.16
1888	9435	7.437	5.16
1889	9440	7.437	5.16
1890	9445	7.437	5.16
1891	9450	7.437	5.16
1892	9455	7.437	5.16
1893	9460	7.437	5.16
1894	9465	7.437	5.16
1895	9470	7.437	5.16
1896	9475	7.437	5.16
1897	9480	7.437	5.16
1898	9485	7.403	5.126
1899	9490	7.403	5.126
1900	9495	7.403	5.126
1901	9500	7.403	5.126
1902	9505	7.403	5.126
1903	9510	7.403	5.126
1904	9515	7.403	5.126
1905	9520	7.403	5.126
1906	9525	7.403	5.126
1907	9530	7.403	5.126
1908	9535	7.403	5.126
1909	9540	7.403	5.126
1910	9545	7.403	5.126
1911	9550	7.403	5.126
1912	9555	7.403	5.126
1913	9560	7.403	5.126
1914	9565	7.403	5.126
1915	9570	7.403	5.126
1916	9575	7.37	5.093
1917	9580	7.37	5.093
1918	9585	7.37	5.093
1919	9590	7.37	5.093
1920	9595	7.37	5.093
1921	9600	7.37	5.093
1922	9605	7.37	5.093
1923	9610	7.37	5.093
1924	9615	7.37	5.093
1925	9620	7.337	5.06
1926	9625	7.37	5.093
1927	9630	7.37	5.093
1928	9635	7.37	5.093
1929	9640	7.37	5.093
1930	9645	7.37	5.093
1931	9650	7.37	5.093
1932	9655	7.37	5.093
1933	9660	7.37	5.093
1934	9665	7.337	5.06
1935	9670	7.37	5.093
1936	9675	7.337	5.06
1937	9680	7.37	5.093
1938	9685	7.37	5.093
1939	9690	7.37	5.093
1940	9695	7.337	5.06
1941	9700	7.37	5.093
1942	9705	7.37	5.093
1943	9710	7.37	5.093
1944	9715	7.337	5.06
1945	9720	7.337	5.06
1946	9725	7.337	5.06
1947	9730	7.337	5.06

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	7.37	5.093
1949	9740	8.469	6.192
1950	9745	7.337	5.06
1951	9750	7.337	5.06
1952	9755	7.337	5.06
1953	9760	7.337	5.06
1954	9765	7.337	5.06
1955	9770	7.37	5.093
1956	9775	7.337	5.06
1957	9780	7.337	5.06
1958	9785	7.337	5.06
1959	9790	7.337	5.06
1960	9795	7.337	5.06
1961	9800	7.337	5.06
1962	9805	7.337	5.06
1963	9810	7.337	5.06
1964	9815	7.337	5.06
1965	9820	7.337	5.06
1966	9825	7.37	5.093
1967	9830	7.337	5.06
1968	9835	7.337	5.06
1969	9840	7.337	5.06
1970	9845	7.337	5.06
1971	9850	7.337	5.06
1972	9855	7.337	5.06
1973	9860	7.37	5.093
1974	9865	8.369	6.092
1975	9870	7.37	5.093
1976	9875	7.37	5.093
1977	9880	7.37	5.093
1978	9885	7.337	5.06
1979	9890	7.337	5.06
1980	9895	7.337	5.06
1981	9900	7.37	5.093
1982	9905	7.37	5.093
1983	9910	7.37	5.093
1984	9915	7.37	5.093
1985	9920	7.37	5.093
1986	9925	7.37	5.093
1987	9930	7.37	5.093
1988	9935	7.37	5.093
1989	9940	7.37	5.093
1990	9945	7.37	5.093
1991	9950	7.37	5.093
1992	9955	7.37	5.093
1993	9960	7.636	5.359
1994	9965	7.37	5.093
1995	9970	7.37	5.093
1996	9975	7.37	5.093
1997	9980	7.37	5.093
1998	9985	7.37	5.093
1999	9990	7.37	5.093
2000	9995	7.37	5.093
2001	10000	7.37	5.093
2002	10005	7.37	5.093
2003	10010	7.37	5.093
2004	10015	7.37	5.093
2005	10020	7.37	5.093
2006	10025	7.37	5.093
2007	10030	7.37	5.093
2008	10035	8.502	6.225
2009	10040	7.37	5.093
2010	10045	7.37	5.093

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	7.37	5.093
2012	10055	7.37	5.093
2013	10060	7.37	5.093
2014	10065	7.37	5.093
2015	10070	7.37	5.093
2016	10075	7.37	5.093
2017	10080	7.403	5.126
2018	10085	7.17	4.893
2019	10090	6.904	4.627
2020	10095	6.704	4.427
2021	10100	6.538	4.261
2022	10105	6.405	4.128
2023	10110	6.305	4.028
2024	10115	6.205	3.928
2025	10120	6.105	3.828
2026	10125	6.005	3.728
2027	10130	5.939	3.662
2028	10135	5.839	3.562
2029	10140	5.772	3.495
2030	10145	5.706	3.429
2031	10150	5.672	3.395
2032	10155	5.606	3.329
2033	10160	5.539	3.262
2034	10165	5.506	3.229
2035	10170	5.439	3.162
2036	10175	5.406	3.129
2037	10180	5.339	3.062
2038	10185	5.306	3.029
2039	10190	5.273	2.996
2040	10195	5.24	2.963
2041	10200	5.206	2.929
2042	10205	5.14	2.863
2043	10210	5.106	2.829
2044	10215	5.073	2.796
2045	10220	5.04	2.763
2046	10225	5.007	2.73
2047	10230	4.973	2.696
2048	10235	4.94	2.663
2049	10240	4.907	2.63
2050	10245	4.907	2.63
2051	10250	4.873	2.596
2052	10255	4.84	2.563
2053	10260	4.807	2.53
2054	10265	4.774	2.497
2055	10270	4.774	2.497
2056	10275	4.74	2.463
2057	10280	4.707	2.43
2058	10285	4.707	2.43
2059	10290	4.674	2.397
2060	10295	4.64	2.363
2061	10300	4.64	2.363
2062	10305	4.607	2.33
2063	10310	4.574	2.297
2064	10315	4.574	2.297
2065	10320	4.541	2.264
2066	10325	4.507	2.23
2067	10330	4.507	2.23
2068	10335	4.474	2.197
2069	10340	4.474	2.197
2070	10345	4.441	2.164
2071	10350	4.441	2.164
2072	10355	4.407	2.13
2073	10360	4.407	2.13

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	4.374	2.097
2075	10370	4.374	2.097
2076	10375	4.341	2.064
2077	10380	4.341	2.064
2078	10385	4.308	2.031
2079	10390	4.308	2.031
2080	10395	4.274	1.997
2081	10400	4.274	1.997
2082	10405	4.241	1.964
2083	10410	4.241	1.964
2084	10415	4.241	1.964
2085	10420	4.208	1.931
2086	10425	4.208	1.931
2087	10430	4.174	1.897
2088	10435	4.174	1.897
2089	10440	4.174	1.897
2090	10445	4.141	1.864
2091	10450	4.141	1.864
2092	10455	4.141	1.864
2093	10460	4.108	1.831
2094	10465	4.108	1.831
2095	10470	4.074	1.797
2096	10475	4.074	1.797
2097	10480	4.074	1.797
2098	10485	4.041	1.764
2099	10490	4.041	1.764
2100	10495	4.041	1.764
2101	10500	4.041	1.764
2102	10505	4.008	1.731
2103	10510	4.008	1.731
2104	10515	4.008	1.731
2105	10520	3.975	1.698
2106	10525	3.975	1.698
2107	10530	3.975	1.698
2108	10535	3.941	1.664
2109	10540	3.941	1.664
2110	10545	3.941	1.664
2111	10550	3.941	1.664
2112	10555	3.908	1.631
2113	10560	3.908	1.631
2114	10565	3.908	1.631
2115	10570	3.908	1.631
2116	10575	3.875	1.598
2117	10580	3.875	1.598
2118	10585	3.875	1.598
2119	10590	3.875	1.598
2120	10595	3.841	1.564
2121	10600	3.841	1.564
2122	10605	3.841	1.564
2123	10610	3.841	1.564
2124	10615	3.841	1.564
2125	10620	3.808	1.531
2126	10625	3.808	1.531
2127	10630	3.808	1.531
2128	10635	3.808	1.531
2129	10640	3.775	1.498
2130	10645	3.775	1.498
2131	10650	3.775	1.498
2132	10655	3.775	1.498
2133	10660	3.775	1.498
2134	10665	3.775	1.498
2135	10670	3.742	1.465
2136	10675	3.742	1.465

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	3.742	1.465
2138	10685	3.742	1.465
2139	10690	3.708	1.431
2140	10695	3.708	1.431
2141	10700	3.708	1.431
2142	10705	3.708	1.431
2143	10710	3.675	1.398
2144	10715	3.675	1.398
2145	10720	3.675	1.398
2146	10725	3.675	1.398
2147	10730	3.675	1.398
2148	10735	3.642	1.365
2149	10740	3.642	1.365
2150	10745	3.642	1.365
2151	10750	3.642	1.365
2152	10755	3.642	1.365
2153	10760	3.608	1.331
2154	10765	3.608	1.331
2155	10770	3.608	1.331
2156	10775	3.608	1.331
2157	10780	3.575	1.298
2158	10785	3.575	1.298
2159	10790	3.575	1.298
2160	10795	3.575	1.298
2161	10800	3.575	1.298
2162	10805	3.575	1.298
2163	10810	3.542	1.265
2164	10815	3.542	1.265
2165	10820	3.542	1.265
2166	10825	3.542	1.265
2167	10830	3.542	1.265
2168	10835	3.542	1.265
2169	10840	3.509	1.232
2170	10845	3.509	1.232
2171	10850	3.509	1.232
2172	10855	3.509	1.232
2173	10860	3.475	1.198
2174	10865	3.509	1.232
2175	10870	3.475	1.198
2176	10875	3.475	1.198
2177	10880	3.475	1.198
2178	10885	3.475	1.198
2179	10890	3.442	1.165
2180	10895	3.442	1.165
2181	10900	3.442	1.165
2182	10905	3.442	1.165
2183	10910	3.442	1.165
2184	10915	3.442	1.165
2185	10920	3.442	1.165
2186	10925	3.442	1.165
2187	10930	3.409	1.132
2188	10935	3.409	1.132
2189	10940	3.409	1.132
2190	10945	3.409	1.132
2191	10950	3.409	1.132
2192	10955	3.409	1.132
2193	10960	3.375	1.098
2194	10965	3.375	1.098
2195	10970	3.375	1.098
2196	10975	3.375	1.098
2197	10980	3.375	1.098
2198	10985	3.375	1.098
2199	10990	3.375	1.098

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	3.342	1.065
2201	11000	3.342	1.065
2202	11005	3.342	1.065
2203	11010	3.342	1.065
2204	11015	3.309	1.032
2205	11020	3.342	1.065
2206	11025	3.309	1.032
2207	11030	3.309	1.032
2208	11035	3.309	1.032
2209	11040	3.309	1.032
2210	11045	3.309	1.032
2211	11050	3.309	1.032
2212	11055	3.309	1.032
2213	11060	3.276	0.999
2214	11065	3.276	0.999
2215	11070	3.276	0.999
2216	11075	3.276	0.999
2217	11080	3.276	0.999
2218	11085	3.276	0.999
2219	11090	3.242	0.965
2220	11095	3.242	0.965
2221	11100	3.242	0.965
2222	11105	3.242	0.965
2223	11110	3.242	0.965
2224	11115	3.242	0.965
2225	11120	3.242	0.965
2226	11125	3.242	0.965
2227	11130	3.209	0.932
2228	11135	3.209	0.932
2229	11140	3.209	0.932
2230	11145	3.209	0.932
2231	11150	3.209	0.932
2232	11155	3.209	0.932
2233	11160	3.209	0.932
2234	11165	3.209	0.932
2235	11170	3.209	0.932
2236	11175	3.176	0.899
2237	11180	3.176	0.899
2238	11185	3.176	0.899
2239	11190	3.176	0.899
2240	11195	3.176	0.899
2241	11200	3.176	0.899
2242	11205	3.176	0.899
2243	11210	4.873	2.596
2244	11215	3.142	0.865
2245	11220	3.142	0.865
2246	11225	3.142	0.865
2247	11230	3.142	0.865
2248	11235	3.142	0.865
2249	11240	3.142	0.865
2250	11245	3.142	0.865
2251	11250	3.142	0.865
2252	11255	3.142	0.865
2253	11260	3.142	0.865
2254	11265	3.109	0.832
2255	11270	3.109	0.832
2256	11275	3.109	0.832
2257	11280	3.109	0.832
2258	11285	3.109	0.832
2259	11290	3.109	0.832
2260	11295	3.109	0.832
2261	11300	3.109	0.832
2262	11305	3.109	0.832

	Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	3.109	0.832
2264	11315	3.109	0.832
2265	11320	3.109	0.832
2266	11325	3.109	0.832
2267	11330	3.109	0.832
2268	11335	3.109	0.832
2269	11340	3.109	0.832
2270	11345	3.109	0.832
2271	11350	3.109	0.832
2272	11355	3.076	0.799
2273	11360	3.076	0.799
2274	11365	3.076	0.799
2275	11370	3.076	0.799
2276	11375	3.076	0.799
2277	11380	3.076	0.799
2278	11385	3.076	0.799
2279	11390	4.64	2.363
2280	11395	3.076	0.799
2281	11400	3.076	0.799
2282	11405	3.076	0.799
2283	11410	3.076	0.799
2284	11415	3.076	0.799
2285	11420	3.076	0.799
2286	11425	3.076	0.799
2287	11430	3.076	0.799
2288	11435	3.076	0.799
2289	11440	3.076	0.799
2290	11445	3.076	0.799
2291	11450	3.076	0.799
2292	11455	3.076	0.799
2293	11460	3.076	0.799
2294	11465	3.076	0.799
2295	11470	3.076	0.799
2296	11475	3.043	0.766
2297	11480	3.043	0.766
2298	11485	3.043	0.766
2299	11490	3.043	0.766
2300	11495	3.043	0.766
2301	11500	3.043	0.766
2302	11505	3.043	0.766
2303	11510	3.043	0.766
2304	11515	3.043	0.766
2305	11520	3.043	0.766
2306	11525	3.043	0.766
2307	11530	3.043	0.766
2308	11535	3.043	0.766
2309	11540	3.043	0.766
2310	11545	3.043	0.766
2311	11550	3.043	0.766
2312	11555	3.043	0.766
2313	11560	3.043	0.766
2314	11565	3.043	0.766
2315	11570	3.043	0.766
2316	11575	3.043	0.766
2317	11580	3.176	0.899
2318	11585	3.043	0.766
2319	11590	3.043	0.766
2320	11595	3.043	0.766
2321	11600	3.043	0.766
2322	11605	3.043	0.766
2323	11610	3.043	0.766
2324	11615	3.043	0.766
2325	11620	3.043	0.766

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	3.009	0.732
2327	11630	3.009	0.732
2328	11635	3.009	0.732
2329	11640	3.009	0.732
2330	11645	3.009	0.732
2331	11650	3.009	0.732
2332	11655	3.009	0.732
2333	11660	3.009	0.732
2334	11665	3.009	0.732
2335	11670	3.009	0.732
2336	11675	3.009	0.732
2337	11680	3.009	0.732
2338	11685	3.009	0.732
2339	11690	3.009	0.732
2340	11695	3.009	0.732
2341	11700	3.009	0.732
2342	11705	3.009	0.732
2343	11710	3.009	0.732
2344	11715	3.009	0.732
2345	11720	3.009	0.732
2346	11725	2.976	0.699
2347	11730	2.976	0.699
2348	11735	2.976	0.699
2349	11740	2.976	0.699
2350	11745	3.009	0.732
2351	11750	2.976	0.699
2352	11755	2.976	0.699
2353	11760	2.976	0.699
2354	11765	2.976	0.699
2355	11770	2.976	0.699
2356	11775	2.976	0.699
2357	11780	2.976	0.699
2358	11785	2.976	0.699
2359	11790	2.976	0.699
2360	11795	2.976	0.699
2361	11800	2.976	0.699
2362	11805	2.976	0.699
2363	11810	2.976	0.699
2364	11815	2.976	0.699
2365	11820	2.976	0.699
2366	11825	2.976	0.699
2367	11830	2.976	0.699
2368	11835	2.976	0.699
2369	11840	2.976	0.699
2370	11845	2.943	0.666
2371	11850	2.943	0.666
2372	11855	2.943	0.666
2373	11860	2.943	0.666
2374	11865	2.943	0.666
2375	11870	2.943	0.666
2376	11875	2.943	0.666
2377	11880	2.943	0.666
2378	11885	2.943	0.666
2379	11890	2.943	0.666
2380	11895	2.943	0.666
2381	11900	2.943	0.666
2382	11905	4.474	2.197
2383	11910	2.943	0.666
2384	11915	2.943	0.666
2385	11920	2.943	0.666
2386	11925	2.943	0.666
2387	11930	2.943	0.666
2388	11935	2.943	0.666

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	2.943	0.666
2390	11945	2.943	0.666
2391	11950	2.943	0.666
2392	11955	2.943	0.666
2393	11960	2.943	0.666
2394	11965	2.943	0.666
2395	11970	2.943	0.666
2396	11975	2.943	0.666
2397	11980	2.943	0.666
2398	11985	2.943	0.666
2399	11990	2.943	0.666
2400	11995	2.943	0.666
2401	12000	2.943	0.666
2402	12005	2.943	0.666
2403	12010	2.909	0.632
2404	12015	2.909	0.632
2405	12020	2.943	0.666
2406	12025	2.909	0.632
2407	12030	2.909	0.632
2408	12035	2.943	0.666
2409	12040	2.909	0.632
2410	12045	2.909	0.632
2411	12050	2.909	0.632
2412	12055	2.909	0.632
2413	12060	2.909	0.632
2414	12065	2.909	0.632
2415	12070	2.909	0.632
2416	12075	2.909	0.632
2417	12080	2.909	0.632
2418	12085	2.909	0.632
2419	12090	2.909	0.632
2420	12095	2.909	0.632
2421	12100	2.909	0.632
2422	12105	2.909	0.632
2423	12110	2.909	0.632
2424	12115	2.909	0.632
2425	12120	2.909	0.632
2426	12125	2.909	0.632
2427	12130	2.909	0.632
2428	12135	2.909	0.632
2429	12140	2.909	0.632
2430	12145	2.909	0.632
2431	12150	2.943	0.666
2432	12155	4.64	2.363
2433	12160	2.909	0.632
2434	12165	2.909	0.632
2435	12170	2.909	0.632
2436	12175	2.909	0.632
2437	12180	2.909	0.632
2438	12185	2.909	0.632
2439	12190	2.909	0.632
2440	12195	2.909	0.632
2441	12200	2.909	0.632
2442	12205	2.909	0.632
2443	12210	2.909	0.632
2444	12215	2.909	0.632
2445	12220	2.909	0.632
2446	12225	2.909	0.632
2447	12230	2.909	0.632
2448	12235	2.909	0.632
2449	12240	2.909	0.632
2450	12245	2.909	0.632
2451	12250	2.909	0.632

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	2.909	0.632
2453	12260	2.909	0.632
2454	12265	2.909	0.632
2455	12270	2.909	0.632
2456	12275	2.909	0.632
2457	12280	2.909	0.632
2458	12285	2.909	0.632
2459	12290	2.909	0.632
2460	12295	2.909	0.632
2461	12300	2.876	0.599
2462	12305	2.909	0.632
2463	12310	2.909	0.632
2464	12315	2.876	0.599
2465	12320	2.876	0.599
2466	12325	2.876	0.599
2467	12330	2.876	0.599
2468	12335	2.876	0.599
2469	12340	2.876	0.599
2470	12345	2.876	0.599
2471	12350	2.876	0.599
2472	12355	2.876	0.599
2473	12360	2.876	0.599
2474	12365	2.876	0.599
2475	12370	2.876	0.599
2476	12375	2.876	0.599
2477	12380	2.876	0.599
2478	12385	2.876	0.599
2479	12390	2.876	0.599
2480	12395	2.876	0.599
2481	12400	2.876	0.599
2482	12405	2.876	0.599
2483	12410	2.876	0.599
2484	12415	2.876	0.599
2485	12420	2.876	0.599
2486	12425	2.876	0.599
2487	12430	2.876	0.599
2488	12435	2.876	0.599
2489	12440	2.876	0.599
2490	12445	2.876	0.599
2491	12450	2.876	0.599
2492	12455	2.876	0.599
2493	12460	2.876	0.599
2494	12465	2.876	0.599
2495	12470	2.843	0.566
2496	12475	2.843	0.566
2497	12480	2.843	0.566
2498	12485	2.843	0.566
2499	12490	2.843	0.566
2500	12495	2.843	0.566
2501	12500	2.843	0.566
2502	12505	2.843	0.566
2503	12510	2.843	0.566
2504	12515	2.843	0.566
2505	12520	2.843	0.566
2506	12525	2.843	0.566
2507	12530	2.843	0.566
2508	12535	2.843	0.566
2509	12540	2.843	0.566
2510	12545	2.843	0.566
2511	12550	2.843	0.566
2512	12555	2.843	0.566
2513	12560	2.843	0.566
2514	12565	2.81	0.533

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	2.81	0.533
2516	12575	2.81	0.533
2517	12580	2.843	0.566
2518	12585	2.81	0.533
2519	12590	2.81	0.533
2520	12595	2.81	0.533
2521	12600	2.81	0.533
2522	12605	2.81	0.533
2523	12610	2.81	0.533
2524	12615	2.81	0.533
2525	12620	2.81	0.533
2526	12625	2.81	0.533
2527	12630	2.81	0.533
2528	12635	2.81	0.533
2529	12640	4.507	2.23
2530	12645	2.81	0.533
2531	12650	2.81	0.533
2532	12655	2.81	0.533
2533	12660	2.81	0.533
2534	12665	2.81	0.533
2535	12670	2.81	0.533
2536	12675	2.81	0.533
2537	12680	2.776	0.499
2538	12685	2.81	0.533
2539	12690	2.81	0.533
2540	12695	2.776	0.499
2541	12700	2.776	0.499
2542	12705	2.776	0.499
2543	12710	2.776	0.499
2544	12715	2.81	0.533
2545	12720	2.776	0.499
2546	12725	2.776	0.499
2547	12730	2.776	0.499
2548	12735	2.776	0.499
2549	12740	2.776	0.499
2550	12745	3.941	1.664
2551	12750	2.81	0.533
2552	12755	2.776	0.499
2553	12760	2.776	0.499
2554	12765	2.776	0.499
2555	12770	2.776	0.499
2556	12775	2.776	0.499
2557	12780	2.776	0.499
2558	12785	2.776	0.499
2559	12790	2.776	0.499
2560	12795	2.776	0.499
2561	12800	2.776	0.499
2562	12805	2.776	0.499
2563	12810	2.776	0.499
2564	12815	2.776	0.499
2565	12820	2.776	0.499
2566	12825	2.776	0.499
2567	12830	2.776	0.499
2568	12835	2.776	0.499
2569	12840	2.776	0.499
2570	12845	2.776	0.499
2571	12850	2.776	0.499
2572	12855	2.776	0.499
2573	12860	2.776	0.499
2574	12865	2.776	0.499
2575	12870	2.776	0.499
2576	12875	2.776	0.499
2577	12880	2.776	0.499

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2578	12885	2.776	0.499
2579	12890	2.776	0.499
2580	12895	2.81	0.533
2581	12900	2.81	0.533
2582	12905	2.81	0.533

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. g
Observation Well: G05OJ064	Static Water Level [ft]: 4.30	Radial Distance to PW [ft]: 3338

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	4.30	0.00
2	1	4.60	0.30
3	2	4.90	0.60
4	3	5.22	0.92
5	240	5.51	1.21
6	300	5.69	1.39
7	360	5.89	1.59
8	420	5.97	1.67
9	540	6.30	2.00
10	600	6.35	2.05
11	660	6.46	2.16
12	720	6.52	2.22
13	780	6.60	2.30
14	840	6.637	2.337
15	900	6.74	2.44
16	960	6.81	2.51
17	1020	6.87	2.57
18	1080	6.92	2.62
19	1140	6.95	2.65
20	1200	7.02	2.72
21	1260	7.02	2.72
22	1320	7.00	2.70
23	1380	7.01	2.71
24	1440	7.09	2.79
25	1560	7.12	2.82
26	1680	7.17	2.87
27	1800	7.27	2.97
28	1920	7.31	3.01
29	2040	7.35	3.05
30	2160	7.42	3.12
31	2280	7.47	3.17
32	2400	7.46	3.16
33	2520	7.46	3.16
34	2640	7.50	3.20
35	2760	7.52	3.22
36	2880	7.51	3.21
37	3000	7.51	3.21
38	3120	7.51	3.21
39	3240	7.50	3.20
40	3360	7.52	3.22
41	3480	7.58	3.28
42	3600	7.61	3.31
43	3720	7.63	3.33
44	3840	7.69	3.39
45	3960	7.71	3.41
46	4080	7.68	3.38
47	4200	7.70	3.40
48	4320	7.68	3.38
49	4440	7.65	3.35
50	4560	7.66	3.36
51	4680	7.74	3.44
52	4800	7.78	3.48
53	4920	7.78	3.48
54	5040	7.74	3.44
55	5160	7.76	3.46
56	5400	7.80	3.50
57	5520	7.81	3.51

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	5640	7.85	3.55
59	5760	7.85	3.55
60	5880	7.81	3.51
61	6000	7.75	3.45
62	6120	7.76	3.46
63	6240	7.82	3.52
64	6360	7.84	3.54
65	6480	7.83	3.53
66	6600	7.83	3.53
67	6720	7.81	3.51
68	6840	7.78	3.48
69	6960	7.81	3.51
70	7080	7.81	3.51
71	7200	7.83	3.53
72	7320	7.80	3.50
73	7440	7.74	3.44
74	7560	7.79	3.49
75	7680	7.79	3.49
76	7800	7.80	3.50
77	7920	7.77	3.47
78	8040	7.82	3.52
79	8160	7.81	3.51
80	8280	7.82	3.52
81	8400	7.89	3.59
82	8520	7.91	3.61
83	8640	8.02	3.72
84	8760	8.03	3.73
85	8880	8.00	3.70
86	9000	8.00	3.70
87	9120	8.00	3.70
88	9240	8.02	3.72
89	9360	8.01	3.71
90	9480	8.03	3.73
91	9600	8.04	3.74
92	9720	8.09	3.79
93	9840	8.14	3.84
94	9960	8.24	3.94
95	10090	8.20	3.90
96	10100	8.06	3.76
97	10115	8.02	3.72
98	10130	7.92	3.62
99	10145	7.83	3.53
100	10160	7.74	3.44
101	10175	7.64	3.34
102	10190	7.50	3.20
103	10230	7.35	3.05
104	10245	7.30	3.00
105	10260	7.23	2.93
106	10275	7.18	2.88
107	10290	7.12	2.82
108	10305	7.08	2.78
109	10320	7.02	2.72
110	10335	6.92	2.62
111	10350	6.88	2.58
112	10365	6.89	2.59
113	10380	6.84	2.54
114	10410	6.77	2.47
115	10440	6.70	2.40
116	10470	6.60	2.30
117	10500	6.60	2.30
118	10530	6.51	2.21
119	10560	6.42	2.12
120	10590	6.38	2.08

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

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	Time [min]	Water Level [ft]	Drawdown [ft]
121	10620	6.41	2.11
122	10650	6.35	2.05
123	10680	6.32	2.02
124	10710	6.29	1.99
125	10770	6.26	1.96
126	10830	6.14	1.84
127	10890	6.10	1.80
128	10950	5.99	1.69
129	11010	5.95	1.65
130	11070	5.91	1.61
131	11130	5.85	1.55
132	11190	5.84	1.54
133	11250	5.81	1.51
134	12900	5.40	1.10

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Pumping Test - Water Level Data	Page 1 of 21
Project: OBS-853	
Number: 2014-078-11472	
Client: City of Selkirk/MWSB	

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. ga
Observation Well: MW-11-03	Static Water Level [ft]: 3.26	Radial Distance to PW [ft]: 2681

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	3.2552	0.00
2	10	3.6384	0.3832
3	20	3.9311	0.6759
4	30	4.1471	0.8919
5	40	4.3216	1.0664
6	50	4.4708	1.2156
7	60	4.5981	1.3429
8	70	4.7045	1.4493
9	80	4.8024	1.5472
10	90	4.8928	1.6376
11	100	4.9779	1.7227
12	110	5.0527	1.7975
13	120	5.1217	1.8665
14	130	5.1871	1.9319
15	140	5.2452	1.99
16	150	5.3017	2.0465
17	160	5.3496	2.0944
18	170	5.3942	2.139
19	180	5.439	2.1838
20	190	5.485	2.2298
21	200	5.5271	2.2719
22	210	5.5649	2.3097
23	220	5.6046	2.3494
24	230	5.6408	2.3856
25	240	5.6741	2.4189
26	250	5.7033	2.4481
27	260	5.7321	2.4769
28	270	5.7628	2.5076
29	280	5.7879	2.5327
30	290	5.8166	2.5614
31	300	5.8448	2.5896
32	310	5.8719	2.6167
33	320	5.8913	2.6361
34	330	5.9139	2.6587
35	340	5.9352	2.68
36	350	5.9581	2.7029
37	360	5.9814	2.7262
38	370	6.0004	2.7452
39	380	6.0177	2.7625
40	390	6.0368	2.7816
41	400	6.0544	2.7992
42	410	6.0684	2.8132
43	420	6.0826	2.8274
44	430	6.099	2.8438
45	440	6.1138	2.8586
46	450	6.1292	2.874
47	460	6.1437	2.8885
48	470	6.1581	2.9029
49	480	6.171	2.9158
50	490	6.1839	2.9287
51	500	6.1957	2.9405
52	510	6.2088	2.9536
53	520	6.2207	2.9655
54	530	6.233	2.9778
55	540	6.2454	2.9902
56	550	6.2571	3.0019
57	560	6.2671	3.0119

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	6.2773	3.0221
59	580	6.2892	3.034
60	590	6.2994	3.0442
61	600	6.3097	3.0545
62	610	6.3193	3.0641
63	620	6.3285	3.0733
64	630	6.34	3.0848
65	640	6.3533	3.0981
66	650	6.3631	3.1079
67	660	6.371	3.1158
68	670	6.3818	3.1266
69	680	6.3893	3.1341
70	690	6.3987	3.1435
71	700	6.407	3.1518
72	710	6.4154	3.1602
73	720	6.4237	3.1685
74	730	6.432	3.1768
75	740	6.4388	3.1836
76	750	6.4481	3.1929
77	760	6.4542	3.199
78	770	6.4597	3.2045
79	780	6.466	3.2108
80	790	6.4744	3.2192
81	800	6.4825	3.2273
82	810	6.4896	3.2344
83	820	6.495	3.2398
84	830	6.5014	3.2462
85	840	6.5084	3.2532
86	850	6.5142	3.259
87	860	6.5223	3.2671
88	870	6.5274	3.2722
89	880	6.5318	3.2766
90	890	6.5368	3.2816
91	900	6.5427	3.2875
92	910	6.5491	3.2939
93	920	6.5534	3.2982
94	930	6.5593	3.3041
95	940	6.5627	3.3075
96	950	6.5655	3.3103
97	960	6.5718	3.3166
98	970	6.5755	3.3203
99	980	6.5797	3.3245
100	990	6.5816	3.3264
101	1000	6.5888	3.3336
102	1010	6.5945	3.3393
103	1020	6.5952	3.34
104	1030	6.5959	3.3407
105	1040	6.5986	3.3434
106	1050	6.5993	3.3441
107	1060	6.6026	3.3474
108	1070	6.606	3.3508
109	1080	6.6089	3.3537
110	1090	6.6114	3.3562
111	1100	6.608	3.3528
112	1110	6.6079	3.3527
113	1120	6.6136	3.3584
114	1130	6.617	3.3618
115	1140	6.6186	3.3634
116	1150	6.6247	3.3695
117	1160	6.6258	3.3706
118	1170	6.63	3.3748
119	1180	6.6339	3.3787
120	1190	6.636	3.3808

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	6.6386	3.3834
122	1210	6.6379	3.3827
123	1220	6.6371	3.3819
124	1230	6.6358	3.3806
125	1240	6.6377	3.3825
126	1250	6.6398	3.3846
127	1260	6.6414	3.3862
128	1270	6.6407	3.3855
129	1280	6.6419	3.3867
130	1290	6.6461	3.3909
131	1300	6.6458	3.3906
132	1310	6.6471	3.3919
133	1320	6.6502	3.395
134	1330	6.6531	3.3979
135	1340	6.6566	3.4014
136	1350	6.6597	3.4045
137	1360	6.6612	3.406
138	1370	6.6629	3.4077
139	1380	6.6641	3.4089
140	1390	6.6644	3.4092
141	1400	6.6671	3.4119
142	1410	6.6662	3.411
143	1420	6.6679	3.4127
144	1430	6.6693	3.4141
145	1440	6.6721	3.4169
146	1450	6.6725	3.4173
147	1460	6.6731	3.4179
148	1470	6.6808	3.4256
149	1480	6.6824	3.4272
150	1490	6.6871	3.4319
151	1500	6.6904	3.4352
152	1510	6.6941	3.4389
153	1520	6.6978	3.4426
154	1530	6.7023	3.4471
155	1540	6.7054	3.4502
156	1550	6.7071	3.4519
157	1560	6.7105	3.4553
158	1570	6.7116	3.4564
159	1580	6.7131	3.4579
160	1590	6.717	3.4618
161	1600	6.7217	3.4665
162	1610	6.7267	3.4715
163	1620	6.7294	3.4742
164	1630	6.7349	3.4797
165	1640	6.7368	3.4816
166	1650	6.7405	3.4853
167	1660	6.7429	3.4877
168	1670	6.746	3.4908
169	1680	6.7482	3.493
170	1690	6.7522	3.497
171	1700	6.7555	3.5003
172	1710	6.753	3.4978
173	1720	6.7578	3.5026
174	1730	6.7604	3.5052
175	1740	6.7648	3.5096
176	1750	6.7696	3.5144
177	1760	6.7699	3.5147
178	1770	6.7809	3.5257
179	1780	6.7781	3.5229
180	1790	6.7842	3.529
181	1800	6.7874	3.5322
182	1810	6.7865	3.5313
183	1820	6.7865	3.5313

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	6.7887	3.5335
185	1840	6.7934	3.5382
186	1850	6.7956	3.5404
187	1860	6.7948	3.5396
188	1870	6.7947	3.5395
189	1880	6.7976	3.5424
190	1890	6.7978	3.5426
191	1900	6.7979	3.5427
192	1910	6.7974	3.5422
193	1920	6.7985	3.5433
194	1930	6.80	3.5448
195	1940	6.8001	3.5449
196	1950	6.8007	3.5455
197	1960	6.8025	3.5473
198	1970	6.8054	3.5502
199	1980	6.8052	3.55
200	1990	6.8059	3.5507
201	2000	6.8094	3.5542
202	2010	6.8113	3.5561
203	2020	6.8097	3.5545
204	2030	6.813	3.5578
205	2040	6.8116	3.5564
206	2050	6.8138	3.5586
207	2060	6.8153	3.5601
208	2070	6.8165	3.5613
209	2080	6.8216	3.5664
210	2090	6.8245	3.5693
211	2100	6.8238	3.5686
212	2110	6.8216	3.5664
213	2120	6.8229	3.5677
214	2130	6.8236	3.5684
215	2140	6.8267	3.5715
216	2150	6.8285	3.5733
217	2160	6.8285	3.5733
218	2170	6.8281	3.5729
219	2180	6.8298	3.5746
220	2190	6.8314	3.5762
221	2200	6.8341	3.5789
222	2210	6.8377	3.5825
223	2220	6.8398	3.5846
224	2230	6.8429	3.5877
225	2240	6.8417	3.5865
226	2250	6.8422	3.587
227	2260	6.8474	3.5922
228	2270	6.8495	3.5943
229	2280	6.8539	3.5987
230	2290	6.8537	3.5985
231	2300	6.8584	3.6032
232	2310	6.8595	3.6043
233	2320	6.86	3.6048
234	2330	6.8603	3.6051
235	2340	6.8616	3.6064
236	2350	6.8632	3.608
237	2360	6.8664	3.6112
238	2370	6.8637	3.6085
239	2380	6.8647	3.6095
240	2390	6.8623	3.6071
241	2400	6.8655	3.6103
242	2410	6.8656	3.6104
243	2420	6.8661	3.6109
244	2430	6.8689	3.6137
245	2440	6.868	3.6128
246	2450	6.872	3.6168

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Page 5 of 21 Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	6.8765	3.6213
248	2470	6.8802	3.625
249	2480	6.8787	3.6235
250	2490	6.8785	3.6233
251	2500	6.8825	3.6273
252	2510	6.8897	3.6345
253	2520	6.8867	3.6315
254	2530	6.8913	3.6361
255	2540	6.8929	3.6377
256	2550	6.8945	3.6393
257	2560	6.8975	3.6423
258	2570	6.8976	3.6424
259	2580	6.9009	3.6457
260	2590	6.9024	3.6472
261	2600	6.901	3.6458
262	2610	6.9019	3.6467
263	2620	6.9062	3.651
264	2630	6.9084	3.6532
265	2640	6.9093	3.6541
266	2650	6.9076	3.6524
267	2660	6.9098	3.6546
268	2670	6.911	3.6558
269	2680	6.9124	3.6572
270	2690	6.9135	3.6583
271	2700	6.9172	3.662
272	2710	6.9196	3.6644
273	2720	6.9191	3.6639
274	2730	6.9193	3.6641
275	2740	6.92	3.6648
276	2750	6.9197	3.6645
277	2760	6.9183	3.6631
278	2770	6.9188	3.6636
279	2780	6.9277	3.6725
280	2790	6.9279	3.6727
281	2800	6.9287	3.6735
282	2810	6.9313	3.6761
283	2820	6.9369	3.6817
284	2830	6.9372	3.682
285	2840	6.9356	3.6804
286	2850	6.9368	3.6816
287	2860	6.9393	3.6841
288	2870	6.9426	3.6874
289	2880	6.9452	3.69
290	2890	6.9454	3.6902
291	2900	6.95	3.6948
292	2910	6.9544	3.6992
293	2920	6.9547	3.6995
294	2930	6.953	3.6978
295	2940	6.9585	3.7033
296	2950	6.9614	3.7062
297	2960	6.9633	3.7081
298	2970	6.9646	3.7094
299	2980	6.9675	3.7123
300	2990	6.971	3.7158
301	3000	6.9752	3.72
302	3010	6.9785	3.7233
303	3020	6.9789	3.7237
304	3030	6.9816	3.7264
305	3040	6.9863	3.7311
306	3050	6.988	3.7328
307	3060	6.9891	3.7339
308	3070	6.9879	3.7327
309	3080	6.9897	3.7345

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	Page 6 of 21
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	6.9915	3.7363
311	3100	6.9929	3.7377
312	3110	6.9954	3.7402
313	3120	7.0001	3.7449
314	3130	7.0051	3.7499
315	3140	7.0114	3.7562
316	3150	7.0163	3.7611
317	3160	7.0215	3.7663
318	3170	7.0308	3.7756
319	3180	7.0314	3.7762
320	3190	7.0324	3.7772
321	3200	7.0356	3.7804
322	3210	7.0397	3.7845
323	3220	7.042	3.7868
324	3230	7.0495	3.7943
325	3240	7.0546	3.7994
326	3250	7.0592	3.804
327	3260	7.0613	3.8061
328	3270	7.0623	3.8071
329	3280	7.0683	3.8131
330	3290	7.073	3.8178
331	3300	7.0738	3.8186
332	3310	7.0737	3.8185
333	3320	7.0722	3.817
334	3330	7.0744	3.8192
335	3340	7.0804	3.8252
336	3350	7.0876	3.8324
337	3360	7.086	3.8308
338	3370	7.0842	3.829
339	3380	7.0829	3.8277
340	3390	7.0846	3.8294
341	3400	7.083	3.8278
342	3410	7.089	3.8338
343	3420	7.0947	3.8395
344	3430	7.0966	3.8414
345	3440	7.0996	3.8444
346	3450	7.1019	3.8467
347	3460	7.1041	3.8489
348	3470	7.1057	3.8505
349	3480	7.107	3.8518
350	3490	7.106	3.8508
351	3500	7.1093	3.8541
352	3510	7.1109	3.8557
353	3520	7.1137	3.8585
354	3530	7.1138	3.8586
355	3540	7.1145	3.8593
356	3550	7.1141	3.8589
357	3560	7.114	3.8588
358	3570	7.1177	3.8625
359	3580	7.1169	3.8617
360	3590	7.1141	3.8589
361	3600	7.1132	3.858
362	3610	7.1142	3.859
363	3620	7.1142	3.859
364	3630	7.1145	3.8593
365	3640	7.1176	3.8624
366	3650	7.1163	3.8611
367	3660	7.1208	3.8656
368	3670	7.1207	3.8655
369	3680	7.1229	3.8677
370	3690	7.1232	3.868
371	3700	7.1251	3.8699
372	3710	7.1287	3.8735

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data	
Project: OBS-853	
Number: 2014-078-11472	
Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	7.1302	3.875
374	3730	7.13	3.8748
375	3740	7.1335	3.8783
376	3750	7.1379	3.8827
377	3760	7.1444	3.8892
378	3770	7.1433	3.8881
379	3780	7.1406	3.8854
380	3790	7.1425	3.8873
381	3800	7.1443	3.8891
382	3810	7.1436	3.8884
383	3820	7.1427	3.8875
384	3830	7.1453	3.8901
385	3840	7.1469	3.8917
386	3850	7.1496	3.8944
387	3860	7.1506	3.8954
388	3870	7.1556	3.9004
389	3880	7.1605	3.9053
390	3890	7.1641	3.9089
391	3900	7.1627	3.9075
392	3910	7.1657	3.9105
393	3920	7.1693	3.9141
394	3930	7.1718	3.9166
395	3940	7.1721	3.9169
396	3950	7.1736	3.9184
397	3960	7.1741	3.9189
398	3970	7.176	3.9208
399	3980	7.1782	3.923
400	3990	7.1834	3.9282
401	4000	7.1886	3.9334
402	4010	7.1916	3.9364
403	4020	7.1927	3.9375
404	4030	7.1976	3.9424
405	4040	7.1988	3.9436
406	4050	7.2036	3.9484
407	4060	7.2049	3.9497
408	4070	7.2099	3.9547
409	4080	7.2118	3.9566
410	4090	7.2133	3.9581
411	4100	7.2126	3.9574
412	4110	7.2128	3.9576
413	4120	7.2149	3.9597
414	4130	7.215	3.9598
415	4140	7.2186	3.9634
416	4150	7.2186	3.9634
417	4160	7.2179	3.9627
418	4170	7.218	3.9628
419	4180	7.2219	3.9667
420	4190	7.2232	3.968
421	4200	7.2239	3.9687
422	4210	7.2235	3.9683
423	4220	7.2236	3.9684
424	4230	7.223	3.9678
425	4240	7.2221	3.9669
426	4250	7.2216	3.9664
427	4260	7.2196	3.9644
428	4270	7.2202	3.965
429	4280	7.2185	3.9633
430	4290	7.2169	3.9617
431	4300	7.217	3.9618
432	4310	7.2164	3.9612
433	4320	7.2133	3.9581
434	4330	7.2144	3.9592
435	4340	7.2141	3.9589

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	7.2118	3.9566
437	4360	7.2114	3.9562
438	4370	7.2125	3.9573
439	4380	7.213	3.9578
440	4390	7.2135	3.9583
441	4400	7.2156	3.9604
442	4410	7.2177	3.9625
443	4420	7.2175	3.9623
444	4430	7.2185	3.9633
445	4440	7.2185	3.9633
446	4450	7.2191	3.9639
447	4460	7.2203	3.9651
448	4470	7.219	3.9638
449	4480	7.2213	3.9661
450	4490	7.2213	3.9661
451	4500	7.2213	3.9661
452	4510	7.2223	3.9671
453	4520	7.2254	3.9702
454	4530	7.2257	3.9705
455	4540	7.2276	3.9724
456	4550	7.2313	3.9761
457	4560	7.2324	3.9772
458	4570	7.2357	3.9805
459	4580	7.2374	3.9822
460	4590	7.2384	3.9832
461	4600	7.241	3.9858
462	4610	7.2416	3.9864
463	4620	7.2429	3.9877
464	4630	7.2428	3.9876
465	4640	7.2461	3.9909
466	4650	7.2472	3.992
467	4660	7.2516	3.9964
468	4670	7.253	3.9978
469	4680	7.2568	4.0016
470	4690	7.2576	4.0024
471	4700	7.2595	4.0043
472	4710	7.2603	4.0051
473	4720	7.2628	4.0076
474	4730	7.2645	4.0093
475	4740	7.2661	4.0109
476	4750	7.2692	4.014
477	4760	7.269	4.0138
478	4770	7.2716	4.0164
479	4780	7.2726	4.0174
480	4790	7.2728	4.0176
481	4800	7.2753	4.0201
482	4810	7.2756	4.0204
483	4820	7.2769	4.0217
484	4830	7.2779	4.0227
485	4840	7.2774	4.0222
486	4850	7.2768	4.0216
487	4860	7.2786	4.0234
488	4870	7.2786	4.0234
489	4880	7.2782	4.023
490	4890	7.2808	4.0256
491	4900	7.2819	4.0267
492	4910	7.2809	4.0257
493	4920	7.2813	4.0261
494	4930	7.2819	4.0267
495	4940	7.2823	4.0271
496	4950	7.2828	4.0276
497	4960	7.2849	4.0297
498	4970	7.2864	4.0312

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	7.2877	4.0325
500	4990	7.2874	4.0322
501	5000	7.2864	4.0312
502	5010	7.2866	4.0314
503	5020	7.2837	4.0285
504	5030	7.2853	4.0301
505	5040	7.2847	4.0295
506	5050	7.2811	4.0259
507	5060	7.2811	4.0259
508	5070	7.2815	4.0263
509	5080	7.2838	4.0286
510	5090	7.2822	4.027
511	5100	7.2842	4.029
512	5110	7.2847	4.0295
513	5120	7.2833	4.0281
514	5130	7.2833	4.0281
515	5140	7.2837	4.0285
516	5150	7.2863	4.0311
517	5160	7.2886	4.0334
518	5170	7.2903	4.0351
519	5180	7.2934	4.0382
520	5190	7.2936	4.0384
521	5200	7.2948	4.0396
522	5210	7.2951	4.0399
523	5220	7.2964	4.0412
524	5230	7.2985	4.0433
525	5240	7.3004	4.0452
526	5250	7.3016	4.0464
527	5260	7.3034	4.0482
528	5270	7.3048	4.0496
529	5280	7.3054	4.0502
530	5290	7.3071	4.0519
531	5300	7.3108	4.0556
532	5310	7.3133	4.0581
533	5320	7.3149	4.0597
534	5330	7.3174	4.0622
535	5340	7.3207	4.0655
536	5350	7.3228	4.0676
537	5360	7.3255	4.0703
538	5370	7.3266	4.0714
539	5380	7.3268	4.0716
540	5390	7.3302	4.075
541	5400	7.3327	4.0775
542	5410	7.3373	4.0821
543	5420	7.3429	4.0877
544	5430	7.3424	4.0872
545	5440	7.3435	4.0883
546	5450	7.3474	4.0922
547	5460	7.3513	4.0961
548	5470	7.3552	4.10
549	5480	7.3601	4.1049
550	5490	7.3617	4.1065
551	5500	7.3652	4.11
552	5510	7.3688	4.1136
553	5520	7.3694	4.1142
554	5530	7.3723	4.1171
555	5540	7.3762	4.121
556	5550	7.3795	4.1243
557	5560	7.3792	4.124
558	5570	7.3817	4.1265
559	5580	7.3842	4.129
560	5590	7.3879	4.1327
561	5600	7.3917	4.1365

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	7.3936	4.1384
563	5620	7.396	4.1408
564	5630	7.3985	4.1433
565	5640	7.4024	4.1472
566	5650	7.4043	4.1491
567	5660	7.4056	4.1504
568	5670	7.4053	4.1501
569	5680	7.4085	4.1533
570	5690	7.4088	4.1536
571	5700	7.4102	4.155
572	5710	7.4128	4.1576
573	5720	7.4151	4.1599
574	5730	7.4176	4.1624
575	5740	7.4164	4.1612
576	5750	7.4226	4.1674
577	5760	7.4222	4.167
578	5770	7.4212	4.166
579	5780	7.4227	4.1675
580	5790	7.4271	4.1719
581	5800	7.4231	4.1679
582	5810	7.4283	4.1731
583	5820	7.4285	4.1733
584	5830	7.4318	4.1766
585	5840	7.4334	4.1782
586	5850	7.4354	4.1802
587	5860	7.438	4.1828
588	5870	7.4341	4.1789
589	5880	7.4391	4.1839
590	5890	7.4353	4.1801
591	5900	7.4357	4.1805
592	5910	7.4395	4.1843
593	5920	7.4419	4.1867
594	5930	7.4428	4.1876
595	5940	7.4442	4.189
596	5950	7.4431	4.1879
597	5960	7.4498	4.1946
598	5970	7.4504	4.1952
599	5980	7.4523	4.1971
600	5990	7.4555	4.2003
601	6000	7.4567	4.2015
602	6010	7.4559	4.2007
603	6020	7.4606	4.2054
604	6030	7.4654	4.2102
605	6040	7.4664	4.2112
606	6050	7.4677	4.2125
607	6060	7.4718	4.2166
608	6070	7.4713	4.2161
609	6080	7.4716	4.2164
610	6090	7.4732	4.218
611	6100	7.4784	4.2232
612	6110	7.4818	4.2266
613	6120	7.4839	4.2287
614	6130	7.4891	4.2339
615	6140	7.4928	4.2376
616	6150	7.4972	4.242
617	6160	7.5038	4.2486
618	6170	7.5071	4.2519
619	6180	7.5097	4.2545
620	6190	7.5148	4.2596
621	6200	7.5164	4.2612
622	6210	7.5211	4.2659
623	6220	7.5261	4.2709
624	6230	7.5312	4.276

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	7.5337	4.2785
626	6250	7.5376	4.2824
627	6260	7.5414	4.2862
628	6270	7.5435	4.2883
629	6280	7.5485	4.2933
630	6290	7.5542	4.299
631	6300	7.5579	4.3027
632	6310	7.5575	4.3023
633	6320	7.5584	4.3032
634	6330	7.5598	4.3046
635	6340	7.5647	4.3095
636	6350	7.5709	4.3157
637	6360	7.571	4.3158
638	6370	7.5723	4.3171
639	6380	7.5733	4.3181
640	6390	7.576	4.3208
641	6400	7.5776	4.3224
642	6410	7.5793	4.3241
643	6420	7.5793	4.3241
644	6430	7.5813	4.3261
645	6440	7.5824	4.3272
646	6450	7.5843	4.3291
647	6460	7.5852	4.33
648	6470	7.5834	4.3282
649	6480	7.5821	4.3269
650	6490	7.5826	4.3274
651	6500	7.5824	4.3272
652	6510	7.5808	4.3256
653	6520	7.5802	4.325
654	6530	7.5818	4.3266
655	6540	7.5827	4.3275
656	6550	7.5846	4.3294
657	6560	7.5841	4.3289
658	6570	7.5841	4.3289
659	6580	7.5815	4.3263
660	6590	7.5863	4.3311
661	6600	7.5889	4.3337
662	6610	7.5893	4.3341
663	6620	7.5891	4.3339
664	6630	7.5952	4.34
665	6640	7.5926	4.3374
666	6650	7.5968	4.3416
667	6660	7.5959	4.3407
668	6670	7.5976	4.3424
669	6680	7.6006	4.3454
670	6690	7.6044	4.3492
671	6700	7.6082	4.353
672	6710	7.6071	4.3519
673	6720	7.6101	4.3549
674	6730	7.6118	4.3566
675	6740	7.6146	4.3594
676	6750	7.6158	4.3606
677	6760	7.6209	4.3657
678	6770	7.6202	4.365
679	6780	7.6219	4.3667
680	6790	7.6265	4.3713
681	6800	7.631	4.3758
682	6810	7.633	4.3778
683	6820	7.6368	4.3816
684	6830	7.6457	4.3905
685	6840	7.6476	4.3924
686	6850	7.6523	4.3971
687	6860	7.6578	4.4026

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	7.6614	4.4062
689	6880	7.6679	4.4127
690	6890	7.6752	4.42
691	6900	7.6805	4.4253
692	6910	7.6884	4.4332
693	6920	7.6881	4.4329
694	6930	7.7002	4.445
695	6940	7.7013	4.4461
696	6950	7.7064	4.4512
697	6960	7.7117	4.4565
698	6970	7.7183	4.4631
699	6980	7.7216	4.4664
700	6990	7.7287	4.4735
701	7000	7.7326	4.4774
702	7010	7.7361	4.4809
703	7020	7.741	4.4858
704	7030	7.7464	4.4912
705	7040	7.7531	4.4979
706	7050	7.7574	4.5022
707	7060	7.7615	4.5063
708	7070	7.7673	4.5121
709	7080	7.7707	4.5155
710	7090	7.773	4.5178
711	7100	7.7798	4.5246
712	7110	7.783	4.5278
713	7120	7.7929	4.5377
714	7130	7.7945	4.5393
715	7140	7.7995	4.5443
716	7150	7.8054	4.5502
717	7160	7.8088	4.5536
718	7170	7.8144	4.5592
719	7180	7.816	4.5608
720	7190	7.8207	4.5655
721	7200	7.8293	4.5741
722	7210	7.8294	4.5742
723	7220	7.8326	4.5774
724	7230	7.8339	4.5787
725	7240	7.8382	4.583
726	7250	7.8363	4.5811
727	7260	7.8382	4.583
728	7270	7.8478	4.5926
729	7280	7.8414	4.5862
730	7290	7.8416	4.5864
731	7300	7.851	4.5958
732	7310	7.8526	4.5974
733	7320	7.8553	4.6001
734	7330	7.8599	4.6047
735	7340	7.867	4.6118
736	7350	7.869	4.6138
737	7360	7.8737	4.6185
738	7370	7.871	4.6158
739	7380	7.8748	4.6196
740	7390	7.8789	4.6237
741	7400	7.8863	4.6311
742	7410	7.8872	4.632
743	7420	7.8895	4.6343
744	7430	7.89	4.6348
745	7440	7.8966	4.6414
746	7450	7.8984	4.6432
747	7460	7.8997	4.6445
748	7470	7.908	4.6528
749	7480	7.9081	4.6529
750	7490	7.9113	4.6561

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	7.9118	4.6566
752	7510	7.9207	4.6655
753	7520	7.9222	4.667
754	7530	7.926	4.6708
755	7540	7.9316	4.6764
756	7550	7.9353	4.6801
757	7560	7.9435	4.6883
758	7570	7.9387	4.6835
759	7580	7.9457	4.6905
760	7590	7.9482	4.693
761	7600	7.9548	4.6996
762	7610	7.9574	4.7022
763	7620	7.9617	4.7065
764	7630	7.9678	4.7126
765	7640	7.9729	4.7177
766	7650	7.9792	4.724
767	7660	7.9794	4.7242
768	7670	7.9854	4.7302
769	7680	7.987	4.7318
770	7690	7.9919	4.7367
771	7700	7.9936	4.7384
772	7710	8.0033	4.7481
773	7720	8.0021	4.7469
774	7730	8.0077	4.7525
775	7740	8.0135	4.7583
776	7750	8.0163	4.7611
777	7760	8.0199	4.7647
778	7770	8.0253	4.7701
779	7780	8.0312	4.776
780	7790	8.0363	4.7811
781	7800	8.0397	4.7845
782	7810	8.0463	4.7911
783	7820	8.0499	4.7947
784	7830	8.0564	4.8012
785	7840	8.063	4.8078
786	7850	8.0645	4.8093
787	7860	8.0669	4.8117
788	7870	8.069	4.8138
789	7880	8.0688	4.8136
790	7890	8.0705	4.8153
791	7900	8.0716	4.8164
792	7910	8.0736	4.8184
793	7920	8.075	4.8198
794	7930	8.0755	4.8203
795	7940	8.0763	4.8211
796	7950	8.0803	4.8251
797	7960	8.0774	4.8222
798	7970	8.0812	4.826
799	7980	8.0774	4.8222
800	7990	8.0768	4.8216
801	8000	8.075	4.8198
802	8010	8.0801	4.8249
803	8020	8.079	4.8238
804	8030	8.0766	4.8214
805	8040	8.079	4.8238
806	8050	8.076	4.8208
807	8060	8.0766	4.8214
808	8070	8.0756	4.8204
809	8080	8.0711	4.8159
810	8090	8.0901	4.8349
811	8100	8.0786	4.8234
812	8110	8.0825	4.8273
813	8120	8.079	4.8238

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	8.0756	4.8204
815	8140	8.0702	4.815
816	8150	8.0581	4.8029
817	8160	8.048	4.7928
818	8170	8.0504	4.7952
819	8180	8.0577	4.8025
820	8190	8.0643	4.8091
821	8200	8.0567	4.8015
822	8210	8.0435	4.7883
823	8220	8.0371	4.7819
824	8230	8.0213	4.7661
825	8240	8.0229	4.7677
826	8250	8.0305	4.7753
827	8260	8.033	4.7778
828	8270	8.0411	4.7859
829	8280	8.0419	4.7867
830	8290	8.0437	4.7885
831	8300	8.0543	4.7991
832	8310	8.0549	4.7997
833	8320	8.0353	4.7801
834	8330	8.039	4.7838
835	8340	8.049	4.7938
836	8350	8.0541	4.7989
837	8360	8.0666	4.8114
838	8370	8.0667	4.8115
839	8380	8.0607	4.8055
840	8390	8.066	4.8108
841	8400	8.0663	4.8111
842	8410	8.0573	4.8021
843	8420	8.0623	4.8071
844	8430	8.07	4.8148
845	8440	8.0684	4.8132
846	8450	8.0663	4.8111
847	8460	8.0754	4.8202
848	8470	8.0795	4.8243
849	8480	8.082	4.8268
850	8490	8.0826	4.8274
851	8500	8.0833	4.8281
852	8510	8.0851	4.8299
853	8520	8.0837	4.8285
854	8530	8.082	4.8268
855	8540	8.0834	4.8282
856	8550	8.0801	4.8249
857	8560	8.0814	4.8262
858	8570	8.0805	4.8253
859	8580	8.0797	4.8245
860	8590	8.0793	4.8241
861	8600	8.0777	4.8225
862	8610	8.0789	4.8237
863	8620	8.0773	4.8221
864	8630	8.0781	4.8229
865	8640	8.0794	4.8242
866	8650	8.0779	4.8227
867	8660	8.0788	4.8236
868	8670	8.0803	4.8251
869	8680	8.0776	4.8224
870	8690	8.0779	4.8227
871	8700	8.077	4.8218
872	8710	8.0758	4.8206
873	8720	8.078	4.8228
874	8730	8.0788	4.8236
875	8740	8.0748	4.8196
876	8750	8.0735	4.8183

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	8.0741	4.8189
878	8770	8.0739	4.8187
879	8780	8.0708	4.8156
880	8790	8.0713	4.8161
881	8800	8.0686	4.8134
882	8810	8.0669	4.8117
883	8820	8.0654	4.8102
884	8830	8.0626	4.8074
885	8840	8.061	4.8058
886	8850	8.0589	4.8037
887	8860	8.057	4.8018
888	8870	8.0553	4.8001
889	8880	8.0565	4.8013
890	8890	8.055	4.7998
891	8900	8.0538	4.7986
892	8910	8.052	4.7968
893	8920	8.0513	4.7961
894	8930	8.051	4.7958
895	8940	8.0515	4.7963
896	8950	8.0509	4.7957
897	8960	8.0521	4.7969
898	8970	8.0517	4.7965
899	8980	8.0524	4.7972
900	8990	8.0541	4.7989
901	9000	8.0543	4.7991
902	9010	8.0548	4.7996
903	9020	8.0535	4.7983
904	9030	8.0526	4.7974
905	9040	8.0535	4.7983
906	9050	8.0529	4.7977
907	9060	8.0535	4.7983
908	9070	8.0513	4.7961
909	9080	8.0509	4.7957
910	9090	8.0525	4.7973
911	9100	8.0529	4.7977
912	9110	8.0541	4.7989
913	9120	8.0564	4.8012
914	9130	8.0585	4.8033
915	9140	8.0591	4.8039
916	9150	8.0569	4.8017
917	9160	8.0588	4.8036
918	9170	8.0627	4.8075
919	9180	8.0649	4.8097
920	9190	8.0686	4.8134
921	9200	8.0683	4.8131
922	9210	8.0687	4.8135
923	9220	8.0698	4.8146
924	9230	8.0696	4.8144
925	9240	8.0701	4.8149
926	9250	8.073	4.8178
927	9260	8.0752	4.82
928	9270	8.0743	4.8191
929	9280	8.0729	4.8177
930	9290	8.0777	4.8225
931	9300	8.0801	4.8249
932	9310	8.0787	4.8235
933	9320	8.0784	4.8232
934	9330	8.0793	4.8241
935	9340	8.0785	4.8233
936	9350	8.0779	4.8227
937	9360	8.0774	4.8222
938	9370	8.0778	4.8226
939	9380	8.0758	4.8206

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	8.0742	4.819
941	9400	8.0729	4.8177
942	9410	8.0706	4.8154
943	9420	8.0651	4.8099
944	9430	8.0611	4.8059
945	9440	8.059	4.8038
946	9450	8.0558	4.8006
947	9460	8.0536	4.7984
948	9470	8.0517	4.7965
949	9480	8.0509	4.7957
950	9490	8.0497	4.7945
951	9500	8.0474	4.7922
952	9510	8.0412	4.786
953	9520	8.0386	4.7834
954	9530	8.0329	4.7777
955	9540	8.0277	4.7725
956	9550	8.0222	4.767
957	9560	8.0189	4.7637
958	9570	8.0174	4.7622
959	9580	8.0124	4.7572
960	9590	8.0073	4.7521
961	9600	7.9991	4.7439
962	9610	7.9972	4.742
963	9620	7.9981	4.7429
964	9630	7.9922	4.737
965	9640	7.9902	4.735
966	9650	7.9877	4.7325
967	9660	7.9846	4.7294
968	9670	7.9824	4.7272
969	9680	7.9814	4.7262
970	9690	7.9825	4.7273
971	9700	7.9847	4.7295
972	9710	7.9834	4.7282
973	9720	7.9828	4.7276
974	9730	7.98	4.7248
975	9740	7.9821	4.7269
976	9750	7.9817	4.7265
977	9760	7.983	4.7278
978	9770	7.9831	4.7279
979	9780	7.9807	4.7255
980	9790	7.9789	4.7237
981	9800	7.98	4.7248
982	9810	7.9799	4.7247
983	9820	7.9804	4.7252
984	9830	7.9823	4.7271
985	9840	7.9804	4.7252
986	9850	7.983	4.7278
987	9860	7.9822	4.727
988	9870	7.9821	4.7269
989	9880	7.9845	4.7293
990	9890	7.9854	4.7302
991	9900	7.9874	4.7322
992	9910	7.991	4.7358
993	9920	7.9944	4.7392
994	9930	7.9926	4.7374
995	9940	7.9934	4.7382
996	9950	7.9958	4.7406
997	9960	7.9974	4.7422
998	9970	7.9989	4.7437
999	9980	7.9984	4.7432
1000	9990	7.9998	4.7446
1001	10000	8.0042	4.749
1002	10010	8.0067	4.7515

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	8.0066	4.7514
1004	10030	8.0082	4.753
1005	10040	8.0115	4.7563
1006	10050	8.0105	4.7553
1007	10060	8.0115	4.7563
1008	10070	8.0099	4.7547
1009	10080	8.0062	4.751
1010	10090	7.5554	4.3002
1011	10100	7.2529	3.9977
1012	10110	7.0308	3.7756
1013	10120	6.8579	3.6027
1014	10130	6.7115	3.4563
1015	10140	6.5869	3.3317
1016	10150	6.4731	3.2179
1017	10160	6.3744	3.1192
1018	10170	6.2812	3.026
1019	10180	6.2013	2.9461
1020	10190	6.1246	2.8694
1021	10200	6.0546	2.7994
1022	10210	5.9864	2.7312
1023	10220	5.9278	2.6726
1024	10230	5.8695	2.6143
1025	10240	5.8092	2.554
1026	10250	5.7573	2.5021
1027	10260	5.7063	2.4511
1028	10270	5.6606	2.4054
1029	10280	5.6137	2.3585
1030	10290	5.5733	2.3181
1031	10300	5.5327	2.2775
1032	10310	5.4911	2.2359
1033	10320	5.4525	2.1973
1034	10330	5.4157	2.1605
1035	10340	5.381	2.1258
1036	10350	5.346	2.0908
1037	10360	5.315	2.0598
1038	10370	5.2842	2.029
1039	10380	5.2552	2.00
1040	10390	5.225	1.9698
1041	10400	5.1952	1.94
1042	10410	5.1669	1.9117
1043	10420	5.1435	1.8883
1044	10430	5.1171	1.8619
1045	10440	5.0937	1.8385
1046	10450	5.0674	1.8122
1047	10460	5.0452	1.79
1048	10470	5.0237	1.7685
1049	10480	5.0025	1.7473
1050	10490	4.9823	1.7271
1051	10500	4.9623	1.7071
1052	10510	4.9422	1.687
1053	10520	4.9229	1.6677
1054	10530	4.9036	1.6484
1055	10540	4.888	1.6328
1056	10550	4.8724	1.6172
1057	10560	4.8577	1.6025
1058	10570	4.8397	1.5845
1059	10580	4.8246	1.5694
1060	10590	4.8086	1.5534
1061	10600	4.7921	1.5369
1062	10610	4.7785	1.5233
1063	10620	4.763	1.5078
1064	10630	4.7494	1.4942
1065	10640	4.7362	1.481

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	4.7233	1.4681
1067	10660	4.7096	1.4544
1068	10670	4.6975	1.4423
1069	10680	4.6857	1.4305
1070	10690	4.671	1.4158
1071	10700	4.6528	1.3976
1072	10710	4.6372	1.382
1073	10720	4.6254	1.3702
1074	10730	4.6113	1.3561
1075	10740	4.5995	1.3443
1076	10750	4.5869	1.3317
1077	10760	4.5749	1.3197
1078	10770	4.5625	1.3073
1079	10780	4.5498	1.2946
1080	10790	4.5374	1.2822
1081	10800	4.5261	1.2709
1082	10810	4.5151	1.2599
1083	10820	4.5017	1.2465
1084	10830	4.4905	1.2353
1085	10840	4.4777	1.2225
1086	10850	4.4657	1.2105
1087	10860	4.4536	1.1984
1088	10870	4.4434	1.1882
1089	10880	4.4319	1.1767
1090	10890	4.4219	1.1667
1091	10900	4.4108	1.1556
1092	10910	4.3998	1.1446
1093	10920	4.3909	1.1357
1094	10930	4.3796	1.1244
1095	10940	4.3707	1.1155
1096	10950	4.3598	1.1046
1097	10960	4.3491	1.0939
1098	10970	4.3409	1.0857
1099	10980	4.3313	1.0761
1100	10990	4.3194	1.0642
1101	11000	4.3101	1.0549
1102	11010	4.2988	1.0436
1103	11020	4.2887	1.0335
1104	11030	4.2795	1.0243
1105	11040	4.2697	1.0145
1106	11050	4.2611	1.0059
1107	11060	4.2504	0.9952
1108	11070	4.2416	0.9864
1109	11080	4.2333	0.9781
1110	11090	4.2249	0.9697
1111	11100	4.2142	0.959
1112	11110	4.2063	0.9511
1113	11120	4.1976	0.9424
1114	11130	4.1893	0.9341
1115	11140	4.1838	0.9286
1116	11150	4.1767	0.9215
1117	11160	4.1703	0.9151
1118	11170	4.1605	0.9053
1119	11180	4.153	0.8978
1120	11190	4.1457	0.8905
1121	11200	4.1391	0.8839
1122	11210	4.1325	0.8773
1123	11220	4.1233	0.8681
1124	11230	4.1196	0.8644
1125	11240	4.1139	0.8587
1126	11250	4.1063	0.8511
1127	11260	4.099	0.8438
1128	11270	4.0939	0.8387

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	4.0901	0.8349
1130	11290	4.0851	0.8299
1131	11300	4.083	0.8278
1132	11310	4.078	0.8228
1133	11320	4.0733	0.8181
1134	11330	4.0705	0.8153
1135	11340	4.0675	0.8123
1136	11350	4.0639	0.8087
1137	11360	4.0597	0.8045
1138	11370	4.0588	0.8036
1139	11380	4.0547	0.7995
1140	11390	4.0533	0.7981
1141	11400	4.0488	0.7936
1142	11410	4.0458	0.7906
1143	11420	4.0427	0.7875
1144	11430	4.0398	0.7846
1145	11440	4.0409	0.7857
1146	11450	4.0401	0.7849
1147	11460	4.0379	0.7827
1148	11470	4.0338	0.7786
1149	11480	4.0317	0.7765
1150	11490	4.0294	0.7742
1151	11500	4.0266	0.7714
1152	11510	4.0234	0.7682
1153	11520	4.0196	0.7644
1154	11530	4.0167	0.7615
1155	11540	4.0152	0.76
1156	11550	4.0146	0.7594
1157	11560	4.0092	0.754
1158	11570	4.0069	0.7517
1159	11580	4.0079	0.7527
1160	11590	4.0031	0.7479
1161	11600	4.0013	0.7461
1162	11610	4.0007	0.7455
1163	11620	3.9975	0.7423
1164	11630	3.9953	0.7401
1165	11640	3.9936	0.7384
1166	11650	3.9928	0.7376
1167	11660	3.9878	0.7326
1168	11670	3.9846	0.7294
1169	11680	3.9814	0.7262
1170	11690	3.9805	0.7253
1171	11700	3.9767	0.7215
1172	11710	3.973	0.7178
1173	11720	3.9684	0.7132
1174	11730	3.9663	0.7111
1175	11740	3.9639	0.7087
1176	11750	3.9605	0.7053
1177	11760	3.9567	0.7015
1178	11770	3.9545	0.6993
1179	11780	3.9515	0.6963
1180	11790	3.9475	0.6923
1181	11800	3.9461	0.6909
1182	11810	3.942	0.6868
1183	11820	3.9408	0.6856
1184	11830	3.9358	0.6806
1185	11840	3.9342	0.679
1186	11850	3.9311	0.6759
1187	11860	3.9286	0.6734
1188	11870	3.9247	0.6695
1189	11880	3.9218	0.6666
1190	11890	3.9203	0.6651
1191	11900	3.9185	0.6633

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	3.9162	0.661
1193	11920	3.9137	0.6585
1194	11930	3.9129	0.6577
1195	11940	3.9111	0.6559
1196	11950	3.9095	0.6543
1197	11960	3.908	0.6528
1198	11970	3.9062	0.651
1199	11980	3.9036	0.6484
1200	11990	3.9041	0.6489
1201	12000	3.9017	0.6465
1202	12010	3.9012	0.646
1203	12020	3.9012	0.646
1204	12030	3.9005	0.6453
1205	12040	3.8993	0.6441
1206	12050	3.8984	0.6432
1207	12060	3.8976	0.6424
1208	12070	3.8946	0.6394
1209	12080	3.895	0.6398
1210	12090	3.8918	0.6366
1211	12100	3.8916	0.6364
1212	12110	3.8888	0.6336
1213	12120	3.8867	0.6315
1214	12130	3.8866	0.6314
1215	12140	3.8843	0.6291
1216	12150	3.8842	0.629
1217	12160	3.8825	0.6273
1218	12170	3.882	0.6268
1219	12180	3.8801	0.6249
1220	12190	3.8803	0.6251
1221	12200	3.8793	0.6241
1222	12210	3.8794	0.6242
1223	12220	3.8782	0.623
1224	12230	3.8776	0.6224
1225	12240	3.8769	0.6217
1226	12250	3.874	0.6188
1227	12260	3.8731	0.6179
1228	12270	3.8719	0.6167
1229	12280	3.8698	0.6146
1230	12290	3.8699	0.6147
1231	12300	3.868	0.6128
1232	12310	3.8656	0.6104
1233	12320	3.8622	0.607
1234	12330	3.8603	0.6051
1235	12340	3.8584	0.6032
1236	12350	3.8567	0.6015
1237	12360	3.8546	0.5994
1238	12370	3.8522	0.597
1239	12380	3.8495	0.5943
1240	12390	3.8498	0.5946
1241	12400	3.8476	0.5924
1242	12410	3.8459	0.5907
1243	12420	3.8453	0.5901
1244	12430	3.8432	0.588
1245	12440	3.8414	0.5862
1246	12450	3.8396	0.5844
1247	12460	3.8366	0.5814
1248	12470	3.8346	0.5794
1249	12480	3.8318	0.5766
1250	12490	3.8294	0.5742
1251	12500	3.8249	0.5697
1252	12510	3.8223	0.5671
1253	12520	3.82	0.5648
1254	12530	3.8169	0.5617

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	3.8127	0.5575
1256	12550	3.8101	0.5549
1257	12560	3.8057	0.5505
1258	12570	3.8022	0.547
1259	12580	3.7987	0.5435
1260	12590	3.7961	0.5409
1261	12600	3.7952	0.54
1262	12610	3.79	0.5348
1263	12620	3.7897	0.5345
1264	12630	3.7865	0.5313
1265	12640	3.7857	0.5305
1266	12650	3.783	0.5278
1267	12660	3.7815	0.5263
1268	12670	3.7791	0.5239
1269	12680	3.7763	0.5211
1270	12690	3.7755	0.5203
1271	12700	3.7728	0.5176
1272	12710	3.7721	0.5169
1273	12720	3.7705	0.5153
1274	12730	3.7697	0.5145
1275	12740	3.7657	0.5105
1276	12750	3.7639	0.5087
1277	12760	3.7602	0.505
1278	12770	3.7622	0.507
1279	12780	3.7625	0.5073
1280	12790	3.7619	0.5067
1281	12800	3.7619	0.5067
1282	12810	3.7602	0.505
1283	12820	3.7626	0.5074
1284	12830	3.47	0.2148

Friesen Drillers Ltd.
307 PTH 12 N
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Pumping Test - Water Level Data	
Project: OBS-853	
Number: 2014-078-11472	
Client: City of Selkirk/MWSB	

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. g
Observation Well: MW-11-02	Static Water Level [ft]: 6.01	Radial Distance to PW [ft]: 5251

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	6.0105	0.00
2	10	6.0378	0.0273
3	20	6.0907	0.0802
4	30	6.1484	0.1379
5	40	6.2033	0.1928
6	50	6.2554	0.2449
7	60	6.3085	0.298
8	70	6.3507	0.3402
9	80	6.3908	0.3803
10	90	6.4319	0.4214
11	100	6.4731	0.4626
12	110	6.5129	0.5024
13	120	6.5455	0.535
14	130	6.5785	0.568
15	140	6.6095	0.599
16	150	6.6395	0.629
17	160	6.6638	0.6533
18	170	6.6878	0.6773
19	180	6.7095	0.699
20	190	6.734	0.7235
21	200	6.7611	0.7506
22	210	6.7809	0.7704
23	220	6.80	0.7895
24	230	6.8231	0.8126
25	240	6.844	0.8335
26	250	6.8599	0.8494
27	260	6.8754	0.8649
28	270	6.8959	0.8854
29	280	6.9128	0.9023
30	290	6.929	0.9185
31	300	6.9463	0.9358
32	310	6.964	0.9535
33	320	6.9753	0.9648
34	330	6.9868	0.9763
35	340	7.0011	0.9906
36	350	7.0155	1.005
37	360	7.0304	1.0199
38	370	7.0425	1.032
39	380	7.0539	1.0434
40	390	7.0642	1.0537
41	400	7.0719	1.0614
42	410	7.0819	1.0714
43	420	7.0907	1.0802
44	430	7.1029	1.0924
45	440	7.1132	1.1027
46	450	7.1225	1.112
47	460	7.1339	1.1234
48	470	7.1427	1.1322
49	480	7.1505	1.14
50	490	7.1592	1.1487
51	500	7.1663	1.1558
52	510	7.1741	1.1636
53	520	7.1824	1.1719
54	530	7.1916	1.1811
55	540	7.1995	1.189
56	550	7.2071	1.1966
57	560	7.2153	1.2048

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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	7.2214	1.2109
59	580	7.2296	1.2191
60	590	7.2367	1.2262
61	600	7.2436	1.2331
62	610	7.2522	1.2417
63	620	7.2576	1.2471
64	630	7.2661	1.2556
65	640	7.2755	1.265
66	650	7.2817	1.2712
67	660	7.2872	1.2767
68	670	7.2968	1.2863
69	680	7.3023	1.2918
70	690	7.3084	1.2979
71	700	7.3144	1.3039
72	710	7.3195	1.309
73	720	7.3271	1.3166
74	730	7.3314	1.3209
75	740	7.3371	1.3266
76	750	7.3447	1.3342
77	760	7.3493	1.3388
78	770	7.3515	1.341
79	780	7.3576	1.3471
80	790	7.3621	1.3516
81	800	7.3687	1.3582
82	810	7.3729	1.3624
83	820	7.3775	1.367
84	830	7.382	1.3715
85	840	7.3861	1.3756
86	850	7.3916	1.3811
87	860	7.3979	1.3874
88	870	7.4022	1.3917
89	880	7.4038	1.3933
90	890	7.4077	1.3972
91	900	7.4268	1.4163
92	910	7.4173	1.4068
93	920	7.4206	1.4101
94	930	7.4234	1.4129
95	940	7.4243	1.4138
96	950	7.4278	1.4173
97	960	7.4296	1.4191
98	970	7.4344	1.4239
99	980	7.4371	1.4266
100	990	7.4385	1.428
101	1000	7.4434	1.4329
102	1010	7.4471	1.4366
103	1020	7.4474	1.4369
104	1030	7.4445	1.434
105	1040	7.4469	1.4364
106	1050	7.4465	1.436
107	1060	7.448	1.4375
108	1070	7.4484	1.4379
109	1080	7.4523	1.4418
110	1090	7.4539	1.4434
111	1100	7.4498	1.4393
112	1110	7.4493	1.4388
113	1120	7.4544	1.4439
114	1130	7.4563	1.4458
115	1140	7.4589	1.4484
116	1150	7.4628	1.4523
117	1160	7.4624	1.4519
118	1170	7.4667	1.4562
119	1180	7.469	1.4585
120	1190	7.4705	1.46

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	7.4725	1.462
122	1210	7.4714	1.4609
123	1220	7.4715	1.461
124	1230	7.4687	1.4582
125	1240	7.4712	1.4607
126	1250	7.4709	1.4604
127	1260	7.4723	1.4618
128	1270	7.4736	1.4631
129	1280	7.473	1.4625
130	1290	7.4759	1.4654
131	1300	7.4758	1.4653
132	1310	7.4752	1.4647
133	1320	7.4787	1.4682
134	1330	7.4805	1.47
135	1340	7.4829	1.4724
136	1350	7.485	1.4745
137	1360	7.4865	1.476
138	1370	7.4876	1.4771
139	1380	7.4887	1.4782
140	1390	7.4878	1.4773
141	1400	7.4884	1.4779
142	1410	7.4885	1.478
143	1420	7.4884	1.4779
144	1430	7.4873	1.4768
145	1440	7.4905	1.48
146	1450	7.4927	1.4822
147	1460	7.4915	1.481
148	1470	7.4977	1.4872
149	1480	7.4999	1.4894
150	1490	7.5018	1.4913
151	1500	7.5036	1.4931
152	1510	7.507	1.4965
153	1520	7.5082	1.4977
154	1530	7.5104	1.4999
155	1540	7.5149	1.5044
156	1550	7.5149	1.5044
157	1560	7.5177	1.5072
158	1570	7.5175	1.507
159	1580	7.5192	1.5087
160	1590	7.5225	1.512
161	1600	7.5261	1.5156
162	1610	7.5299	1.5194
163	1620	7.5324	1.5219
164	1630	7.5382	1.5277
165	1640	7.5392	1.5287
166	1650	7.5418	1.5313
167	1660	7.5409	1.5304
168	1670	7.5439	1.5334
169	1680	7.5457	1.5352
170	1690	7.5485	1.538
171	1700	7.55	1.5395
172	1710	7.5465	1.536
173	1720	7.5508	1.5403
174	1730	7.5522	1.5417
175	1740	7.5603	1.5498
176	1750	7.5609	1.5504
177	1760	7.5596	1.5491
178	1770	7.5701	1.5596
179	1780	7.5617	1.5512
180	1790	7.5687	1.5582
181	1800	7.5716	1.5611
182	1810	7.569	1.5585
183	1820	7.5704	1.5599

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	7.5706	1.5601
185	1840	7.5732	1.5627
186	1850	7.5744	1.5639
187	1860	7.5759	1.5654
188	1870	7.5757	1.5652
189	1880	7.579	1.5685
190	1890	7.578	1.5675
191	1900	7.5798	1.5693
192	1910	7.5782	1.5677
193	1920	7.5784	1.5679
194	1930	7.5826	1.5721
195	1940	7.5807	1.5702
196	1950	7.5811	1.5706
197	1960	7.5825	1.572
198	1970	7.5823	1.5718
199	1980	7.5833	1.5728
200	1990	7.583	1.5725
201	2000	7.5874	1.5769
202	2010	7.588	1.5775
203	2020	7.5869	1.5764
204	2030	7.5884	1.5779
205	2040	7.5887	1.5782
206	2050	7.5903	1.5798
207	2060	7.5907	1.5802
208	2070	7.5919	1.5814
209	2080	7.5945	1.584
210	2090	7.5954	1.5849
211	2100	7.5956	1.5851
212	2110	7.5921	1.5816
213	2120	7.5933	1.5828
214	2130	7.5927	1.5822
215	2140	7.5968	1.5863
216	2150	7.5957	1.5852
217	2160	7.5963	1.5858
218	2170	7.5962	1.5857
219	2180	7.5977	1.5872
220	2190	7.5987	1.5882
221	2200	7.602	1.5915
222	2210	7.6045	1.594
223	2220	7.6066	1.5961
224	2230	7.6088	1.5983
225	2240	7.6069	1.5964
226	2250	7.6075	1.597
227	2260	7.6121	1.6016
228	2270	7.6153	1.6048
229	2280	7.6154	1.6049
230	2290	7.6166	1.6061
231	2300	7.621	1.6105
232	2310	7.6196	1.6091
233	2320	7.6197	1.6092
234	2330	7.6189	1.6084
235	2340	7.6228	1.6123
236	2350	7.6242	1.6137
237	2360	7.6275	1.617
238	2370	7.6259	1.6154
239	2380	7.6248	1.6143
240	2390	7.6233	1.6128
241	2400	7.6248	1.6143
242	2410	7.6246	1.6141
243	2420	7.6256	1.6151
244	2430	7.625	1.6145
245	2440	7.6268	1.6163
246	2450	7.6308	1.6203

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	7.6351	1.6246
248	2470	7.6377	1.6272
249	2480	7.6344	1.6239
250	2490	7.6342	1.6237
251	2500	7.6379	1.6274
252	2510	7.6423	1.6318
253	2520	7.6407	1.6302
254	2530	7.6451	1.6346
255	2540	7.6475	1.637
256	2550	7.6502	1.6397
257	2560	7.6523	1.6418
258	2570	7.6532	1.6427
259	2580	7.6545	1.644
260	2590	7.6544	1.6439
261	2600	7.6551	1.6446
262	2610	7.6557	1.6452
263	2620	7.6581	1.6476
264	2630	7.661	1.6505
265	2640	7.661	1.6505
266	2650	7.6602	1.6497
267	2660	7.6605	1.65
268	2670	7.663	1.6525
269	2680	7.6634	1.6529
270	2690	7.6664	1.6559
271	2700	7.6687	1.6582
272	2710	7.6683	1.6578
273	2720	7.6682	1.6577
274	2730	7.67	1.6595
275	2740	7.6583	1.6478
276	2750	7.6586	1.6481
277	2760	7.6588	1.6483
278	2770	7.6571	1.6466
279	2780	7.6624	1.6519
280	2790	7.6629	1.6524
281	2800	7.663	1.6525
282	2810	7.664	1.6535
283	2820	7.6694	1.6589
284	2830	7.6699	1.6594
285	2840	7.6679	1.6574
286	2850	7.6674	1.6569
287	2860	7.6701	1.6596
288	2870	7.6724	1.6619
289	2880	7.6761	1.6656
290	2890	7.6763	1.6658
291	2900	7.6778	1.6673
292	2910	7.6827	1.6722
293	2920	7.682	1.6715
294	2930	7.6812	1.6707
295	2940	7.6844	1.6739
296	2950	7.6881	1.6776
297	2960	7.6906	1.6801
298	2970	7.689	1.6785
299	2980	7.691	1.6805
300	2990	7.6919	1.6814
301	3000	7.6962	1.6857
302	3010	7.6971	1.6866
303	3020	7.6961	1.6856
304	3030	7.7002	1.6897
305	3040	7.7027	1.6922
306	3050	7.7036	1.6931
307	3060	7.7043	1.6938
308	3070	7.7029	1.6924
309	3080	7.7043	1.6938

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	7.705	1.6945
311	3100	7.7041	1.6936
312	3110	7.7079	1.6974
313	3120	7.7123	1.7018
314	3130	7.7169	1.7064
315	3140	7.724	1.7135
316	3150	7.7276	1.7171
317	3160	7.7336	1.7231
318	3170	7.7401	1.7296
319	3180	7.7411	1.7306
320	3190	7.7402	1.7297
321	3200	7.7438	1.7333
322	3210	7.7465	1.736
323	3220	7.7476	1.7371
324	3230	7.7555	1.745
325	3240	7.7589	1.7484
326	3250	7.7631	1.7526
327	3260	7.7646	1.7541
328	3270	7.7633	1.7528
329	3280	7.7696	1.7591
330	3290	7.7755	1.765
331	3300	7.7747	1.7642
332	3310	7.7719	1.7614
333	3320	7.7676	1.7571
334	3330	7.7713	1.7608
335	3340	7.7762	1.7657
336	3350	7.7867	1.7762
337	3360	7.7816	1.7711
338	3370	7.779	1.7685
339	3380	7.8114	1.8009
340	3390	7.7793	1.7688
341	3400	7.777	1.7665
342	3410	7.7817	1.7712
343	3420	7.7883	1.7778
344	3430	7.7893	1.7788
345	3440	7.7929	1.7824
346	3450	7.7952	1.7847
347	3460	7.7961	1.7856
348	3470	7.7974	1.7869
349	3480	7.7979	1.7874
350	3490	7.7962	1.7857
351	3500	7.8001	1.7896
352	3510	7.8011	1.7906
353	3520	7.8041	1.7936
354	3530	7.8042	1.7937
355	3540	7.8037	1.7932
356	3550	7.8021	1.7916
357	3560	7.8019	1.7914
358	3570	7.8037	1.7932
359	3580	7.803	1.7925
360	3590	7.8004	1.7899
361	3600	7.798	1.7875
362	3610	7.7983	1.7878
363	3620	7.7981	1.7876
364	3630	7.8001	1.7896
365	3640	7.8014	1.7909
366	3650	7.7999	1.7894
367	3660	7.8035	1.793
368	3670	7.8037	1.7932
369	3680	7.8062	1.7957
370	3690	7.8041	1.7936
371	3700	7.8074	1.7969
372	3710	7.8091	1.7986

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	7.8106	1.8001
374	3730	7.8096	1.7991
375	3740	7.8129	1.8024
376	3750	7.8158	1.8053
377	3760	7.8221	1.8116
378	3770	7.8219	1.8114
379	3780	7.8236	1.8131
380	3790	7.8214	1.8109
381	3800	7.8211	1.8106
382	3810	7.8198	1.8093
383	3820	7.8187	1.8082
384	3830	7.8199	1.8094
385	3840	7.8212	1.8107
386	3850	7.8237	1.8132
387	3860	7.8255	1.815
388	3870	7.8288	1.8183
389	3880	7.8342	1.8237
390	3890	7.8369	1.8264
391	3900	7.8356	1.8251
392	3910	7.8356	1.8251
393	3920	7.8377	1.8272
394	3930	7.8396	1.8291
395	3940	7.8413	1.8308
396	3950	7.8401	1.8296
397	3960	7.8401	1.8296
398	3970	7.8445	1.834
399	3980	7.8477	1.8372
400	3990	7.8524	1.8419
401	4000	7.8582	1.8477
402	4010	7.8617	1.8512
403	4020	7.8638	1.8533
404	4030	7.8685	1.858
405	4040	7.8716	1.8611
406	4050	7.8744	1.8639
407	4060	7.8769	1.8664
408	4070	7.8815	1.871
409	4080	7.8845	1.874
410	4090	7.8836	1.8731
411	4100	7.882	1.8715
412	4110	7.8825	1.872
413	4120	7.8839	1.8734
414	4130	7.8845	1.874
415	4140	7.8918	1.8813
416	4150	7.8893	1.8788
417	4160	7.8851	1.8746
418	4170	7.8878	1.8773
419	4180	7.8888	1.8783
420	4190	7.8922	1.8817
421	4200	7.901	1.8905
422	4210	7.8906	1.8801
423	4220	7.8894	1.8789
424	4230	7.8945	1.884
425	4240	7.8878	1.8773
426	4250	7.8857	1.8752
427	4260	7.8858	1.8753
428	4270	7.8834	1.8729
429	4280	7.8821	1.8716
430	4290	7.8795	1.869
431	4300	7.8809	1.8704
432	4310	7.8799	1.8694
433	4320	7.8758	1.8653
434	4330	7.8744	1.8639
435	4340	7.8734	1.8629

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	7.8714	1.8609
437	4360	7.8733	1.8628
438	4370	7.8724	1.8619
439	4380	7.8718	1.8613
440	4390	7.8722	1.8617
441	4400	7.8751	1.8646
442	4410	7.8777	1.8672
443	4420	7.8766	1.8661
444	4430	7.8772	1.8667
445	4440	7.8781	1.8676
446	4450	7.8786	1.8681
447	4460	7.8789	1.8684
448	4470	7.8776	1.8671
449	4480	7.878	1.8675
450	4490	7.8775	1.867
451	4500	7.8783	1.8678
452	4510	7.8784	1.8679
453	4520	7.8796	1.8691
454	4530	7.8804	1.8699
455	4540	7.8815	1.871
456	4550	7.8832	1.8727
457	4560	7.8862	1.8757
458	4570	7.8863	1.8758
459	4580	7.8893	1.8788
460	4590	7.8904	1.8799
461	4600	7.8904	1.8799
462	4610	7.8912	1.8807
463	4620	7.8938	1.8833
464	4630	7.8941	1.8836
465	4640	7.8957	1.8852
466	4650	7.8986	1.8881
467	4660	7.9006	1.8901
468	4670	7.904	1.8935
469	4680	7.9067	1.8962
470	4690	7.908	1.8975
471	4700	7.9094	1.8989
472	4710	7.9093	1.8988
473	4720	7.9109	1.9004
474	4730	7.9138	1.9033
475	4740	7.9135	1.903
476	4750	7.9173	1.9068
477	4760	7.9181	1.9076
478	4770	7.9202	1.9097
479	4780	7.9223	1.9118
480	4790	7.9239	1.9134
481	4800	7.924	1.9135
482	4810	7.9231	1.9126
483	4820	7.9256	1.9151
484	4830	7.9263	1.9158
485	4840	7.9256	1.9151
486	4850	7.9247	1.9142
487	4860	7.9278	1.9173
488	4870	7.926	1.9155
489	4880	7.9258	1.9153
490	4890	7.9281	1.9176
491	4900	7.9283	1.9178
492	4910	7.9275	1.917
493	4920	7.9263	1.9158
494	4930	7.9294	1.9189
495	4940	7.9297	1.9192
496	4950	7.928	1.9175
497	4960	7.9307	1.9202
498	4970	7.9292	1.9187

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	Page 9 of 21
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	7.9323	1.9218
500	4990	7.9329	1.9224
501	5000	7.9311	1.9206
502	5010	7.9296	1.9191
503	5020	7.9273	1.9168
504	5030	7.9293	1.9188
505	5040	7.9271	1.9166
506	5050	7.9253	1.9148
507	5060	7.9233	1.9128
508	5070	7.9243	1.9138
509	5080	7.9266	1.9161
510	5090	7.9258	1.9153
511	5100	7.9259	1.9154
512	5110	7.9262	1.9157
513	5120	7.926	1.9155
514	5130	7.9236	1.9131
515	5140	7.9258	1.9153
516	5150	7.9285	1.918
517	5160	7.9284	1.9179
518	5170	7.93	1.9195
519	5180	7.9301	1.9196
520	5190	7.932	1.9215
521	5200	7.9326	1.9221
522	5210	7.9333	1.9228
523	5220	7.9349	1.9244
524	5230	7.9363	1.9258
525	5240	7.938	1.9275
526	5250	7.94	1.9295
527	5260	7.9405	1.93
528	5270	7.9412	1.9307
529	5280	7.9446	1.9341
530	5290	7.9463	1.9358
531	5300	7.9484	1.9379
532	5310	7.9502	1.9397
533	5320	7.9525	1.942
534	5330	7.9541	1.9436
535	5340	7.9564	1.9459
536	5350	7.9583	1.9478
537	5360	7.9588	1.9483
538	5370	7.9603	1.9498
539	5380	7.9615	1.951
540	5390	7.9657	1.9552
541	5400	7.9674	1.9569
542	5410	7.9714	1.9609
543	5420	7.9761	1.9656
544	5430	7.9776	1.9671
545	5440	7.9783	1.9678
546	5450	7.9829	1.9724
547	5460	7.9862	1.9757
548	5470	7.9905	1.98
549	5480	7.995	1.9845
550	5490	7.9985	1.988
551	5500	8.0006	1.9901
552	5510	8.0032	1.9927
553	5520	8.0022	1.9917
554	5530	8.0052	1.9947
555	5540	8.0115	2.001
556	5550	8.0135	2.003
557	5560	8.0128	2.0023
558	5570	8.0164	2.0059
559	5580	8.0181	2.0076
560	5590	8.0202	2.0097
561	5600	8.0241	2.0136

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	8.0261	2.0156
563	5620	8.0279	2.0174
564	5630	8.0311	2.0206
565	5640	8.0333	2.0228
566	5650	8.0357	2.0252
567	5660	8.0361	2.0256
568	5670	8.0362	2.0257
569	5680	8.0382	2.0277
570	5690	8.0392	2.0287
571	5700	8.0382	2.0277
572	5710	8.0402	2.0297
573	5720	8.0431	2.0326
574	5730	8.0447	2.0342
575	5740	8.0434	2.0329
576	5750	8.0487	2.0382
577	5760	8.0488	2.0383
578	5770	8.043	2.0325
579	5780	8.0459	2.0354
580	5790	8.0491	2.0386
581	5800	8.0484	2.0379
582	5810	8.0481	2.0376
583	5820	8.0509	2.0404
584	5830	8.0541	2.0436
585	5840	8.0545	2.044
586	5850	8.057	2.0465
587	5860	8.057	2.0465
588	5870	8.0629	2.0524
589	5880	8.0635	2.053
590	5890	8.0602	2.0497
591	5900	8.059	2.0485
592	5910	8.0655	2.055
593	5920	8.0713	2.0608
594	5930	8.0696	2.0591
595	5940	8.0728	2.0623
596	5950	8.0745	2.064
597	5960	8.0755	2.065
598	5970	8.0748	2.0643
599	5980	8.0762	2.0657
600	5990	8.078	2.0675
601	6000	8.0788	2.0683
602	6010	8.0798	2.0693
603	6020	8.0811	2.0706
604	6030	8.0858	2.0753
605	6040	8.0873	2.0768
606	6050	8.0897	2.0792
607	6060	8.0908	2.0803
608	6070	8.0928	2.0823
609	6080	8.0896	2.0791
610	6090	8.0909	2.0804
611	6100	8.0956	2.0851
612	6110	8.1009	2.0904
613	6120	8.1018	2.0913
614	6130	8.1061	2.0956
615	6140	8.1093	2.0988
616	6150	8.1133	2.1028
617	6160	8.1201	2.1096
618	6170	8.1226	2.1121
619	6180	8.1234	2.1129
620	6190	8.1294	2.1189
621	6200	8.1335	2.123
622	6210	8.1365	2.126
623	6220	8.1422	2.1317
624	6230	8.1453	2.1348

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	8.1484	2.1379
626	6250	8.1522	2.1417
627	6260	8.1534	2.1429
628	6270	8.1578	2.1473
629	6280	8.1594	2.1489
630	6290	8.1674	2.1569
631	6300	8.1704	2.1599
632	6310	8.1703	2.1598
633	6320	8.1713	2.1608
634	6330	8.1695	2.159
635	6340	8.1742	2.1637
636	6350	8.1798	2.1693
637	6360	8.1824	2.1719
638	6370	8.1809	2.1704
639	6380	8.1802	2.1697
640	6390	8.1833	2.1728
641	6400	8.1847	2.1742
642	6410	8.1859	2.1754
643	6420	8.1835	2.173
644	6430	8.1863	2.1758
645	6440	8.1894	2.1789
646	6450	8.1918	2.1813
647	6460	8.1907	2.1802
648	6470	8.1885	2.178
649	6480	8.1858	2.1753
650	6490	8.1889	2.1784
651	6500	8.1858	2.1753
652	6510	8.1842	2.1737
653	6520	8.1833	2.1728
654	6530	8.1823	2.1718
655	6540	8.1841	2.1736
656	6550	8.1872	2.1767
657	6560	8.185	2.1745
658	6570	8.1857	2.1752
659	6580	8.1829	2.1724
660	6590	8.1869	2.1764
661	6600	8.1906	2.1801
662	6610	8.1899	2.1794
663	6620	8.1885	2.178
664	6630	8.1906	2.1801
665	6640	8.1926	2.1821
666	6650	8.1942	2.1837
667	6660	8.1931	2.1826
668	6670	8.1971	2.1866
669	6680	8.1954	2.1849
670	6690	8.1995	2.189
671	6700	8.1995	2.189
672	6710	8.2027	2.1922
673	6720	8.2055	2.195
674	6730	8.2048	2.1943
675	6740	8.2076	2.1971
676	6750	8.2107	2.2002
677	6760	8.2138	2.2033
678	6770	8.2138	2.2033
679	6780	8.2152	2.2047
680	6790	8.219	2.2085
681	6800	8.2228	2.2123
682	6810	8.2276	2.2171
683	6820	8.2285	2.218
684	6830	8.2345	2.224
685	6840	8.2388	2.2283
686	6850	8.2438	2.2333
687	6860	8.2477	2.2372

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	8.2533	2.2428
689	6880	8.2567	2.2462
690	6890	8.2617	2.2512
691	6900	8.2674	2.2569
692	6910	8.274	2.2635
693	6920	8.2784	2.2679
694	6930	8.2856	2.2751
695	6940	8.2877	2.2772
696	6950	8.294	2.2835
697	6960	8.2986	2.2881
698	6970	8.3057	2.2952
699	6980	8.3075	2.297
700	6990	8.3125	2.302
701	7000	8.3217	2.3112
702	7010	8.3271	2.3166
703	7020	8.3292	2.3187
704	7030	8.3312	2.3207
705	7040	8.3346	2.3241
706	7050	8.342	2.3315
707	7060	8.3478	2.3373
708	7070	8.3498	2.3393
709	7080	8.3545	2.344
710	7090	8.3598	2.3493
711	7100	8.3645	2.354
712	7110	8.3696	2.3591
713	7120	8.3733	2.3628
714	7130	8.3766	2.3661
715	7140	8.3771	2.3666
716	7150	8.3828	2.3723
717	7160	8.3842	2.3737
718	7170	8.3874	2.3769
719	7180	8.3917	2.3812
720	7190	8.3962	2.3857
721	7200	8.4022	2.3917
722	7210	8.4029	2.3924
723	7220	8.4052	2.3947
724	7230	8.4094	2.3989
725	7240	8.4136	2.4031
726	7250	8.4171	2.4066
727	7260	8.4145	2.404
728	7270	8.415	2.4045
729	7280	8.414	2.4035
730	7290	8.4206	2.4101
731	7300	8.4183	2.4078
732	7310	8.4293	2.4188
733	7320	8.4255	2.415
734	7330	8.4247	2.4142
735	7340	8.4329	2.4224
736	7350	8.4422	2.4317
737	7360	8.4418	2.4313
738	7370	8.4376	2.4271
739	7380	8.4469	2.4364
740	7390	8.4426	2.4321
741	7400	8.4477	2.4372
742	7410	8.4501	2.4396
743	7420	8.4525	2.442
744	7430	8.4552	2.4447
745	7440	8.4601	2.4496
746	7450	8.4639	2.4534
747	7460	8.4624	2.4519
748	7470	8.4622	2.4517
749	7480	8.4665	2.456
750	7490	8.4701	2.4596

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	8.4763	2.4658
752	7510	8.4795	2.469
753	7520	8.4822	2.4717
754	7530	8.488	2.4775
755	7540	8.4895	2.479
756	7550	8.495	2.4845
757	7560	8.5008	2.4903
758	7570	8.4972	2.4867
759	7580	8.5033	2.4928
760	7590	8.5049	2.4944
761	7600	8.5117	2.5012
762	7610	8.5158	2.5053
763	7620	8.5231	2.5126
764	7630	8.5259	2.5154
765	7640	8.5279	2.5174
766	7650	8.5325	2.522
767	7660	8.537	2.5265
768	7670	8.5375	2.527
769	7680	8.5419	2.5314
770	7690	8.5442	2.5337
771	7700	8.5501	2.5396
772	7710	8.5644	2.5539
773	7720	8.5526	2.5421
774	7730	8.5595	2.549
775	7740	8.5633	2.5528
776	7750	8.5687	2.5582
777	7760	8.5708	2.5603
778	7770	8.5759	2.5654
779	7780	8.5802	2.5697
780	7790	8.5847	2.5742
781	7800	8.5878	2.5773
782	7810	8.5885	2.578
783	7820	8.5963	2.5858
784	7830	8.6007	2.5902
785	7840	8.6037	2.5932
786	7850	8.6037	2.5932
787	7860	8.6069	2.5964
788	7870	8.6078	2.5973
789	7880	8.6093	2.5988
790	7890	8.6078	2.5973
791	7900	8.6102	2.5997
792	7910	8.6125	2.602
793	7920	8.6127	2.6022
794	7930	8.6113	2.6008
795	7940	8.6121	2.6016
796	7950	8.6151	2.6046
797	7960	8.6118	2.6013
798	7970	8.6126	2.6021
799	7980	8.6099	2.5994
800	7990	8.609	2.5985
801	8000	8.6053	2.5948
802	8010	8.6126	2.6021
803	8020	8.6106	2.6001
804	8030	8.6059	2.5954
805	8040	8.6085	2.598
806	8050	8.6064	2.5959
807	8060	8.6048	2.5943
808	8070	8.6027	2.5922
809	8080	8.5972	2.5867
810	8090	8.6167	2.6062
811	8100	8.6077	2.5972
812	8110	8.6084	2.5979
813	8120	8.6066	2.5961

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	Page 14 of 21
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	8.6072	2.5967
815	8140	8.5973	2.5868
816	8150	8.5802	2.5697
817	8160	8.5762	2.5657
818	8170	8.5751	2.5646
819	8180	8.5836	2.5731
820	8190	8.5882	2.5777
821	8200	8.5813	2.5708
822	8210	8.57	2.5595
823	8220	8.5624	2.5519
824	8230	8.5457	2.5352
825	8240	8.5498	2.5393
826	8250	8.5596	2.5491
827	8260	8.565	2.5545
828	8270	8.5733	2.5628
829	8280	8.5709	2.5604
830	8290	8.5751	2.5646
831	8300	8.5834	2.5729
832	8310	8.5896	2.5791
833	8320	8.5663	2.5558
834	8330	8.5693	2.5588
835	8340	8.5797	2.5692
836	8350	8.586	2.5755
837	8360	8.5995	2.589
838	8370	8.60	2.5895
839	8380	8.5873	2.5768
840	8390	8.6025	2.592
841	8400	8.5909	2.5804
842	8410	8.5843	2.5738
843	8420	8.5988	2.5883
844	8430	8.6008	2.5903
845	8440	8.6006	2.5901
846	8450	8.5993	2.5888
847	8460	8.6084	2.5979
848	8470	8.6136	2.6031
849	8480	8.616	2.6055
850	8490	8.6164	2.6059
851	8500	8.6151	2.6046
852	8510	8.6186	2.6081
853	8520	8.617	2.6065
854	8530	8.6165	2.606
855	8540	8.6175	2.607
856	8550	8.6151	2.6046
857	8560	8.6164	2.6059
858	8570	8.6155	2.605
859	8580	8.6142	2.6037
860	8590	8.6129	2.6024
861	8600	8.6125	2.602
862	8610	8.6131	2.6026
863	8620	8.6152	2.6047
864	8630	8.6117	2.6012
865	8640	8.6138	2.6033
866	8650	8.612	2.6015
867	8660	8.6125	2.602
868	8670	8.6117	2.6012
869	8680	8.612	2.6015
870	8690	8.6091	2.5986
871	8700	8.6089	2.5984
872	8710	8.6081	2.5976
873	8720	8.6097	2.5992
874	8730	8.6083	2.5978
875	8740	8.6048	2.5943
876	8750	8.6041	2.5936

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	8.6049	2.5944
878	8770	8.6044	2.5939
879	8780	8.6043	2.5938
880	8790	8.6033	2.5928
881	8800	8.6031	2.5926
882	8810	8.604	2.5935
883	8820	8.6038	2.5933
884	8830	8.6019	2.5914
885	8840	8.6016	2.5911
886	8850	8.6012	2.5907
887	8860	8.6015	2.591
888	8870	8.5985	2.588
889	8880	8.5999	2.5894
890	8890	8.5979	2.5874
891	8900	8.5994	2.5889
892	8910	8.5989	2.5884
893	8920	8.5992	2.5887
894	8930	8.5987	2.5882
895	8940	8.5988	2.5883
896	8950	8.5986	2.5881
897	8960	8.599	2.5885
898	8970	8.6008	2.5903
899	8980	8.6012	2.5907
900	8990	8.6016	2.5911
901	9000	8.6004	2.5899
902	9010	8.6016	2.5911
903	9020	8.6033	2.5928
904	9030	8.6027	2.5922
905	9040	8.6027	2.5922
906	9050	8.6033	2.5928
907	9060	8.6017	2.5912
908	9070	8.603	2.5925
909	9080	8.6031	2.5926
910	9090	8.6035	2.593
911	9100	8.6061	2.5956
912	9110	8.606	2.5955
913	9120	8.6071	2.5966
914	9130	8.6098	2.5993
915	9140	8.6114	2.6009
916	9150	8.6102	2.5997
917	9160	8.611	2.6005
918	9170	8.6165	2.606
919	9180	8.6181	2.6076
920	9190	8.6222	2.6117
921	9200	8.6224	2.6119
922	9210	8.6227	2.6122
923	9220	8.6241	2.6136
924	9230	8.625	2.6145
925	9240	8.625	2.6145
926	9250	8.6284	2.6179
927	9260	8.6299	2.6194
928	9270	8.6286	2.6181
929	9280	8.6291	2.6186
930	9290	8.6325	2.622
931	9300	8.6355	2.625
932	9310	8.6355	2.625
933	9320	8.636	2.6255
934	9330	8.6358	2.6253
935	9340	8.6346	2.6241
936	9350	8.6327	2.6222
937	9360	8.6339	2.6234
938	9370	8.6345	2.624
939	9380	8.6328	2.6223

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	8.6329	2.6224
941	9400	8.6293	2.6188
942	9410	8.6273	2.6168
943	9420	8.6204	2.6099
944	9430	8.6188	2.6083
945	9440	8.6126	2.6021
946	9450	8.612	2.6015
947	9460	8.6105	2.60
948	9470	8.6078	2.5973
949	9480	8.606	2.5955
950	9490	8.6043	2.5938
951	9500	8.6005	2.59
952	9510	8.5964	2.5859
953	9520	8.5928	2.5823
954	9530	8.5857	2.5752
955	9540	8.5816	2.5711
956	9550	8.5764	2.5659
957	9560	8.5715	2.561
958	9570	8.5698	2.5593
959	9580	8.5647	2.5542
960	9590	8.5577	2.5472
961	9600	8.5522	2.5417
962	9610	8.5498	2.5393
963	9620	8.5494	2.5389
964	9630	8.5448	2.5343
965	9640	8.5412	2.5307
966	9650	8.5372	2.5267
967	9660	8.5338	2.5233
968	9670	8.5306	2.5201
969	9680	8.529	2.5185
970	9690	8.5304	2.5199
971	9700	8.5296	2.5191
972	9710	8.5283	2.5178
973	9720	8.5266	2.5161
974	9730	8.5256	2.5151
975	9740	8.5267	2.5162
976	9750	8.5271	2.5166
977	9760	8.5253	2.5148
978	9770	8.5269	2.5164
979	9780	8.5245	2.514
980	9790	8.5253	2.5148
981	9800	8.5251	2.5146
982	9810	8.5255	2.515
983	9820	8.5276	2.5171
984	9830	8.5286	2.5181
985	9840	8.5261	2.5156
986	9850	8.5277	2.5172
987	9860	8.5294	2.5189
988	9870	8.5285	2.518
989	9880	8.5315	2.521
990	9890	8.5319	2.5214
991	9900	8.536	2.5255
992	9910	8.538	2.5275
993	9920	8.5416	2.5311
994	9930	8.5415	2.531
995	9940	8.5429	2.5324
996	9950	8.5471	2.5366
997	9960	8.5465	2.536
998	9970	8.5496	2.5391
999	9980	8.5518	2.5413
1000	9990	8.5547	2.5442
1001	10000	8.5572	2.5467
1002	10010	8.5598	2.5493

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	8.5618	2.5513
1004	10030	8.5644	2.5539
1005	10040	8.5664	2.5559
1006	10050	8.5652	2.5547
1007	10060	8.5674	2.5569
1008	10070	8.5654	2.5549
1009	10080	8.564	2.5535
1010	10090	8.5496	2.5391
1011	10100	8.5051	2.4946
1012	10110	8.4538	2.4433
1013	10120	8.3996	2.3891
1014	10130	8.3453	2.3348
1015	10140	8.2927	2.2822
1016	10150	8.2407	2.2302
1017	10160	8.1876	2.1771
1018	10170	8.1383	2.1278
1019	10180	8.0947	2.0842
1020	10190	8.0546	2.0441
1021	10200	8.0095	1.999
1022	10210	7.9696	1.9591
1023	10220	7.9345	1.924
1024	10230	7.8983	1.8878
1025	10240	7.8594	1.8489
1026	10250	7.8271	1.8166
1027	10260	7.7962	1.7857
1028	10270	7.7643	1.7538
1029	10280	7.7367	1.7262
1030	10290	7.7086	1.6981
1031	10300	7.6816	1.6711
1032	10310	7.6543	1.6438
1033	10320	7.6266	1.6161
1034	10330	7.6025	1.592
1035	10340	7.5795	1.569
1036	10350	7.5574	1.5469
1037	10360	7.5338	1.5233
1038	10370	7.5164	1.5059
1039	10380	7.496	1.4855
1040	10390	7.4762	1.4657
1041	10400	7.4558	1.4453
1042	10410	7.4379	1.4274
1043	10420	7.4225	1.412
1044	10430	7.4062	1.3957
1045	10440	7.3892	1.3787
1046	10450	7.3729	1.3624
1047	10460	7.357	1.3465
1048	10470	7.344	1.3335
1049	10480	7.3309	1.3204
1050	10490	7.3177	1.3072
1051	10500	7.3047	1.2942
1052	10510	7.2907	1.2802
1053	10520	7.2778	1.2673
1054	10530	7.2676	1.2571
1055	10540	7.256	1.2455
1056	10550	7.2462	1.2357
1057	10560	7.2364	1.2259
1058	10570	7.2245	1.214
1059	10580	7.2166	1.2061
1060	10590	7.2054	1.1949
1061	10600	7.1957	1.1852
1062	10610	7.1871	1.1766
1063	10620	7.1812	1.1707
1064	10630	7.1702	1.1597
1065	10640	7.162	1.1515

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	7.1549	1.1444
1067	10660	7.1451	1.1346
1068	10670	7.1388	1.1283
1069	10680	7.131	1.1205
1070	10690	7.1213	1.1108
1071	10700	7.1109	1.1004
1072	10710	7.0957	1.0852
1073	10720	7.0891	1.0786
1074	10730	7.0791	1.0686
1075	10740	7.0711	1.0606
1076	10750	7.0615	1.051
1077	10760	7.0538	1.0433
1078	10770	7.0457	1.0352
1079	10780	7.0368	1.0263
1080	10790	7.0282	1.0177
1081	10800	7.0203	1.0098
1082	10810	7.0132	1.0027
1083	10820	7.0037	0.9932
1084	10830	6.9946	0.9841
1085	10840	6.9863	0.9758
1086	10850	6.9776	0.9671
1087	10860	6.9683	0.9578
1088	10870	6.9609	0.9504
1089	10880	6.9528	0.9423
1090	10890	6.9441	0.9336
1091	10900	6.9366	0.9261
1092	10910	6.9289	0.9184
1093	10920	6.9218	0.9113
1094	10930	6.9139	0.9034
1095	10940	6.9063	0.8958
1096	10950	6.8978	0.8873
1097	10960	6.8894	0.8789
1098	10970	6.8849	0.8744
1099	10980	6.8757	0.8652
1100	10990	6.8676	0.8571
1101	11000	6.8604	0.8499
1102	11010	6.8517	0.8412
1103	11020	6.842	0.8315
1104	11030	6.8355	0.825
1105	11040	6.8275	0.817
1106	11050	6.8229	0.8124
1107	11060	6.8114	0.8009
1108	11070	6.8055	0.795
1109	11080	6.7981	0.7876
1110	11090	6.7902	0.7797
1111	11100	6.7829	0.7724
1112	11110	6.777	0.7665
1113	11120	6.7702	0.7597
1114	11130	6.7659	0.7554
1115	11140	6.7605	0.75
1116	11150	6.7558	0.7453
1117	11160	6.7495	0.739
1118	11170	6.7439	0.7334
1119	11180	6.7374	0.7269
1120	11190	6.732	0.7215
1121	11200	6.7303	0.7198
1122	11210	6.7237	0.7132
1123	11220	6.718	0.7075
1124	11230	6.7151	0.7046
1125	11240	6.7114	0.7009
1126	11250	6.7059	0.6954
1127	11260	6.7005	0.69
1128	11270	6.6988	0.6883

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	6.6968	0.6863
1130	11290	6.6943	0.6838
1131	11300	6.6929	0.6824
1132	11310	6.6905	0.68
1133	11320	6.6877	0.6772
1134	11330	6.687	0.6765
1135	11340	6.6869	0.6764
1136	11350	6.6837	0.6732
1137	11360	6.6834	0.6729
1138	11370	6.6823	0.6718
1139	11380	6.6795	0.669
1140	11390	6.6801	0.6696
1141	11400	6.6789	0.6684
1142	11410	6.6775	0.667
1143	11420	6.6758	0.6653
1144	11430	6.6745	0.664
1145	11440	6.6778	0.6673
1146	11450	6.6775	0.667
1147	11460	6.6757	0.6652
1148	11470	6.674	0.6635
1149	11480	6.6742	0.6637
1150	11490	6.6713	0.6608
1151	11500	6.6712	0.6607
1152	11510	6.6727	0.6622
1153	11520	6.6685	0.658
1154	11530	6.6645	0.654
1155	11540	6.6635	0.653
1156	11550	6.6657	0.6552
1157	11560	6.663	0.6525
1158	11570	6.66	0.6495
1159	11580	6.6615	0.651
1160	11590	6.658	0.6475
1161	11600	6.6589	0.6484
1162	11610	6.6581	0.6476
1163	11620	6.6554	0.6449
1164	11630	6.6537	0.6432
1165	11640	6.6538	0.6433
1166	11650	6.6499	0.6394
1167	11660	6.6482	0.6377
1168	11670	6.6461	0.6356
1169	11680	6.6449	0.6344
1170	11690	6.6412	0.6307
1171	11700	6.6389	0.6284
1172	11710	6.6352	0.6247
1173	11720	6.6313	0.6208
1174	11730	6.6304	0.6199
1175	11740	6.6264	0.6159
1176	11750	6.6236	0.6131
1177	11760	6.6225	0.612
1178	11770	6.6188	0.6083
1179	11780	6.6184	0.6079
1180	11790	6.6141	0.6036
1181	11800	6.6129	0.6024
1182	11810	6.6122	0.6017
1183	11820	6.6111	0.6006
1184	11830	6.6063	0.5958
1185	11840	6.6049	0.5944
1186	11850	6.6025	0.592
1187	11860	6.6008	0.5903
1188	11870	6.5985	0.588
1189	11880	6.5947	0.5842
1190	11890	6.5944	0.5839
1191	11900	6.5939	0.5834

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	6.5917	0.5812
1193	11920	6.5903	0.5798
1194	11930	6.5893	0.5788
1195	11940	6.5891	0.5786
1196	11950	6.5906	0.5801
1197	11960	6.5896	0.5791
1198	11970	6.5887	0.5782
1199	11980	6.586	0.5755
1200	11990	6.5871	0.5766
1201	12000	6.5867	0.5762
1202	12010	6.5848	0.5743
1203	12020	6.586	0.5755
1204	12030	6.5877	0.5772
1205	12040	6.5866	0.5761
1206	12050	6.5872	0.5767
1207	12060	6.5871	0.5766
1208	12070	6.585	0.5745
1209	12080	6.5877	0.5772
1210	12090	6.5866	0.5761
1211	12100	6.5846	0.5741
1212	12110	6.5848	0.5743
1213	12120	6.5833	0.5728
1214	12130	6.5849	0.5744
1215	12140	6.5836	0.5731
1216	12150	6.583	0.5725
1217	12160	6.5833	0.5728
1218	12170	6.5828	0.5723
1219	12180	6.5816	0.5711
1220	12190	6.583	0.5725
1221	12200	6.583	0.5725
1222	12210	6.5835	0.573
1223	12220	6.5842	0.5737
1224	12230	6.5839	0.5734
1225	12240	6.5841	0.5736
1226	12250	6.5814	0.5709
1227	12260	6.5797	0.5692
1228	12270	6.5801	0.5696
1229	12280	6.5795	0.569
1230	12290	6.5794	0.5689
1231	12300	6.5777	0.5672
1232	12310	6.576	0.5655
1233	12320	6.5733	0.5628
1234	12330	6.5723	0.5618
1235	12340	6.5692	0.5587
1236	12350	6.5674	0.5569
1237	12360	6.5654	0.5549
1238	12370	6.563	0.5525
1239	12380	6.5611	0.5506
1240	12390	6.5596	0.5491
1241	12400	6.5598	0.5493
1242	12410	6.5603	0.5498
1243	12420	6.5587	0.5482
1244	12430	6.5572	0.5467
1245	12440	6.5542	0.5437
1246	12450	6.5523	0.5418
1247	12460	6.5502	0.5397
1248	12470	6.5483	0.5378
1249	12480	6.5445	0.534
1250	12490	6.5436	0.5331
1251	12500	6.5386	0.5281
1252	12510	6.537	0.5265
1253	12520	6.533	0.5225
1254	12530	6.5296	0.5191

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Page 21 of 21 Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	6.5255	0.515
1256	12550	6.5228	0.5123
1257	12560	6.5176	0.5071
1258	12570	6.5157	0.5052
1259	12580	6.5118	0.5013
1260	12590	6.5087	0.4982
1261	12600	6.5071	0.4966
1262	12610	6.5047	0.4942
1263	12620	6.5045	0.494
1264	12630	6.503	0.4925
1265	12640	6.5015	0.491
1266	12650	6.501	0.4905
1267	12660	6.4986	0.4881
1268	12670	6.4979	0.4874
1269	12680	6.4945	0.484
1270	12690	6.4964	0.4859
1271	12700	6.494	0.4835
1272	12710	6.493	0.4825
1273	12720	6.4941	0.4836
1274	12730	6.4921	0.4816
1275	12740	6.4907	0.4802
1276	12750	6.4891	0.4786
1277	12760	6.4871	0.4766
1278	12770	6.4857	0.4752
1279	12780	6.4867	0.4762
1280	12790	6.4896	0.4791
1281	12800	6.4913	0.4808
1282	12810	6.4905	0.48
1283	12820	6.4936	0.4831

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-MB1	Static Water Level [ft]: 5.68	Radial Distance to PW [ft]: 4706

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	5.6823	0.00
2	5	5.7029	0.0206
3	10	5.7574	0.0751
4	15	5.8092	0.1269
5	20	5.865	0.1827
6	25	5.9169	0.2346
7	30	5.9687	0.2864
8	35	6.0156	0.3333
9	40	6.0632	0.3809
10	45	6.1075	0.4252
11	50	6.1521	0.4698
12	55	6.1954	0.5131
13	60	6.2344	0.5521
14	65	6.2718	0.5895
15	70	6.3089	0.6266
16	75	6.3427	0.6604
17	80	6.3772	0.6949
18	85	6.408	0.7257
19	90	6.4385	0.7562
20	95	6.472	0.7897
21	100	6.5051	0.8228
22	105	6.5353	0.853
23	110	6.5609	0.8786
24	115	6.5901	0.9078
25	120	6.6183	0.936
26	125	6.6426	0.9603
27	130	6.6695	0.9872
28	135	6.6918	1.0095
29	140	6.7174	1.0351
30	145	6.739	1.0567
31	150	6.7591	1.0768
32	155	6.7797	1.0974
33	160	6.801	1.1187
34	165	6.822	1.1397
35	170	6.8378	1.1555
36	175	6.8575	1.1752
37	180	6.8745	1.1922
38	185	6.8946	1.2123
39	190	6.9133	1.231
40	195	6.9313	1.249
41	200	6.9507	1.2684
42	205	6.9674	1.2851
43	210	6.9825	1.3002
44	215	6.9966	1.3143
45	220	7.014	1.3317
46	225	7.0291	1.3468
47	230	7.0478	1.3655
48	235	7.0599	1.3776
49	240	7.076	1.3937
50	245	7.0881	1.4058
51	250	7.1016	1.4193
52	255	7.1127	1.4304
53	260	7.1275	1.4452
54	265	7.1386	1.4563
55	270	7.1534	1.4711
56	275	7.1678	1.4855
57	280	7.1767	1.4944

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	7.1915	1.5092
59	290	7.2026	1.5203
60	295	7.2144	1.5321
61	300	7.2256	1.5433
62	305	7.2404	1.5581
63	310	7.2509	1.5686
64	315	7.2604	1.5781
65	320	7.2699	1.5876
66	325	7.2797	1.5974
67	330	7.2889	1.6066
68	335	7.2958	1.6135
69	340	7.307	1.6247
70	345	7.3168	1.6345
71	350	7.3293	1.647
72	355	7.3391	1.6568
73	360	7.3483	1.666
74	365	7.3555	1.6732
75	370	7.3657	1.6834
76	375	7.3732	1.6909
77	380	7.3821	1.6998
78	385	7.39	1.7077
79	390	7.3978	1.7155
80	395	7.405	1.7227
81	400	7.4123	1.73
82	405	7.4198	1.7375
83	410	7.427	1.7447
84	415	7.4329	1.7506
85	420	7.4408	1.7585
86	425	7.449	1.7667
87	430	7.4552	1.7729
88	435	7.4621	1.7798
89	440	7.4694	1.7871
90	445	7.4772	1.7949
91	450	7.4828	1.8005
92	455	7.4907	1.8084
93	460	7.4969	1.8146
94	465	7.5041	1.8218
95	470	7.51	1.8277
96	475	7.5166	1.8343
97	480	7.5228	1.8405
98	485	7.5271	1.8448
99	490	7.5333	1.851
100	495	7.5379	1.8556
101	500	7.5445	1.8622
102	505	7.5497	1.8674
103	510	7.556	1.8737
104	515	7.5622	1.8799
105	520	7.5668	1.8845
106	525	7.572	1.8897
107	530	7.5799	1.8976
108	535	7.5848	1.9025
109	540	7.5898	1.9075
110	545	7.5944	1.9121
111	550	7.6003	1.918
112	555	7.6058	1.9235
113	560	7.6104	1.9281
114	565	7.6144	1.9321
115	570	7.6196	1.9373
116	575	7.6236	1.9413
117	580	7.6311	1.9488
118	585	7.6354	1.9531
119	590	7.6409	1.9586
120	595	7.6446	1.9623

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	7.6488	1.9665
122	605	7.6547	1.9724
123	610	7.6603	1.978
124	615	7.6649	1.9826
125	620	7.6692	1.9869
126	625	7.6741	1.9918
127	630	7.6793	1.997
128	635	7.6862	2.0039
129	640	7.6918	2.0095
130	645	7.6957	2.0134
131	650	7.699	2.0167
132	655	7.7039	2.0216
133	660	7.7072	2.0249
134	665	7.7131	2.0308
135	670	7.7171	2.0348
136	675	7.7216	2.0393
137	680	7.7256	2.0433
138	685	7.7295	2.0472
139	690	7.7335	2.0512
140	695	7.7397	2.0574
141	700	7.742	2.0597
142	705	7.7472	2.0649
143	710	7.7505	2.0682
144	715	7.7535	2.0712
145	720	7.7594	2.0771
146	725	7.7617	2.0794
147	730	7.7656	2.0833
148	735	7.7676	2.0853
149	740	7.7728	2.0905
150	745	7.7764	2.0941
151	750	7.7797	2.0974
152	755	7.783	2.1007
153	760	7.7856	2.1033
154	765	7.7896	2.1073
155	770	7.7905	2.1082
156	775	7.7938	2.1115
157	780	7.7961	2.1138
158	785	7.8001	2.1178
159	790	7.8027	2.1204
160	795	7.8076	2.1253
161	800	7.8115	2.1292
162	805	7.8158	2.1335
163	810	7.8188	2.1365
164	815	7.8224	2.1401
165	820	7.8224	2.1401
166	825	7.8263	2.144
167	830	7.8296	2.1473
168	835	7.8319	2.1496
169	840	7.8358	2.1535
170	845	7.8391	2.1568
171	850	7.8421	2.1598
172	855	7.8453	2.163
173	860	7.8476	2.1653
174	865	7.8503	2.168
175	870	7.8539	2.1716
176	875	7.8562	2.1739
177	880	7.8585	2.1762
178	885	7.8614	2.1791
179	890	7.8644	2.1821
180	895	7.8657	2.1834
181	900	7.8683	2.186
182	905	7.8709	2.1886
183	910	7.8742	2.1919

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	7.8772	2.1949
185	920	7.8788	2.1965
186	925	7.8811	2.1988
187	930	7.8821	2.1998
188	935	7.8837	2.2014
189	940	7.8844	2.2021
190	945	7.888	2.2057
191	950	7.8877	2.2054
192	955	7.8896	2.2073
193	960	7.8919	2.2096
194	965	7.8939	2.2116
195	970	7.8972	2.2149
196	975	7.8972	2.2149
197	980	7.9005	2.2182
198	985	7.9024	2.2201
199	990	7.9024	2.2201
200	995	7.906	2.2237
201	1000	7.9093	2.227
202	1005	7.9113	2.229
203	1010	7.9123	2.23
204	1015	7.9133	2.231
205	1020	7.9126	2.2303
206	1025	7.9123	2.23
207	1030	7.9133	2.231
208	1035	7.9149	2.2326
209	1040	7.9162	2.2339
210	1045	7.9149	2.2326
211	1050	7.9165	2.2342
212	1055	7.9172	2.2349
213	1060	7.9188	2.2365
214	1065	7.9185	2.2362
215	1070	7.9201	2.2378
216	1075	7.9221	2.2398
217	1080	7.9251	2.2428
218	1085	7.9244	2.2421
219	1090	7.9264	2.2441
220	1095	7.9237	2.2414
221	1100	7.9215	2.2392
222	1105	7.9228	2.2405
223	1110	7.9218	2.2395
224	1115	7.9244	2.2421
225	1120	7.9283	2.246
226	1125	7.9293	2.247
227	1130	7.9323	2.25
228	1135	7.932	2.2497
229	1140	7.9339	2.2516
230	1145	7.9365	2.2542
231	1150	7.9372	2.2549
232	1155	7.9369	2.2546
233	1160	7.9379	2.2556
234	1165	7.9421	2.2598
235	1170	7.9431	2.2608
236	1175	7.9451	2.2628
237	1180	7.947	2.2647
238	1185	7.948	2.2657
239	1190	7.9474	2.2651
240	1195	7.9467	2.2644
241	1200	7.9513	2.269
242	1205	7.9507	2.2684
243	1210	7.948	2.2657
244	1215	7.9487	2.2664
245	1220	7.95	2.2677
246	1225	7.9484	2.2661

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	7.9497	2.2674
248	1235	7.9487	2.2664
249	1240	7.951	2.2687
250	1245	7.9507	2.2684
251	1250	7.9529	2.2706
252	1255	7.9513	2.269
253	1260	7.9526	2.2703
254	1265	7.9546	2.2723
255	1270	7.9546	2.2723
256	1275	7.9536	2.2713
257	1280	7.9556	2.2733
258	1285	7.9572	2.2749
259	1290	7.9582	2.2759
260	1295	7.9556	2.2733
261	1300	7.9582	2.2759
262	1305	7.9566	2.2743
263	1310	7.9585	2.2762
264	1315	7.9625	2.2802
265	1320	7.9608	2.2785
266	1325	7.9621	2.2798
267	1330	7.9641	2.2818
268	1335	7.9648	2.2825
269	1340	7.968	2.2857
270	1345	7.9694	2.2871
271	1350	7.9697	2.2874
272	1355	7.97	2.2877
273	1360	7.9723	2.29
274	1365	7.9736	2.2913
275	1370	7.9713	2.289
276	1375	7.9739	2.2916
277	1380	7.973	2.2907
278	1385	7.9743	2.292
279	1390	7.9736	2.2913
280	1395	7.9749	2.2926
281	1400	7.9753	2.293
282	1405	7.9743	2.292
283	1410	7.9739	2.2916
284	1415	7.9759	2.2936
285	1420	7.9756	2.2933
286	1425	7.9762	2.2939
287	1430	7.9739	2.2916
288	1435	7.9776	2.2953
289	1440	7.9779	2.2956
290	1445	7.9779	2.2956
291	1450	7.9772	2.2949
292	1455	7.9805	2.2982
293	1460	7.9789	2.2966
294	1465	7.9831	2.3008
295	1470	7.9877	2.3054
296	1475	7.9877	2.3054
297	1480	7.9867	2.3044
298	1485	7.9877	2.3054
299	1490	7.9917	2.3094
300	1495	7.993	2.3107
301	1500	7.9956	2.3133
302	1505	7.9966	2.3143
303	1510	7.9979	2.3156
304	1515	7.9982	2.3159
305	1520	8.0005	2.3182
306	1525	8.0015	2.3192
307	1530	8.0045	2.3222
308	1535	8.0054	2.3231
309	1540	8.0081	2.3258

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	8.0087	2.3264
311	1550	8.0091	2.3268
312	1555	8.011	2.3287
313	1560	8.0123	2.33
314	1565	8.013	2.3307
315	1570	8.0117	2.3294
316	1575	8.012	2.3297
317	1580	8.015	2.3327
318	1585	8.0182	2.3359
319	1590	8.0176	2.3353
320	1595	8.0232	2.3409
321	1600	8.0222	2.3399
322	1605	8.0235	2.3412
323	1610	8.0268	2.3445
324	1615	8.0284	2.3461
325	1620	8.0307	2.3484
326	1625	8.0343	2.352
327	1630	8.035	2.3527
328	1635	8.0346	2.3523
329	1640	8.0376	2.3553
330	1645	8.0399	2.3576
331	1650	8.0409	2.3586
332	1655	8.0399	2.3576
333	1660	8.0409	2.3586
334	1665	8.0451	2.3628
335	1670	8.0448	2.3625
336	1675	8.0455	2.3632
337	1680	8.0474	2.3651
338	1685	8.0507	2.3684
339	1690	8.051	2.3687
340	1695	8.0517	2.3694
341	1700	8.0527	2.3704
342	1705	8.0514	2.3691
343	1710	8.0504	2.3681
344	1715	8.0537	2.3714
345	1720	8.0547	2.3724
346	1725	8.0566	2.3743
347	1730	8.0583	2.376
348	1735	8.0625	2.3802
349	1740	8.0635	2.3812
350	1745	8.0671	2.3848
351	1750	8.0678	2.3855
352	1755	8.0665	2.3842
353	1760	8.0675	2.3852
354	1765	8.073	2.3907
355	1770	8.0753	2.393
356	1775	8.0724	2.3901
357	1780	8.0697	2.3874
358	1785	8.0734	2.3911
359	1790	8.0763	2.394
360	1795	8.0789	2.3966
361	1800	8.0799	2.3976
362	1805	8.0783	2.396
363	1810	8.0793	2.397
364	1815	8.0773	2.395
365	1820	8.0796	2.3973
366	1825	8.0812	2.3989
367	1830	8.0812	2.3989
368	1835	8.0819	2.3996
369	1840	8.0848	2.4025
370	1845	8.0839	2.4016
371	1850	8.0855	2.4032
372	1855	8.0865	2.4042

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	8.0875	2.4052
374	1865	8.0868	2.4045
375	1870	8.0858	2.4035
376	1875	8.0881	2.4058
377	1880	8.0904	2.4081
378	1885	8.0884	2.4061
379	1890	8.0894	2.4071
380	1895	8.0927	2.4104
381	1900	8.0917	2.4094
382	1905	8.0894	2.4071
383	1910	8.0917	2.4094
384	1915	8.094	2.4117
385	1920	8.093	2.4107
386	1925	8.0953	2.413
387	1930	8.0944	2.4121
388	1935	8.095	2.4127
389	1940	8.0934	2.4111
390	1945	8.0924	2.4101
391	1950	8.0953	2.413
392	1955	8.0963	2.414
393	1960	8.0973	2.415
394	1965	8.0966	2.4143
395	1970	8.0976	2.4153
396	1975	8.0983	2.416
397	1980	8.0976	2.4153
398	1985	8.0973	2.415
399	1990	8.0976	2.4153
400	1995	8.1003	2.418
401	2000	8.1022	2.4199
402	2005	8.1012	2.4189
403	2010	8.1029	2.4206
404	2015	8.1019	2.4196
405	2020	8.1032	2.4209
406	2025	8.1039	2.4216
407	2030	8.1052	2.4229
408	2035	8.1058	2.4235
409	2040	8.1058	2.4235
410	2045	8.1058	2.4235
411	2050	8.1065	2.4242
412	2055	8.1081	2.4258
413	2060	8.1088	2.4265
414	2065	8.1088	2.4265
415	2070	8.1098	2.4275
416	2075	8.1124	2.4301
417	2080	8.1114	2.4291
418	2085	8.1131	2.4308
419	2090	8.1134	2.4311
420	2095	8.114	2.4317
421	2100	8.1134	2.4311
422	2105	8.1111	2.4288
423	2110	8.1127	2.4304
424	2115	8.1134	2.4311
425	2120	8.1134	2.4311
426	2125	8.1124	2.4301
427	2130	8.1124	2.4301
428	2135	8.116	2.4337
429	2140	8.1157	2.4334
430	2145	8.1167	2.4344
431	2150	8.1167	2.4344
432	2155	8.115	2.4327
433	2160	8.1176	2.4353
434	2165	8.1193	2.437
435	2170	8.118	2.4357

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	8.1196	2.4373
437	2180	8.1196	2.4373
438	2185	8.1176	2.4353
439	2190	8.1199	2.4376
440	2195	8.1213	2.439
441	2200	8.1242	2.4419
442	2205	8.1268	2.4445
443	2210	8.1265	2.4442
444	2215	8.1272	2.4449
445	2220	8.1288	2.4465
446	2225	8.1311	2.4488
447	2230	8.1308	2.4485
448	2235	8.1295	2.4472
449	2240	8.1291	2.4468
450	2245	8.1288	2.4465
451	2250	8.1304	2.4481
452	2255	8.1331	2.4508
453	2260	8.1363	2.454
454	2265	8.1377	2.4554
455	2270	8.1377	2.4554
456	2275	8.1406	2.4583
457	2280	8.1396	2.4573
458	2285	8.1403	2.458
459	2290	8.1413	2.459
460	2295	8.1413	2.459
461	2300	8.1436	2.4613
462	2305	8.1446	2.4623
463	2310	8.1446	2.4623
464	2315	8.1442	2.4619
465	2320	8.1452	2.4629
466	2325	8.1465	2.4642
467	2330	8.1462	2.4639
468	2335	8.1465	2.4642
469	2340	8.1488	2.4665
470	2345	8.1491	2.4668
471	2350	8.1498	2.4675
472	2355	8.1514	2.4691
473	2360	8.1521	2.4698
474	2365	8.1531	2.4708
475	2370	8.1508	2.4685
476	2375	8.1524	2.4701
477	2380	8.1518	2.4695
478	2385	8.1514	2.4691
479	2390	8.1495	2.4672
480	2395	8.1505	2.4682
481	2400	8.1514	2.4691
482	2405	8.1495	2.4672
483	2410	8.1524	2.4701
484	2415	8.1508	2.4685
485	2420	8.1537	2.4714
486	2425	8.1531	2.4708
487	2430	8.1537	2.4714
488	2435	8.1528	2.4705
489	2440	8.155	2.4727
490	2445	8.1564	2.4741
491	2450	8.158	2.4757
492	2455	8.1593	2.477
493	2460	8.161	2.4787
494	2465	8.1639	2.4816
495	2470	8.1662	2.4839
496	2475	8.1629	2.4806
497	2480	8.1626	2.4803
498	2485	8.1623	2.48

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	8.1626	2.4803
500	2495	8.1639	2.4816
501	2500	8.1675	2.4852
502	2505	8.1705	2.4882
503	2510	8.1718	2.4895
504	2515	8.1711	2.4888
505	2520	8.1701	2.4878
506	2525	8.1731	2.4908
507	2530	8.1744	2.4921
508	2535	8.1751	2.4928
509	2540	8.176	2.4937
510	2545	8.178	2.4957
511	2550	8.1797	2.4974
512	2555	8.1813	2.499
513	2560	8.182	2.4997
514	2565	8.1813	2.499
515	2570	8.1826	2.5003
516	2575	8.1846	2.5023
517	2580	8.1842	2.5019
518	2585	8.1859	2.5036
519	2590	8.1839	2.5016
520	2595	8.1849	2.5026
521	2600	8.1839	2.5016
522	2605	8.1846	2.5023
523	2610	8.1869	2.5046
524	2615	8.1859	2.5036
525	2620	8.1895	2.5072
526	2625	8.1905	2.5082
527	2630	8.1911	2.5088
528	2635	8.1908	2.5085
529	2640	8.1921	2.5098
530	2645	8.1905	2.5082
531	2650	8.1921	2.5098
532	2655	8.1902	2.5079
533	2660	8.1915	2.5092
534	2665	8.1938	2.5115
535	2670	8.1947	2.5124
536	2675	8.1947	2.5124
537	2680	8.1944	2.5121
538	2685	8.1944	2.5121
539	2690	8.1977	2.5154
540	2695	8.1984	2.5161
541	2700	8.1997	2.5174
542	2705	8.201	2.5187
543	2710	8.2016	2.5193
544	2715	8.202	2.5197
545	2720	8.1993	2.517
546	2725	8.20	2.5177
547	2730	8.202	2.5197
548	2735	8.2016	2.5193
549	2740	8.2026	2.5203
550	2745	8.2023	2.52
551	2750	8.2026	2.5203
552	2755	8.2013	2.519
553	2760	8.2026	2.5203
554	2765	8.2007	2.5184
555	2770	8.2023	2.52
556	2775	8.2046	2.5223
557	2780	8.2079	2.5256
558	2785	8.2092	2.5269
559	2790	8.2079	2.5256
560	2795	8.2092	2.5269
561	2800	8.2085	2.5262

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	8.2108	2.5285
563	2810	8.2108	2.5285
564	2815	8.2141	2.5318
565	2820	8.2167	2.5344
566	2825	8.2171	2.5348
567	2830	8.2157	2.5334
568	2835	8.2167	2.5344
569	2840	8.2144	2.5321
570	2845	8.2138	2.5315
571	2850	8.2154	2.5331
572	2855	8.2161	2.5338
573	2860	8.2174	2.5351
574	2865	8.2203	2.538
575	2870	8.219	2.5367
576	2875	8.221	2.5387
577	2880	8.2233	2.541
578	2885	8.2223	2.54
579	2890	8.2236	2.5413
580	2895	8.2259	2.5436
581	2900	8.2269	2.5446
582	2905	8.2272	2.5449
583	2910	8.2322	2.5499
584	2915	8.2338	2.5515
585	2920	8.2308	2.5485
586	2925	8.2315	2.5492
587	2930	8.2285	2.5462
588	2935	8.2318	2.5495
589	2940	8.2331	2.5508
590	2945	8.2361	2.5538
591	2950	8.2381	2.5558
592	2955	8.2377	2.5554
593	2960	8.2404	2.5581
594	2965	8.2413	2.559
595	2970	8.24	2.5577
596	2975	8.2417	2.5594
597	2980	8.2433	2.561
598	2985	8.2456	2.5633
599	2990	8.2459	2.5636
600	2995	8.2479	2.5656
601	3000	8.2492	2.5669
602	3005	8.2495	2.5672
603	3010	8.2515	2.5692
604	3015	8.2518	2.5695
605	3020	8.2522	2.5699
606	3025	8.2518	2.5695
607	3030	8.2554	2.5731
608	3035	8.2564	2.5741
609	3040	8.2591	2.5768
610	3045	8.2577	2.5754
611	3050	8.2584	2.5761
612	3055	8.2604	2.5781
613	3060	8.26	2.5777
614	3065	8.2591	2.5768
615	3070	8.2594	2.5771
616	3075	8.2581	2.5758
617	3080	8.2607	2.5784
618	3085	8.2617	2.5794
619	3090	8.261	2.5787
620	3095	8.263	2.5807
621	3100	8.2633	2.581
622	3105	8.2656	2.5833
623	3110	8.2666	2.5843
624	3115	8.2682	2.5859

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	8.2705	2.5882
626	3125	8.2735	2.5912
627	3130	8.2755	2.5932
628	3135	8.2778	2.5955
629	3140	8.2823	2.60
630	3145	8.286	2.6037
631	3150	8.2873	2.605
632	3155	8.2905	2.6082
633	3160	8.2938	2.6115
634	3165	8.2981	2.6158
635	3170	8.3007	2.6184
636	3175	8.3014	2.6191
637	3180	8.3014	2.6191
638	3185	8.3024	2.6201
639	3190	8.3017	2.6194
640	3195	8.303	2.6207
641	3200	8.307	2.6247
642	3205	8.3083	2.626
643	3210	8.3083	2.626
644	3215	8.3106	2.6283
645	3220	8.3109	2.6286
646	3225	8.3161	2.6338
647	3230	8.3191	2.6368
648	3235	8.3234	2.6411
649	3240	8.3227	2.6404
650	3245	8.3257	2.6434
651	3250	8.3273	2.645
652	3255	8.3286	2.6463
653	3260	8.3286	2.6463
654	3265	8.3283	2.646
655	3270	8.3286	2.6463
656	3275	8.3309	2.6486
657	3280	8.3362	2.6539
658	3285	8.3381	2.6558
659	3290	8.3398	2.6575
660	3295	8.3401	2.6578
661	3300	8.3398	2.6575
662	3305	8.3378	2.6555
663	3310	8.3378	2.6555
664	3315	8.3368	2.6545
665	3320	8.3375	2.6552
666	3325	8.3384	2.6561
667	3330	8.3401	2.6578
668	3335	8.3444	2.6621
669	3340	8.346	2.6637
670	3345	8.3522	2.6699
671	3350	8.3545	2.6722
672	3355	8.3503	2.668
673	3360	8.3522	2.6699
674	3365	8.3509	2.6686
675	3370	8.3483	2.666
676	3375	8.3463	2.664
677	3380	8.3473	2.665
678	3385	8.348	2.6657
679	3390	8.3499	2.6676
680	3395	8.3499	2.6676
681	3400	8.3473	2.665
682	3405	8.3499	2.6676
683	3410	8.3552	2.6729
684	3415	8.3588	2.6765
685	3420	8.3591	2.6768
686	3425	8.3594	2.6771
687	3430	8.3611	2.6788

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	8.3637	2.6814
689	3440	8.364	2.6817
690	3445	8.3647	2.6824
691	3450	8.3667	2.6844
692	3455	8.3676	2.6853
693	3460	8.369	2.6867
694	3465	8.369	2.6867
695	3470	8.3709	2.6886
696	3475	8.3703	2.688
697	3480	8.3722	2.6899
698	3485	8.3703	2.688
699	3490	8.3696	2.6873
700	3495	8.3713	2.689
701	3500	8.3739	2.6916
702	3505	8.3736	2.6913
703	3510	8.3755	2.6932
704	3515	8.3759	2.6936
705	3520	8.3772	2.6949
706	3525	8.3781	2.6958
707	3530	8.3768	2.6945
708	3535	8.3778	2.6955
709	3540	8.3785	2.6962
710	3545	8.3772	2.6949
711	3550	8.3775	2.6952
712	3555	8.3762	2.6939
713	3560	8.3772	2.6949
714	3565	8.3795	2.6972
715	3570	8.3804	2.6981
716	3575	8.3795	2.6972
717	3580	8.3791	2.6968
718	3585	8.3778	2.6955
719	3590	8.3759	2.6936
720	3595	8.3745	2.6922
721	3600	8.3732	2.6909
722	3605	8.3739	2.6916
723	3610	8.3755	2.6932
724	3615	8.3755	2.6932
725	3620	8.3749	2.6926
726	3625	8.3762	2.6939
727	3630	8.3768	2.6945
728	3635	8.3778	2.6955
729	3640	8.3785	2.6962
730	3645	8.3775	2.6952
731	3650	8.3772	2.6949
732	3655	8.3791	2.6968
733	3660	8.3814	2.6991
734	3665	8.3808	2.6985
735	3670	8.3808	2.6985
736	3675	8.3798	2.6975
737	3680	8.3837	2.7014
738	3685	8.3837	2.7014
739	3690	8.3831	2.7008
740	3695	8.3837	2.7014
741	3700	8.3847	2.7024
742	3705	8.3854	2.7031
743	3710	8.3873	2.705
744	3715	8.39	2.7077
745	3720	8.3886	2.7063
746	3725	8.3893	2.707
747	3730	8.3893	2.707
748	3735	8.3903	2.708
749	3740	8.3929	2.7106
750	3745	8.3949	2.7126

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	8.3968	2.7145
752	3755	8.3985	2.7162
753	3760	8.4024	2.7201
754	3765	8.4028	2.7205
755	3770	8.4008	2.7185
756	3775	8.3995	2.7172
757	3780	8.3991	2.7168
758	3785	8.3985	2.7162
759	3790	8.4011	2.7188
760	3795	8.4021	2.7198
761	3800	8.4018	2.7195
762	3805	8.4018	2.7195
763	3810	8.4005	2.7182
764	3815	8.4021	2.7198
765	3820	8.4005	2.7182
766	3825	8.4021	2.7198
767	3830	8.4024	2.7201
768	3835	8.4018	2.7195
769	3840	8.4028	2.7205
770	3845	8.4054	2.7231
771	3850	8.4047	2.7224
772	3855	8.4057	2.7234
773	3860	8.407	2.7247
774	3865	8.4093	2.727
775	3870	8.4103	2.728
776	3875	8.4152	2.7329
777	3880	8.4178	2.7355
778	3885	8.4175	2.7352
779	3890	8.4198	2.7375
780	3895	8.4205	2.7382
781	3900	8.4198	2.7375
782	3905	8.4192	2.7369
783	3910	8.4188	2.7365
784	3915	8.4208	2.7385
785	3920	8.4231	2.7408
786	3925	8.4231	2.7408
787	3930	8.4237	2.7414
788	3935	8.4251	2.7428
789	3940	8.4254	2.7431
790	3945	8.4257	2.7434
791	3950	8.4254	2.7431
792	3955	8.4257	2.7434
793	3960	8.426	2.7437
794	3965	8.427	2.7447
795	3970	8.429	2.7467
796	3975	8.4303	2.748
797	3980	8.4323	2.75
798	3985	8.4359	2.7536
799	3990	8.4385	2.7562
800	3995	8.4402	2.7579
801	4000	8.4438	2.7615
802	4005	8.4451	2.7628
803	4010	8.447	2.7647
804	4015	8.4487	2.7664
805	4020	8.449	2.7667
806	4025	8.452	2.7697
807	4030	8.4526	2.7703
808	4035	8.4543	2.772
809	4040	8.4559	2.7736
810	4045	8.4559	2.7736
811	4050	8.4595	2.7772
812	4055	8.4608	2.7785
813	4060	8.4615	2.7792

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	8.4644	2.7821
815	4070	8.4661	2.7838
816	4075	8.468	2.7857
817	4080	8.4684	2.7861
818	4085	8.4687	2.7864
819	4090	8.47	2.7877
820	4095	8.4687	2.7864
821	4100	8.4677	2.7854
822	4105	8.4684	2.7861
823	4110	8.4684	2.7861
824	4115	8.4697	2.7874
825	4120	8.47	2.7877
826	4125	8.471	2.7887
827	4130	8.4703	2.788
828	4135	8.4726	2.7903
829	4140	8.4736	2.7913
830	4145	8.4753	2.793
831	4150	8.4739	2.7916
832	4155	8.472	2.7897
833	4160	8.4717	2.7894
834	4165	8.4726	2.7903
835	4170	8.4736	2.7913
836	4175	8.4736	2.7913
837	4180	8.4746	2.7923
838	4185	8.4762	2.7939
839	4190	8.4766	2.7943
840	4195	8.4776	2.7953
841	4200	8.4772	2.7949
842	4205	8.4772	2.7949
843	4210	8.4776	2.7953
844	4215	8.4776	2.7953
845	4220	8.4766	2.7943
846	4225	8.4766	2.7943
847	4230	8.4759	2.7936
848	4235	8.4762	2.7939
849	4240	8.4739	2.7916
850	4245	8.4733	2.791
851	4250	8.4726	2.7903
852	4255	8.4726	2.7903
853	4260	8.472	2.7897
854	4265	8.4717	2.7894
855	4270	8.4713	2.789
856	4275	8.4703	2.788
857	4280	8.4687	2.7864
858	4285	8.469	2.7867
859	4290	8.4677	2.7854
860	4295	8.4667	2.7844
861	4300	8.4674	2.7851
862	4305	8.4671	2.7848
863	4310	8.4674	2.7851
864	4315	8.4644	2.7821
865	4320	8.4634	2.7811
866	4325	8.4631	2.7808
867	4330	8.4621	2.7798
868	4335	8.4608	2.7785
869	4340	8.4618	2.7795
870	4345	8.4602	2.7779
871	4350	8.4598	2.7775
872	4355	8.4605	2.7782
873	4360	8.4608	2.7785
874	4365	8.4615	2.7792
875	4370	8.4608	2.7785
876	4375	8.4615	2.7792

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	8.4615	2.7792
878	4385	8.4608	2.7785
879	4390	8.4618	2.7795
880	4395	8.4631	2.7808
881	4400	8.4638	2.7815
882	4405	8.4671	2.7848
883	4410	8.4654	2.7831
884	4415	8.4657	2.7834
885	4420	8.4651	2.7828
886	4425	8.4664	2.7841
887	4430	8.4667	2.7844
888	4435	8.4657	2.7834
889	4440	8.4664	2.7841
890	4445	8.4667	2.7844
891	4450	8.4677	2.7854
892	4455	8.4674	2.7851
893	4460	8.4694	2.7871
894	4465	8.4664	2.7841
895	4470	8.4671	2.7848
896	4475	8.4671	2.7848
897	4480	8.4667	2.7844
898	4485	8.4684	2.7861
899	4490	8.468	2.7857
900	4495	8.4677	2.7854
901	4500	8.4684	2.7861
902	4505	8.4667	2.7844
903	4510	8.4687	2.7864
904	4515	8.47	2.7877
905	4520	8.4703	2.788
906	4525	8.4694	2.7871
907	4530	8.4726	2.7903
908	4535	8.4723	2.79
909	4540	8.473	2.7907
910	4545	8.4736	2.7913
911	4550	8.4749	2.7926
912	4555	8.4772	2.7949
913	4560	8.4769	2.7946
914	4565	8.4769	2.7946
915	4570	8.4782	2.7959
916	4575	8.4812	2.7989
917	4580	8.4808	2.7985
918	4585	8.4815	2.7992
919	4590	8.4822	2.7999
920	4595	8.4828	2.8005
921	4600	8.4841	2.8018
922	4605	8.4848	2.8025
923	4610	8.4854	2.8031
924	4615	8.4861	2.8038
925	4620	8.4864	2.8041
926	4625	8.4864	2.8041
927	4630	8.4881	2.8058
928	4635	8.4887	2.8064
929	4640	8.4903	2.808
930	4645	8.4917	2.8094
931	4650	8.4936	2.8113
932	4655	8.4936	2.8113
933	4660	8.4949	2.8126
934	4665	8.4972	2.8149
935	4670	8.4972	2.8149
936	4675	8.4999	2.8176
937	4680	8.5005	2.8182
938	4685	8.5009	2.8186
939	4690	8.5025	2.8202

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	8.5038	2.8215
941	4700	8.5045	2.8222
942	4705	8.5035	2.8212
943	4710	8.5045	2.8222
944	4715	8.5054	2.8231
945	4720	8.5064	2.8241
946	4725	8.5087	2.8264
947	4730	8.5094	2.8271
948	4735	8.51	2.8277
949	4740	8.5097	2.8274
950	4745	8.5117	2.8294
951	4750	8.513	2.8307
952	4755	8.515	2.8327
953	4760	8.5143	2.832
954	4765	8.515	2.8327
955	4770	8.5156	2.8333
956	4775	8.5169	2.8346
957	4780	8.5192	2.8369
958	4785	8.5179	2.8356
959	4790	8.5182	2.8359
960	4795	8.5209	2.8386
961	4800	8.5205	2.8382
962	4805	8.5205	2.8382
963	4810	8.5205	2.8382
964	4815	8.5215	2.8392
965	4820	8.5215	2.8392
966	4825	8.5238	2.8415
967	4830	8.5228	2.8405
968	4835	8.5222	2.8399
969	4840	8.5212	2.8389
970	4845	8.5199	2.8376
971	4850	8.5209	2.8386
972	4855	8.5228	2.8405
973	4860	8.5238	2.8415
974	4865	8.5228	2.8405
975	4870	8.5238	2.8415
976	4875	8.5238	2.8415
977	4880	8.5238	2.8415
978	4885	8.5245	2.8422
979	4890	8.5245	2.8422
980	4895	8.5255	2.8432
981	4900	8.5264	2.8441
982	4905	8.5258	2.8435
983	4910	8.5268	2.8445
984	4915	8.5258	2.8435
985	4920	8.5245	2.8422
986	4925	8.5258	2.8435
987	4930	8.5268	2.8445
988	4935	8.5261	2.8438
989	4940	8.5261	2.8438
990	4945	8.5271	2.8448
991	4950	8.5274	2.8451
992	4955	8.5268	2.8445
993	4960	8.5297	2.8474
994	4965	8.5294	2.8471
995	4970	8.5297	2.8474
996	4975	8.5297	2.8474
997	4980	8.531	2.8487
998	4985	8.53	2.8477
999	4990	8.531	2.8487
1000	4995	8.5307	2.8484
1001	5000	8.5307	2.8484
1002	5005	8.5284	2.8461

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	8.5284	2.8461
1004	5015	8.5287	2.8464
1005	5020	8.5278	2.8455
1006	5025	8.5278	2.8455
1007	5030	8.5278	2.8455
1008	5035	8.5274	2.8451
1009	5040	8.5268	2.8445
1010	5045	8.5261	2.8438
1011	5050	8.5238	2.8415
1012	5055	8.5232	2.8409
1013	5060	8.5238	2.8415
1014	5065	8.5251	2.8428
1015	5070	8.5248	2.8425
1016	5075	8.5251	2.8428
1017	5080	8.5261	2.8438
1018	5085	8.5261	2.8438
1019	5090	8.5251	2.8428
1020	5095	8.5258	2.8435
1021	5100	8.5264	2.8441
1022	5105	8.5268	2.8445
1023	5110	8.5274	2.8451
1024	5115	8.5264	2.8441
1025	5120	8.5258	2.8435
1026	5125	8.5255	2.8432
1027	5130	8.5248	2.8425
1028	5135	8.5255	2.8432
1029	5140	8.5245	2.8422
1030	5145	8.5268	2.8445
1031	5150	8.5284	2.8461
1032	5155	8.5271	2.8448
1033	5160	8.5297	2.8474
1034	5165	8.5291	2.8468
1035	5170	8.53	2.8477
1036	5175	8.532	2.8497
1037	5180	8.532	2.8497
1038	5185	8.532	2.8497
1039	5190	8.5337	2.8514
1040	5195	8.5343	2.852
1041	5200	8.5356	2.8533
1042	5205	8.5346	2.8523
1043	5210	8.535	2.8527
1044	5215	8.5353	2.853
1045	5220	8.536	2.8537
1046	5225	8.5366	2.8543
1047	5230	8.5383	2.856
1048	5235	8.5399	2.8576
1049	5240	8.5409	2.8586
1050	5245	8.5419	2.8596
1051	5250	8.5419	2.8596
1052	5255	8.5425	2.8602
1053	5260	8.5432	2.8609
1054	5265	8.5442	2.8619
1055	5270	8.5445	2.8622
1056	5275	8.5465	2.8642
1057	5280	8.5474	2.8651
1058	5285	8.5497	2.8674
1059	5290	8.5491	2.8668
1060	5295	8.5507	2.8684
1061	5300	8.5524	2.8701
1062	5305	8.552	2.8697
1063	5310	8.5533	2.871
1064	5315	8.5537	2.8714
1065	5320	8.556	2.8737

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	8.557	2.8747
1067	5330	8.5576	2.8753
1068	5335	8.5596	2.8773
1069	5340	8.5606	2.8783
1070	5345	8.5606	2.8783
1071	5350	8.5622	2.8799
1072	5355	8.5632	2.8809
1073	5360	8.5635	2.8812
1074	5365	8.5642	2.8819
1075	5370	8.5645	2.8822
1076	5375	8.5658	2.8835
1077	5380	8.5665	2.8842
1078	5385	8.5671	2.8848
1079	5390	8.5701	2.8878
1080	5395	8.5704	2.8881
1081	5400	8.5724	2.8901
1082	5405	8.5743	2.892
1083	5410	8.5766	2.8943
1084	5415	8.5786	2.8963
1085	5420	8.5819	2.8996
1086	5425	8.5819	2.8996
1087	5430	8.5825	2.9002
1088	5435	8.5819	2.8996
1089	5440	8.5832	2.9009
1090	5445	8.5858	2.9035
1091	5450	8.5875	2.9052
1092	5455	8.5904	2.9081
1093	5460	8.5917	2.9094
1094	5465	8.5937	2.9114
1095	5470	8.597	2.9147
1096	5475	8.5989	2.9166
1097	5480	8.6003	2.918
1098	5485	8.6022	2.9199
1099	5490	8.6035	2.9212
1100	5495	8.6058	2.9235
1101	5500	8.6058	2.9235
1102	5505	8.6085	2.9262
1103	5510	8.6078	2.9255
1104	5515	8.6072	2.9249
1105	5520	8.6094	2.9271
1106	5525	8.6101	2.9278
1107	5530	8.6111	2.9288
1108	5535	8.616	2.9337
1109	5540	8.6176	2.9353
1110	5545	8.6196	2.9373
1111	5550	8.619	2.9367
1112	5555	8.6186	2.9363
1113	5560	8.6209	2.9386
1114	5565	8.6222	2.9399
1115	5570	8.6222	2.9399
1116	5575	8.6239	2.9416
1117	5580	8.6249	2.9426
1118	5585	8.6275	2.9452
1119	5590	8.6295	2.9472
1120	5595	8.6308	2.9485
1121	5600	8.6331	2.9508
1122	5605	8.6344	2.9521
1123	5610	8.6334	2.9511
1124	5615	8.6347	2.9524
1125	5620	8.6354	2.9531
1126	5625	8.638	2.9557
1127	5630	8.6377	2.9554
1128	5635	8.6393	2.957

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	8.6409	2.9586
1130	5645	8.6432	2.9609
1131	5650	8.6439	2.9616
1132	5655	8.6442	2.9619
1133	5660	8.6452	2.9629
1134	5665	8.6449	2.9626
1135	5670	8.6459	2.9636
1136	5675	8.6472	2.9649
1137	5680	8.6462	2.9639
1138	5685	8.6459	2.9636
1139	5690	8.6465	2.9642
1140	5695	8.6475	2.9652
1141	5700	8.6485	2.9662
1142	5705	8.6531	2.9708
1143	5710	8.6508	2.9685
1144	5715	8.6508	2.9685
1145	5720	8.6524	2.9701
1146	5725	8.6524	2.9701
1147	5730	8.6554	2.9731
1148	5735	8.6541	2.9718
1149	5740	8.6541	2.9718
1150	5745	8.655	2.9727
1151	5750	8.6573	2.975
1152	5755	8.6603	2.978
1153	5760	8.6573	2.975
1154	5765	8.655	2.9727
1155	5770	8.6547	2.9724
1156	5775	8.6541	2.9718
1157	5780	8.6554	2.9731
1158	5785	8.657	2.9747
1159	5790	8.6593	2.977
1160	5795	8.6593	2.977
1161	5800	8.6567	2.9744
1162	5805	8.66	2.9777
1163	5810	8.6583	2.976
1164	5815	8.6593	2.977
1165	5820	8.6619	2.9796
1166	5825	8.6646	2.9823
1167	5830	8.6646	2.9823
1168	5835	8.6655	2.9832
1169	5840	8.6669	2.9846
1170	5845	8.6682	2.9859
1171	5850	8.6695	2.9872
1172	5855	8.6685	2.9862
1173	5860	8.6692	2.9869
1174	5865	8.6708	2.9885
1175	5870	8.6715	2.9892
1176	5875	8.6744	2.9921
1177	5880	8.6724	2.9901
1178	5885	8.6751	2.9928
1179	5890	8.6724	2.9901
1180	5895	8.6728	2.9905
1181	5900	8.6695	2.9872
1182	5905	8.6757	2.9934
1183	5910	8.6764	2.9941
1184	5915	8.6793	2.997
1185	5920	8.68	2.9977
1186	5925	8.6813	2.999
1187	5930	8.682	2.9997
1188	5935	8.6823	3.00
1189	5940	8.6803	2.998
1190	5945	8.6829	3.0006
1191	5950	8.6833	3.001

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	8.6869	3.0046
1193	5960	8.6902	3.0079
1194	5965	8.6888	3.0065
1195	5970	8.6888	3.0065
1196	5975	8.6892	3.0069
1197	5980	8.6902	3.0079
1198	5985	8.6902	3.0079
1199	5990	8.6895	3.0072
1200	5995	8.6934	3.0111
1201	6000	8.6934	3.0111
1202	6005	8.6938	3.0115
1203	6010	8.6925	3.0102
1204	6015	8.6944	3.0121
1205	6020	8.6947	3.0124
1206	6025	8.6961	3.0138
1207	6030	8.70	3.0177
1208	6035	8.702	3.0197
1209	6040	8.7056	3.0233
1210	6045	8.7043	3.022
1211	6050	8.7039	3.0216
1212	6055	8.7062	3.0239
1213	6060	8.7052	3.0229
1214	6065	8.7072	3.0249
1215	6070	8.7066	3.0243
1216	6075	8.7052	3.0229
1217	6080	8.7069	3.0246
1218	6085	8.7066	3.0243
1219	6090	8.7062	3.0239
1220	6095	8.7089	3.0266
1221	6100	8.7131	3.0308
1222	6105	8.7128	3.0305
1223	6110	8.7171	3.0348
1224	6115	8.719	3.0367
1225	6120	8.7187	3.0364
1226	6125	8.7213	3.039
1227	6130	8.7216	3.0393
1228	6135	8.7246	3.0423
1229	6140	8.7272	3.0449
1230	6145	8.7295	3.0472
1231	6150	8.7318	3.0495
1232	6155	8.7348	3.0525
1233	6160	8.7387	3.0564
1234	6165	8.7404	3.0581
1235	6170	8.742	3.0597
1236	6175	8.7407	3.0584
1237	6180	8.7433	3.061
1238	6185	8.7456	3.0633
1239	6190	8.7505	3.0682
1240	6195	8.7538	3.0715
1241	6200	8.7535	3.0712
1242	6205	8.7551	3.0728
1243	6210	8.7551	3.0728
1244	6215	8.7584	3.0761
1245	6220	8.7604	3.0781
1246	6225	8.763	3.0807
1247	6230	8.7663	3.084
1248	6235	8.7686	3.0863
1249	6240	8.7705	3.0882
1250	6245	8.7718	3.0895
1251	6250	8.7722	3.0899
1252	6255	8.7732	3.0909
1253	6260	8.7755	3.0932
1254	6265	8.7787	3.0964

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	8.7784	3.0961
1256	6275	8.7823	3.10
1257	6280	8.784	3.1017
1258	6285	8.7869	3.1046
1259	6290	8.7879	3.1056
1260	6295	8.7899	3.1076
1261	6300	8.7928	3.1105
1262	6305	8.7945	3.1122
1263	6310	8.7922	3.1099
1264	6315	8.7925	3.1102
1265	6320	8.7922	3.1099
1266	6325	8.7909	3.1086
1267	6330	8.7922	3.1099
1268	6335	8.7955	3.1132
1269	6340	8.7981	3.1158
1270	6345	8.8017	3.1194
1271	6350	8.8053	3.123
1272	6355	8.8037	3.1214
1273	6360	8.8043	3.122
1274	6365	8.8047	3.1224
1275	6370	8.8033	3.121
1276	6375	8.803	3.1207
1277	6380	8.805	3.1227
1278	6385	8.8066	3.1243
1279	6390	8.8089	3.1266
1280	6395	8.8092	3.1269
1281	6400	8.8086	3.1263
1282	6405	8.8092	3.1269
1283	6410	8.8115	3.1292
1284	6415	8.8115	3.1292
1285	6420	8.8106	3.1283
1286	6425	8.8125	3.1302
1287	6430	8.8135	3.1312
1288	6435	8.8129	3.1306
1289	6440	8.8171	3.1348
1290	6445	8.8161	3.1338
1291	6450	8.8181	3.1358
1292	6455	8.8178	3.1355
1293	6460	8.8171	3.1348
1294	6465	8.8161	3.1338
1295	6470	8.8148	3.1325
1296	6475	8.8148	3.1325
1297	6480	8.8155	3.1332
1298	6485	8.8152	3.1329
1299	6490	8.8142	3.1319
1300	6495	8.8135	3.1312
1301	6500	8.8132	3.1309
1302	6505	8.8138	3.1315
1303	6510	8.8112	3.1289
1304	6515	8.8112	3.1289
1305	6520	8.8109	3.1286
1306	6525	8.8112	3.1289
1307	6530	8.8102	3.1279
1308	6535	8.8125	3.1302
1309	6540	8.8115	3.1292
1310	6545	8.8106	3.1283
1311	6550	8.8135	3.1312
1312	6555	8.8129	3.1306
1313	6560	8.8129	3.1306
1314	6565	8.8129	3.1306
1315	6570	8.8125	3.1302
1316	6575	8.8129	3.1306
1317	6580	8.8125	3.1302

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	8.8125	3.1302
1319	6590	8.8142	3.1319
1320	6595	8.8158	3.1335
1321	6600	8.8168	3.1345
1322	6605	8.8171	3.1348
1323	6610	8.8165	3.1342
1324	6615	8.8184	3.1361
1325	6620	8.8161	3.1338
1326	6625	8.8165	3.1342
1327	6630	8.8204	3.1381
1328	6635	8.8204	3.1381
1329	6640	8.8201	3.1378
1330	6645	8.8217	3.1394
1331	6650	8.824	3.1417
1332	6655	8.8234	3.1411
1333	6660	8.8234	3.1411
1334	6665	8.824	3.1417
1335	6670	8.824	3.1417
1336	6675	8.826	3.1437
1337	6680	8.827	3.1447
1338	6685	8.8286	3.1463
1339	6690	8.8309	3.1486
1340	6695	8.8309	3.1486
1341	6700	8.8325	3.1502
1342	6705	8.8335	3.1512
1343	6710	8.8342	3.1519
1344	6715	8.8339	3.1516
1345	6720	8.8368	3.1545
1346	6725	8.8355	3.1532
1347	6730	8.8378	3.1555
1348	6735	8.8394	3.1571
1349	6740	8.8411	3.1588
1350	6745	8.8398	3.1575
1351	6750	8.8421	3.1598
1352	6755	8.8434	3.1611
1353	6760	8.8437	3.1614
1354	6765	8.8457	3.1634
1355	6770	8.8457	3.1634
1356	6775	8.848	3.1657
1357	6780	8.846	3.1637
1358	6785	8.8499	3.1676
1359	6790	8.8529	3.1706
1360	6795	8.8526	3.1703
1361	6800	8.8545	3.1722
1362	6805	8.8571	3.1748
1363	6810	8.8581	3.1758
1364	6815	8.8608	3.1785
1365	6820	8.8627	3.1804
1366	6825	8.866	3.1837
1367	6830	8.8683	3.186
1368	6835	8.8703	3.188
1369	6840	8.8716	3.1893
1370	6845	8.8745	3.1922
1371	6850	8.8772	3.1949
1372	6855	8.8791	3.1968
1373	6860	8.8801	3.1978
1374	6865	8.8837	3.2014
1375	6870	8.887	3.2047
1376	6875	8.8873	3.205
1377	6880	8.8923	3.21
1378	6885	8.8949	3.2126
1379	6890	8.8982	3.2159
1380	6895	8.9034	3.2211

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	8.9034	3.2211
1382	6905	8.9064	3.2241
1383	6910	8.9096	3.2273
1384	6915	8.9103	3.228
1385	6920	8.9123	3.23
1386	6925	8.9221	3.2398
1387	6930	8.9198	3.2375
1388	6935	8.9247	3.2424
1389	6940	8.926	3.2437
1390	6945	8.927	3.2447
1391	6950	8.9306	3.2483
1392	6955	8.9336	3.2513
1393	6960	8.9372	3.2549
1394	6965	8.9388	3.2565
1395	6970	8.9428	3.2605
1396	6975	8.9441	3.2618
1397	6980	8.9457	3.2634
1398	6985	8.9497	3.2674
1399	6990	8.9536	3.2713
1400	6995	8.9569	3.2746
1401	7000	8.9605	3.2782
1402	7005	8.9618	3.2795
1403	7010	8.9625	3.2802
1404	7015	8.9644	3.2821
1405	7020	8.9671	3.2848
1406	7025	8.9726	3.2903
1407	7030	8.9697	3.2874
1408	7035	8.9743	3.292
1409	7040	8.9792	3.2969
1410	7045	8.9802	3.2979
1411	7050	8.9812	3.2989
1412	7055	8.9838	3.3015
1413	7060	8.9858	3.3035
1414	7065	8.9887	3.3064
1415	7070	8.99	3.3077
1416	7075	8.9926	3.3103
1417	7080	8.9946	3.3123
1418	7085	8.9979	3.3156
1419	7090	8.9976	3.3153
1420	7095	8.9946	3.3123
1421	7100	9.0025	3.3202
1422	7105	9.0005	3.3182
1423	7110	9.0077	3.3254
1424	7115	9.0094	3.3271
1425	7120	9.0146	3.3323
1426	7125	9.0156	3.3333
1427	7130	9.0153	3.333
1428	7135	9.0189	3.3366
1429	7140	9.0169	3.3346
1430	7145	9.0202	3.3379
1431	7150	9.0212	3.3389
1432	7155	9.0261	3.3438
1433	7160	9.0268	3.3445
1434	7165	9.0258	3.3435
1435	7170	9.0284	3.3461
1436	7175	9.0307	3.3484
1437	7180	9.0327	3.3504
1438	7185	9.036	3.3537
1439	7190	9.0376	3.3553
1440	7195	9.0406	3.3583
1441	7200	9.0438	3.3615
1442	7205	9.0432	3.3609
1443	7210	9.0461	3.3638

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	9.0484	3.3661
1445	7220	9.0484	3.3661
1446	7225	9.0494	3.3671
1447	7230	9.052	3.3697
1448	7235	9.0533	3.371
1449	7240	9.057	3.3747
1450	7245	9.055	3.3727
1451	7250	9.056	3.3737
1452	7255	9.0579	3.3756
1453	7260	9.0583	3.376
1454	7265	9.0592	3.3769
1455	7270	9.0579	3.3756
1456	7275	9.0589	3.3766
1457	7280	9.0583	3.376
1458	7285	9.0619	3.3796
1459	7290	9.0694	3.3871
1460	7295	9.0622	3.3799
1461	7300	9.0724	3.3901
1462	7305	9.0665	3.3842
1463	7310	9.0668	3.3845
1464	7315	9.0704	3.3881
1465	7320	9.0658	3.3835
1466	7325	9.0727	3.3904
1467	7330	9.0776	3.3953
1468	7335	9.077	3.3947
1469	7340	9.0809	3.3986
1470	7345	9.0917	3.4094
1471	7350	9.0812	3.3989
1472	7355	9.0868	3.4045
1473	7360	9.095	3.4127
1474	7365	9.0858	3.4035
1475	7370	9.0891	3.4068
1476	7375	9.0891	3.4068
1477	7380	9.0891	3.4068
1478	7385	9.0927	3.4104
1479	7390	9.0898	3.4075
1480	7395	9.0953	3.413
1481	7400	9.098	3.4157
1482	7405	9.0996	3.4173
1483	7410	9.1016	3.4193
1484	7415	9.098	3.4157
1485	7420	9.0986	3.4163
1486	7425	9.1039	3.4216
1487	7430	9.1045	3.4222
1488	7435	9.1035	3.4212
1489	7440	9.1081	3.4258
1490	7445	9.1098	3.4275
1491	7450	9.1078	3.4255
1492	7455	9.1117	3.4294
1493	7460	9.1144	3.4321
1494	7465	9.1163	3.434
1495	7470	9.1127	3.4304
1496	7475	9.117	3.4347
1497	7480	9.1222	3.4399
1498	7485	9.1183	3.436
1499	7490	9.1255	3.4432
1500	7495	9.1239	3.4416
1501	7500	9.1268	3.4445
1502	7505	9.1285	3.4462
1503	7510	9.1314	3.4491
1504	7515	9.1337	3.4514
1505	7520	9.1354	3.4531
1506	7525	9.138	3.4557

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	9.1419	3.4596
1508	7535	9.1403	3.458
1509	7540	9.1429	3.4606
1510	7545	9.1439	3.4616
1511	7550	9.1482	3.4659
1512	7555	9.1511	3.4688
1513	7560	9.1531	3.4708
1514	7565	9.1528	3.4705
1515	7570	9.1531	3.4708
1516	7575	9.1531	3.4708
1517	7580	9.157	3.4747
1518	7585	9.1577	3.4754
1519	7590	9.1613	3.479
1520	7595	9.1639	3.4816
1521	7600	9.1646	3.4823
1522	7605	9.1662	3.4839
1523	7610	9.1721	3.4898
1524	7615	9.1731	3.4908
1525	7620	9.1757	3.4934
1526	7625	9.1803	3.498
1527	7630	9.1813	3.499
1528	7635	9.1865	3.5042
1529	7640	9.1846	3.5023
1530	7645	9.1865	3.5042
1531	7650	9.1931	3.5108
1532	7655	9.1925	3.5102
1533	7660	9.1941	3.5118
1534	7665	9.1957	3.5134
1535	7670	9.1951	3.5128
1536	7675	9.199	3.5167
1537	7680	9.2036	3.5213
1538	7685	9.1987	3.5164
1539	7690	9.2026	3.5203
1540	7695	9.2013	3.519
1541	7700	9.2092	3.5269
1542	7705	9.2085	3.5262
1543	7710	9.2112	3.5289
1544	7715	9.2108	3.5285
1545	7720	9.2171	3.5348
1546	7725	9.2144	3.5321
1547	7730	9.221	3.5387
1548	7735	9.223	3.5407
1549	7740	9.2272	3.5449
1550	7745	9.2266	3.5443
1551	7750	9.2315	3.5492
1552	7755	9.2308	3.5485
1553	7760	9.2338	3.5515
1554	7765	9.2348	3.5525
1555	7770	9.2361	3.5538
1556	7775	9.2423	3.56
1557	7780	9.2423	3.56
1558	7785	9.2456	3.5633
1559	7790	9.2472	3.5649
1560	7795	9.2453	3.563
1561	7800	9.2509	3.5686
1562	7805	9.2522	3.5699
1563	7810	9.2525	3.5702
1564	7815	9.2558	3.5735
1565	7820	9.2561	3.5738
1566	7825	9.261	3.5787
1567	7830	9.2653	3.583
1568	7835	9.2673	3.585
1569	7840	9.2682	3.5859

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	9.2702	3.5879
1571	7850	9.2718	3.5895
1572	7855	9.2712	3.5889
1573	7860	9.2715	3.5892
1574	7865	9.2715	3.5892
1575	7870	9.2735	3.5912
1576	7875	9.2735	3.5912
1577	7880	9.2761	3.5938
1578	7885	9.2741	3.5918
1579	7890	9.2751	3.5928
1580	7895	9.2778	3.5955
1581	7900	9.2768	3.5945
1582	7905	9.2801	3.5978
1583	7910	9.2787	3.5964
1584	7915	9.2807	3.5984
1585	7920	9.281	3.5987
1586	7925	9.284	3.6017
1587	7930	9.2794	3.5971
1588	7935	9.2791	3.5968
1589	7940	9.2814	3.5991
1590	7945	9.2833	3.601
1591	7950	9.285	3.6027
1592	7955	9.281	3.5987
1593	7960	9.2823	3.60
1594	7965	9.2827	3.6004
1595	7970	9.2827	3.6004
1596	7975	9.2817	3.5994
1597	7980	9.2781	3.5958
1598	7985	9.2781	3.5958
1599	7990	9.2778	3.5955
1600	7995	9.2807	3.5984
1601	8000	9.2755	3.5932
1602	8005	9.2823	3.60
1603	8010	9.2817	3.5994
1604	8015	9.282	3.5997
1605	8020	9.281	3.5987
1606	8025	9.2791	3.5968
1607	8030	9.2774	3.5951
1608	8035	9.2794	3.5971
1609	8040	9.2768	3.5945
1610	8045	9.2787	3.5964
1611	8050	9.2755	3.5932
1612	8055	9.2771	3.5948
1613	8060	9.2725	3.5902
1614	8065	9.2761	3.5938
1615	8070	9.2751	3.5928
1616	8075	9.2696	3.5873
1617	8080	9.2686	3.5863
1618	8085	9.2699	3.5876
1619	8090	9.2919	3.6096
1620	8095	9.2869	3.6046
1621	8100	9.2784	3.5961
1622	8105	9.2797	3.5974
1623	8110	9.2817	3.5994
1624	8115	9.2787	3.5964
1625	8120	9.2781	3.5958
1626	8125	9.2843	3.602
1627	8130	9.2764	3.5941
1628	8135	9.2764	3.5941
1629	8140	9.2699	3.5876
1630	8145	9.2604	3.5781
1631	8150	9.2561	3.5738
1632	8155	9.2564	3.5741

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	9.2472	3.5649
1634	8165	9.2492	3.5669
1635	8170	9.2492	3.5669
1636	8175	9.2574	3.5751
1637	8180	9.2561	3.5738
1638	8185	9.2564	3.5741
1639	8190	9.264	3.5817
1640	8195	9.2538	3.5715
1641	8200	9.2564	3.5741
1642	8205	9.2479	3.5656
1643	8210	9.2423	3.56
1644	8215	9.244	3.5617
1645	8220	9.2344	3.5521
1646	8225	9.2312	3.5489
1647	8230	9.2171	3.5348
1648	8235	9.2164	3.5341
1649	8240	9.22	3.5377
1650	8245	9.222	3.5397
1651	8250	9.2302	3.5479
1652	8255	9.2312	3.5489
1653	8260	9.2338	3.5515
1654	8265	9.2367	3.5544
1655	8270	9.2449	3.5626
1656	8275	9.2459	3.5636
1657	8280	9.2397	3.5574
1658	8285	9.243	3.5607
1659	8290	9.2443	3.562
1660	8295	9.2479	3.5656
1661	8300	9.2551	3.5728
1662	8305	9.2636	3.5813
1663	8310	9.2548	3.5725
1664	8315	9.2443	3.562
1665	8320	9.2367	3.5544
1666	8325	9.24	3.5577
1667	8330	9.2404	3.5581
1668	8335	9.2499	3.5676
1669	8340	9.2515	3.5692
1670	8345	9.2512	3.5689
1671	8350	9.2545	3.5722
1672	8355	9.2607	3.5784
1673	8360	9.2692	3.5869
1674	8365	9.2755	3.5932
1675	8370	9.2705	3.5882
1676	8375	9.2577	3.5754
1677	8380	9.2633	3.581
1678	8385	9.2686	3.5863
1679	8390	9.2663	3.584
1680	8395	9.2781	3.5958
1681	8400	9.2745	3.5922
1682	8405	9.2571	3.5748
1683	8410	9.2554	3.5731
1684	8415	9.2604	3.5781
1685	8420	9.2613	3.579
1686	8425	9.2732	3.5909
1687	8430	9.2745	3.5922
1688	8435	9.2722	3.5899
1689	8440	9.2673	3.585
1690	8445	9.2689	3.5866
1691	8450	9.2679	3.5856
1692	8455	9.2787	3.5964
1693	8460	9.2764	3.5941
1694	8465	9.2784	3.5961
1695	8470	9.2837	3.6014

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	9.286	3.6037
1697	8480	9.2846	3.6023
1698	8485	9.2863	3.604
1699	8490	9.2856	3.6033
1700	8495	9.2876	3.6053
1701	8500	9.286	3.6037
1702	8505	9.2869	3.6046
1703	8510	9.2876	3.6053
1704	8515	9.2853	3.603
1705	8520	9.2863	3.604
1706	8525	9.2856	3.6033
1707	8530	9.285	3.6027
1708	8535	9.285	3.6027
1709	8540	9.2856	3.6033
1710	8545	9.286	3.6037
1711	8550	9.2837	3.6014
1712	8555	9.2843	3.602
1713	8560	9.2846	3.6023
1714	8565	9.284	3.6017
1715	8570	9.283	3.6007
1716	8575	9.284	3.6017
1717	8580	9.2814	3.5991
1718	8585	9.2827	3.6004
1719	8590	9.281	3.5987
1720	8595	9.2801	3.5978
1721	8600	9.281	3.5987
1722	8605	9.2817	3.5994
1723	8610	9.281	3.5987
1724	8615	9.281	3.5987
1725	8620	9.2787	3.5964
1726	8625	9.2791	3.5968
1727	8630	9.2801	3.5978
1728	8635	9.2807	3.5984
1729	8640	9.2801	3.5978
1730	8645	9.2801	3.5978
1731	8650	9.2778	3.5955
1732	8655	9.2778	3.5955
1733	8660	9.2791	3.5968
1734	8665	9.2791	3.5968
1735	8670	9.2794	3.5971
1736	8675	9.2801	3.5978
1737	8680	9.2771	3.5948
1738	8685	9.2758	3.5935
1739	8690	9.2758	3.5935
1740	8695	9.2748	3.5925
1741	8700	9.2745	3.5922
1742	8705	9.2755	3.5932
1743	8710	9.2751	3.5928
1744	8715	9.2755	3.5932
1745	8720	9.2771	3.5948
1746	8725	9.2764	3.5941
1747	8730	9.2761	3.5938
1748	8735	9.2732	3.5909
1749	8740	9.2722	3.5899
1750	8745	9.2722	3.5899
1751	8750	9.2709	3.5886
1752	8755	9.2732	3.5909
1753	8760	9.2715	3.5892
1754	8765	9.2715	3.5892
1755	8770	9.2709	3.5886
1756	8775	9.2692	3.5869
1757	8780	9.2705	3.5882
1758	8785	9.2696	3.5873

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	9.2692	3.5869
1760	8795	9.2712	3.5889
1761	8800	9.2705	3.5882
1762	8805	9.2689	3.5866
1763	8810	9.2682	3.5859
1764	8815	9.2696	3.5873
1765	8820	9.2686	3.5863
1766	8825	9.2669	3.5846
1767	8830	9.2669	3.5846
1768	8835	9.265	3.5827
1769	8840	9.265	3.5827
1770	8845	9.2643	3.582
1771	8850	9.2646	3.5823
1772	8855	9.265	3.5827
1773	8860	9.2653	3.583
1774	8865	9.264	3.5817
1775	8870	9.263	3.5807
1776	8875	9.2627	3.5804
1777	8880	9.2623	3.58
1778	8885	9.262	3.5797
1779	8890	9.261	3.5787
1780	8895	9.2604	3.5781
1781	8900	9.2617	3.5794
1782	8905	9.2623	3.58
1783	8910	9.262	3.5797
1784	8915	9.2627	3.5804
1785	8920	9.261	3.5787
1786	8925	9.262	3.5797
1787	8930	9.26	3.5777
1788	8935	9.26	3.5777
1789	8940	9.2597	3.5774
1790	8945	9.2584	3.5761
1791	8950	9.2604	3.5781
1792	8955	9.2604	3.5781
1793	8960	9.2604	3.5781
1794	8965	9.2604	3.5781
1795	8970	9.2617	3.5794
1796	8975	9.2613	3.579
1797	8980	9.2623	3.58
1798	8985	9.261	3.5787
1799	8990	9.2617	3.5794
1800	8995	9.2617	3.5794
1801	9000	9.2627	3.5804
1802	9005	9.2636	3.5813
1803	9010	9.264	3.5817
1804	9015	9.2646	3.5823
1805	9020	9.2633	3.581
1806	9025	9.2643	3.582
1807	9030	9.2633	3.581
1808	9035	9.2646	3.5823
1809	9040	9.2633	3.581
1810	9045	9.2633	3.581
1811	9050	9.264	3.5817
1812	9055	9.2627	3.5804
1813	9060	9.2633	3.581
1814	9065	9.2636	3.5813
1815	9070	9.2653	3.583
1816	9075	9.2643	3.582
1817	9080	9.2636	3.5813
1818	9085	9.2653	3.583
1819	9090	9.2656	3.5833
1820	9095	9.2656	3.5833
1821	9100	9.2669	3.5846

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	9.2673	3.585
1823	9110	9.2679	3.5856
1824	9115	9.2686	3.5863
1825	9120	9.2702	3.5879
1826	9125	9.2699	3.5876
1827	9130	9.2702	3.5879
1828	9135	9.2715	3.5892
1829	9140	9.2709	3.5886
1830	9145	9.2715	3.5892
1831	9150	9.2722	3.5899
1832	9155	9.2715	3.5892
1833	9160	9.2738	3.5915
1834	9165	9.2755	3.5932
1835	9170	9.2774	3.5951
1836	9175	9.2774	3.5951
1837	9180	9.2791	3.5968
1838	9185	9.281	3.5987
1839	9190	9.2843	3.602
1840	9195	9.283	3.6007
1841	9200	9.2843	3.602
1842	9205	9.2843	3.602
1843	9210	9.284	3.6017
1844	9215	9.284	3.6017
1845	9220	9.2863	3.604
1846	9225	9.284	3.6017
1847	9230	9.2869	3.6046
1848	9235	9.2866	3.6043
1849	9240	9.2866	3.6043
1850	9245	9.2896	3.6073
1851	9250	9.2886	3.6063
1852	9255	9.2909	3.6086
1853	9260	9.2912	3.6089
1854	9265	9.2915	3.6092
1855	9270	9.2919	3.6096
1856	9275	9.2912	3.6089
1857	9280	9.2905	3.6082
1858	9285	9.2912	3.6089
1859	9290	9.2932	3.6109
1860	9295	9.2938	3.6115
1861	9300	9.2961	3.6138
1862	9305	9.2961	3.6138
1863	9310	9.2951	3.6128
1864	9315	9.2958	3.6135
1865	9320	9.2965	3.6142
1866	9325	9.2961	3.6138
1867	9330	9.2968	3.6145
1868	9335	9.2961	3.6138
1869	9340	9.2948	3.6125
1870	9345	9.2951	3.6128
1871	9350	9.2955	3.6132
1872	9355	9.2942	3.6119
1873	9360	9.2942	3.6119
1874	9365	9.2951	3.6128
1875	9370	9.2968	3.6145
1876	9375	9.2948	3.6125
1877	9380	9.2935	3.6112
1878	9385	9.2919	3.6096
1879	9390	9.2919	3.6096
1880	9395	9.2912	3.6089
1881	9400	9.2909	3.6086
1882	9405	9.2889	3.6066
1883	9410	9.2863	3.604
1884	9415	9.2833	3.601

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	9.2807	3.5984
1886	9425	9.2787	3.5964
1887	9430	9.2771	3.5948
1888	9435	9.2755	3.5932
1889	9440	9.2745	3.5922
1890	9445	9.2728	3.5905
1891	9450	9.2718	3.5895
1892	9455	9.2705	3.5882
1893	9460	9.2692	3.5869
1894	9465	9.2676	3.5853
1895	9470	9.2676	3.5853
1896	9475	9.2666	3.5843
1897	9480	9.2653	3.583
1898	9485	9.2636	3.5813
1899	9490	9.2627	3.5804
1900	9495	9.2617	3.5794
1901	9500	9.26	3.5777
1902	9505	9.2574	3.5751
1903	9510	9.2545	3.5722
1904	9515	9.2531	3.5708
1905	9520	9.2509	3.5686
1906	9525	9.2476	3.5653
1907	9530	9.2456	3.5633
1908	9535	9.2436	3.5613
1909	9540	9.2397	3.5574
1910	9545	9.2387	3.5564
1911	9550	9.2344	3.5521
1912	9555	9.2312	3.5489
1913	9560	9.2315	3.5492
1914	9565	9.2312	3.5489
1915	9570	9.2289	3.5466
1916	9575	9.2236	3.5413
1917	9580	9.2223	3.54
1918	9585	9.2203	3.538
1919	9590	9.2171	3.5348
1920	9595	9.2141	3.5318
1921	9600	9.2085	3.5262
1922	9605	9.2085	3.5262
1923	9610	9.2082	3.5259
1924	9615	9.2075	3.5252
1925	9620	9.2075	3.5252
1926	9625	9.2039	3.5216
1927	9630	9.2029	3.5206
1928	9635	9.2013	3.519
1929	9640	9.1997	3.5174
1930	9645	9.1967	3.5144
1931	9650	9.1957	3.5134
1932	9655	9.1947	3.5124
1933	9660	9.1931	3.5108
1934	9665	9.1918	3.5095
1935	9670	9.1898	3.5075
1936	9675	9.1882	3.5059
1937	9680	9.1882	3.5059
1938	9685	9.1882	3.5059
1939	9690	9.1888	3.5065
1940	9695	9.1892	3.5069
1941	9700	9.1892	3.5069
1942	9705	9.1888	3.5065
1943	9710	9.1885	3.5062
1944	9715	9.1872	3.5049
1945	9720	9.1872	3.5049
1946	9725	9.1859	3.5036
1947	9730	9.1856	3.5033

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	9.1865	3.5042
1949	9740	9.1865	3.5042
1950	9745	9.1862	3.5039
1951	9750	9.1865	3.5042
1952	9755	9.1852	3.5029
1953	9760	9.1859	3.5036
1954	9765	9.1879	3.5056
1955	9770	9.1879	3.5056
1956	9775	9.1849	3.5026
1957	9780	9.1865	3.5042
1958	9785	9.1839	3.5016
1959	9790	9.1852	3.5029
1960	9795	9.1849	3.5026
1961	9800	9.1852	3.5029
1962	9805	9.1859	3.5036
1963	9810	9.1859	3.5036
1964	9815	9.1882	3.5059
1965	9820	9.1885	3.5062
1966	9825	9.1882	3.5059
1967	9830	9.1885	3.5062
1968	9835	9.1895	3.5072
1969	9840	9.1879	3.5056
1970	9845	9.1888	3.5065
1971	9850	9.1879	3.5056
1972	9855	9.1895	3.5072
1973	9860	9.1885	3.5062
1974	9865	9.1869	3.5046
1975	9870	9.1869	3.5046
1976	9875	9.1892	3.5069
1977	9880	9.1908	3.5085
1978	9885	9.1898	3.5075
1979	9890	9.1918	3.5095
1980	9895	9.1925	3.5102
1981	9900	9.1951	3.5128
1982	9905	9.1964	3.5141
1983	9910	9.1987	3.5164
1984	9915	9.1993	3.517
1985	9920	9.1984	3.5161
1986	9925	9.2003	3.518
1987	9930	9.2003	3.518
1988	9935	9.1997	3.5174
1989	9940	9.20	3.5177
1990	9945	9.2029	3.5206
1991	9950	9.2049	3.5226
1992	9955	9.2056	3.5233
1993	9960	9.2062	3.5239
1994	9965	9.2072	3.5249
1995	9970	9.2079	3.5256
1996	9975	9.2079	3.5256
1997	9980	9.2102	3.5279
1998	9985	9.2102	3.5279
1999	9990	9.2098	3.5275
2000	9995	9.2138	3.5315
2001	10000	9.2141	3.5318
2002	10005	9.2161	3.5338
2003	10010	9.2174	3.5351
2004	10015	9.2164	3.5341
2005	10020	9.2187	3.5364
2006	10025	9.22	3.5377
2007	10030	9.2216	3.5393
2008	10035	9.2213	3.539
2009	10040	9.2213	3.539
2010	10045	9.221	3.5387

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	9.2203	3.538
2012	10055	9.2197	3.5374
2013	10060	9.222	3.5397
2014	10065	9.2223	3.54
2015	10070	9.2233	3.541
2016	10075	9.2233	3.541
2017	10080	9.2203	3.538
2018	10085	9.1921	3.5098
2019	10090	9.1409	3.4586
2020	10095	9.0852	3.4029
2021	10100	9.0284	3.3461
2022	10105	8.97	3.2877
2023	10110	8.9126	3.2303
2024	10115	8.8591	3.1768
2025	10120	8.8092	3.1269
2026	10125	8.7564	3.0741
2027	10130	8.7102	3.0279
2028	10135	8.6649	2.9826
2029	10140	8.6216	2.9393
2030	10145	8.5766	2.8943
2031	10150	8.5317	2.8494
2032	10155	8.4897	2.8074
2033	10160	8.4513	2.769
2034	10165	8.4133	2.731
2035	10170	8.3736	2.6913
2036	10175	8.3381	2.6558
2037	10180	8.3066	2.6243
2038	10185	8.2748	2.5925
2039	10190	8.2407	2.5584
2040	10195	8.2121	2.5298
2041	10200	8.1787	2.4964
2042	10205	8.1485	2.4662
2043	10210	8.119	2.4367
2044	10215	8.0937	2.4114
2045	10220	8.0681	2.3858
2046	10225	8.0422	2.3599
2047	10230	8.015	2.3327
2048	10235	7.9887	2.3064
2049	10240	7.9638	2.2815
2050	10245	7.9388	2.2565
2051	10250	7.9169	2.2346
2052	10255	7.8919	2.2096
2053	10260	7.8716	2.1893
2054	10265	7.847	2.1647
2055	10270	7.8289	2.1466
2056	10275	7.8089	2.1266
2057	10280	7.7873	2.105
2058	10285	7.7686	2.0863
2059	10290	7.7492	2.0669
2060	10295	7.7305	2.0482
2061	10300	7.7138	2.0315
2062	10305	7.6928	2.0105
2063	10310	7.6767	1.9944
2064	10315	7.659	1.9767
2065	10320	7.6396	1.9573
2066	10325	7.6249	1.9426
2067	10330	7.6068	1.9245
2068	10335	7.5907	1.9084
2069	10340	7.5757	1.8934
2070	10345	7.5596	1.8773
2071	10350	7.5442	1.8619
2072	10355	7.5287	1.8464
2073	10360	7.5146	1.8323

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	7.5022	1.8199
2075	10370	7.4877	1.8054
2076	10375	7.4753	1.793
2077	10380	7.4615	1.7792
2078	10385	7.4484	1.7661
2079	10390	7.4352	1.7529
2080	10395	7.4218	1.7395
2081	10400	7.4106	1.7283
2082	10405	7.3962	1.7139
2083	10410	7.3854	1.7031
2084	10415	7.3729	1.6906
2085	10420	7.3627	1.6804
2086	10425	7.3509	1.6686
2087	10430	7.3394	1.6571
2088	10435	7.3289	1.6466
2089	10440	7.3165	1.6342
2090	10445	7.307	1.6247
2091	10450	7.2965	1.6142
2092	10455	7.286	1.6037
2093	10460	7.2764	1.5941
2094	10465	7.2666	1.5843
2095	10470	7.2577	1.5754
2096	10475	7.2479	1.5656
2097	10480	7.239	1.5567
2098	10485	7.2308	1.5485
2099	10490	7.2226	1.5403
2100	10495	7.2135	1.5312
2101	10500	7.2049	1.5226
2102	10505	7.1967	1.5144
2103	10510	7.1852	1.5029
2104	10515	7.178	1.4957
2105	10520	7.1698	1.4875
2106	10525	7.1626	1.4803
2107	10530	7.1541	1.4718
2108	10535	7.1472	1.4649
2109	10540	7.14	1.4577
2110	10545	7.1337	1.4514
2111	10550	7.1265	1.4442
2112	10555	7.1193	1.437
2113	10560	7.1127	1.4304
2114	10565	7.1045	1.4222
2115	10570	7.0976	1.4153
2116	10575	7.093	1.4107
2117	10580	7.0862	1.4039
2118	10585	7.0802	1.3979
2119	10590	7.0714	1.3891
2120	10595	7.0658	1.3835
2121	10600	7.0592	1.3769
2122	10605	7.0527	1.3704
2123	10610	7.0481	1.3658
2124	10615	7.0406	1.3583
2125	10620	7.0356	1.3533
2126	10625	7.0291	1.3468
2127	10630	7.0235	1.3412
2128	10635	7.0176	1.3353
2129	10640	7.0127	1.3304
2130	10645	7.0081	1.3258
2131	10650	7.0012	1.3189
2132	10655	6.9969	1.3146
2133	10660	6.9907	1.3084
2134	10665	6.9858	1.3035
2135	10670	6.9815	1.2992
2136	10675	6.9756	1.2933

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	6.9707	1.2884
2138	10685	6.9644	1.2821
2139	10690	6.9582	1.2759
2140	10695	6.9516	1.2693
2141	10700	6.9428	1.2605
2142	10705	6.9336	1.2513
2143	10710	6.9283	1.246
2144	10715	6.9221	1.2398
2145	10720	6.9169	1.2346
2146	10725	6.9103	1.228
2147	10730	6.906	1.2237
2148	10735	6.8995	1.2172
2149	10740	6.8942	1.2119
2150	10745	6.8893	1.207
2151	10750	6.8834	1.2011
2152	10755	6.8798	1.1975
2153	10760	6.8742	1.1919
2154	10765	6.8683	1.186
2155	10770	6.8621	1.1798
2156	10775	6.8578	1.1755
2157	10780	6.8519	1.1696
2158	10785	6.846	1.1637
2159	10790	6.8407	1.1584
2160	10795	6.8371	1.1548
2161	10800	6.8312	1.1489
2162	10805	6.8273	1.145
2163	10810	6.8211	1.1388
2164	10815	6.8165	1.1342
2165	10820	6.8102	1.1279
2166	10825	6.8043	1.122
2167	10830	6.7994	1.1171
2168	10835	6.7942	1.1119
2169	10840	6.7889	1.1066
2170	10845	6.7827	1.1004
2171	10850	6.7784	1.0961
2172	10855	6.7715	1.0892
2173	10860	6.7666	1.0843
2174	10865	6.763	1.0807
2175	10870	6.7568	1.0745
2176	10875	6.7535	1.0712
2177	10880	6.7486	1.0663
2178	10885	6.7426	1.0603
2179	10890	6.7381	1.0558
2180	10895	6.7328	1.0505
2181	10900	6.7282	1.0459
2182	10905	6.7236	1.0413
2183	10910	6.7203	1.038
2184	10915	6.7157	1.0334
2185	10920	6.7108	1.0285
2186	10925	6.7056	1.0233
2187	10930	6.6993	1.017
2188	10935	6.6961	1.0138
2189	10940	6.6925	1.0102
2190	10945	6.6875	1.0052
2191	10950	6.682	0.9997
2192	10955	6.678	0.9957
2193	10960	6.6721	0.9898
2194	10965	6.6678	0.9855
2195	10970	6.6652	0.9829
2196	10975	6.6606	0.9783
2197	10980	6.6564	0.9741
2198	10985	6.6521	0.9698
2199	10990	6.6475	0.9652

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	6.6439	0.9616
2201	11000	6.6386	0.9563
2202	11005	6.6331	0.9508
2203	11010	6.6259	0.9436
2204	11015	6.6209	0.9386
2205	11020	6.6173	0.935
2206	11025	6.6134	0.9311
2207	11030	6.6098	0.9275
2208	11035	6.6052	0.9229
2209	11040	6.6009	0.9186
2210	11045	6.5966	0.9143
2211	11050	6.593	0.9107
2212	11055	6.5871	0.9048
2213	11060	6.5812	0.8989
2214	11065	6.5776	0.8953
2215	11070	6.574	0.8917
2216	11075	6.5701	0.8878
2217	11080	6.5665	0.8842
2218	11085	6.5622	0.8799
2219	11090	6.557	0.8747
2220	11095	6.5543	0.872
2221	11100	6.5491	0.8668
2222	11105	6.5451	0.8628
2223	11110	6.5422	0.8599
2224	11115	6.5379	0.8556
2225	11120	6.5337	0.8514
2226	11125	6.5307	0.8484
2227	11130	6.5271	0.8448
2228	11135	6.5241	0.8418
2229	11140	6.5225	0.8402
2230	11145	6.5196	0.8373
2231	11150	6.515	0.8327
2232	11155	6.5127	0.8304
2233	11160	6.5081	0.8258
2234	11165	6.5058	0.8235
2235	11170	6.5012	0.8189
2236	11175	6.4979	0.8156
2237	11180	6.4963	0.814
2238	11185	6.492	0.8097
2239	11190	6.4887	0.8064
2240	11195	6.4864	0.8041
2241	11200	6.4848	0.8025
2242	11205	6.4812	0.7989
2243	11210	6.4766	0.7943
2244	11215	6.4733	0.791
2245	11220	6.47	0.7877
2246	11225	6.468	0.7857
2247	11230	6.4674	0.7851
2248	11235	6.4654	0.7831
2249	11240	6.4625	0.7802
2250	11245	6.4605	0.7782
2251	11250	6.4552	0.7729
2252	11255	6.4543	0.772
2253	11260	6.4493	0.767
2254	11265	6.4487	0.7664
2255	11270	6.4474	0.7651
2256	11275	6.447	0.7647
2257	11280	6.4441	0.7618
2258	11285	6.4425	0.7602
2259	11290	6.4405	0.7582
2260	11295	6.4385	0.7562
2261	11300	6.4385	0.7562
2262	11305	6.4356	0.7533

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	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	6.4356	0.7533
2264	11315	6.4336	0.7513
2265	11320	6.4313	0.749
2266	11325	6.4303	0.748
2267	11330	6.4293	0.747
2268	11335	6.4277	0.7454
2269	11340	6.4277	0.7454
2270	11345	6.4257	0.7434
2271	11350	6.4237	0.7414
2272	11355	6.4231	0.7408
2273	11360	6.4234	0.7411
2274	11365	6.4218	0.7395
2275	11370	6.4205	0.7382
2276	11375	6.4205	0.7382
2277	11380	6.4178	0.7355
2278	11385	6.4169	0.7346
2279	11390	6.4165	0.7342
2280	11395	6.4162	0.7339
2281	11400	6.4152	0.7329
2282	11405	6.4136	0.7313
2283	11410	6.4119	0.7296
2284	11415	6.411	0.7287
2285	11420	6.409	0.7267
2286	11425	6.4087	0.7264
2287	11430	6.409	0.7267
2288	11435	6.41	0.7277
2289	11440	6.41	0.7277
2290	11445	6.4096	0.7273
2291	11450	6.4093	0.727
2292	11455	6.408	0.7257
2293	11460	6.408	0.7257
2294	11465	6.4064	0.7241
2295	11470	6.4044	0.7221
2296	11475	6.4037	0.7214
2297	11480	6.4031	0.7208
2298	11485	6.4021	0.7198
2299	11490	6.4001	0.7178
2300	11495	6.4005	0.7182
2301	11500	6.3991	0.7168
2302	11505	6.3968	0.7145
2303	11510	6.3975	0.7152
2304	11515	6.3962	0.7139
2305	11520	6.3936	0.7113
2306	11525	6.3919	0.7096
2307	11530	6.3909	0.7086
2308	11535	6.3913	0.709
2309	11540	6.3906	0.7083
2310	11545	6.389	0.7067
2311	11550	6.3873	0.705
2312	11555	6.3867	0.7044
2313	11560	6.386	0.7037
2314	11565	6.3834	0.7011
2315	11570	6.3844	0.7021
2316	11575	6.3847	0.7024
2317	11580	6.3834	0.7011
2318	11585	6.3811	0.6988
2319	11590	6.3801	0.6978
2320	11595	6.3821	0.6998
2321	11600	6.3785	0.6962
2322	11605	6.3798	0.6975
2323	11610	6.3791	0.6968
2324	11615	6.3765	0.6942
2325	11620	6.3759	0.6936

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	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	6.3749	0.6926
2327	11630	6.3742	0.6919
2328	11635	6.3732	0.6909
2329	11640	6.3739	0.6916
2330	11645	6.3722	0.6899
2331	11650	6.3686	0.6863
2332	11655	6.3686	0.6863
2333	11660	6.3667	0.6844
2334	11665	6.3647	0.6824
2335	11670	6.3637	0.6814
2336	11675	6.3627	0.6804
2337	11680	6.3621	0.6798
2338	11685	6.3598	0.6775
2339	11690	6.3591	0.6768
2340	11695	6.3578	0.6755
2341	11700	6.3555	0.6732
2342	11705	6.3539	0.6716
2343	11710	6.3519	0.6696
2344	11715	6.3503	0.668
2345	11720	6.3489	0.6666
2346	11725	6.3486	0.6663
2347	11730	6.3467	0.6644
2348	11735	6.346	0.6637
2349	11740	6.3434	0.6611
2350	11745	6.3427	0.6604
2351	11750	6.3411	0.6588
2352	11755	6.3394	0.6571
2353	11760	6.3391	0.6568
2354	11765	6.3365	0.6542
2355	11770	6.3345	0.6522
2356	11775	6.3345	0.6522
2357	11780	6.3322	0.6499
2358	11785	6.3316	0.6493
2359	11790	6.3299	0.6476
2360	11795	6.3296	0.6473
2361	11800	6.3286	0.6463
2362	11805	6.3279	0.6456
2363	11810	6.3266	0.6443
2364	11815	6.326	0.6437
2365	11820	6.3237	0.6414
2366	11825	6.323	0.6407
2367	11830	6.322	0.6397
2368	11835	6.3201	0.6378
2369	11840	6.3175	0.6352
2370	11845	6.3165	0.6342
2371	11850	6.3175	0.6352
2372	11855	6.3155	0.6332
2373	11860	6.3138	0.6315
2374	11865	6.3129	0.6306
2375	11870	6.3125	0.6302
2376	11875	6.3099	0.6276
2377	11880	6.3099	0.6276
2378	11885	6.3089	0.6266
2379	11890	6.3083	0.626
2380	11895	6.3079	0.6256
2381	11900	6.3063	0.624
2382	11905	6.305	0.6227
2383	11910	6.3047	0.6224
2384	11915	6.305	0.6227
2385	11920	6.3024	0.6201
2386	11925	6.3014	0.6191
2387	11930	6.3024	0.6201
2388	11935	6.3014	0.6191

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	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	6.3007	0.6184
2390	11945	6.3007	0.6184
2391	11950	6.3007	0.6184
2392	11955	6.301	0.6187
2393	11960	6.2994	0.6171
2394	11965	6.3001	0.6178
2395	11970	6.2978	0.6155
2396	11975	6.2971	0.6148
2397	11980	6.2971	0.6148
2398	11985	6.2968	0.6145
2399	11990	6.2965	0.6142
2400	11995	6.2968	0.6145
2401	12000	6.2961	0.6138
2402	12005	6.2965	0.6142
2403	12010	6.2945	0.6122
2404	12015	6.2945	0.6122
2405	12020	6.2958	0.6135
2406	12025	6.2945	0.6122
2407	12030	6.2968	0.6145
2408	12035	6.2948	0.6125
2409	12040	6.2938	0.6115
2410	12045	6.2958	0.6135
2411	12050	6.2958	0.6135
2412	12055	6.2955	0.6132
2413	12060	6.2945	0.6122
2414	12065	6.2945	0.6122
2415	12070	6.2928	0.6105
2416	12075	6.2928	0.6105
2417	12080	6.2919	0.6096
2418	12085	6.2935	0.6112
2419	12090	6.2922	0.6099
2420	12095	6.2925	0.6102
2421	12100	6.2912	0.6089
2422	12105	6.2902	0.6079
2423	12110	6.2902	0.6079
2424	12115	6.2886	0.6063
2425	12120	6.2886	0.6063
2426	12125	6.2899	0.6076
2427	12130	6.2896	0.6073
2428	12135	6.2889	0.6066
2429	12140	6.2873	0.605
2430	12145	6.2876	0.6053
2431	12150	6.2863	0.604
2432	12155	6.2869	0.6046
2433	12160	6.2866	0.6043
2434	12165	6.2846	0.6023
2435	12170	6.2856	0.6033
2436	12175	6.2853	0.603
2437	12180	6.285	0.6027
2438	12185	6.2856	0.6033
2439	12190	6.2846	0.6023
2440	12195	6.2853	0.603
2441	12200	6.285	0.6027
2442	12205	6.2856	0.6033
2443	12210	6.2853	0.603
2444	12215	6.2853	0.603
2445	12220	6.2833	0.601
2446	12225	6.2833	0.601
2447	12230	6.284	0.6017
2448	12235	6.2843	0.602
2449	12240	6.284	0.6017
2450	12245	6.283	0.6007
2451	12250	6.2817	0.5994

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	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	6.282	0.5997
2453	12260	6.2817	0.5994
2454	12265	6.2784	0.5961
2455	12270	6.2797	0.5974
2456	12275	6.2781	0.5958
2457	12280	6.2787	0.5964
2458	12285	6.2787	0.5964
2459	12290	6.2774	0.5951
2460	12295	6.2768	0.5945
2461	12300	6.2778	0.5955
2462	12305	6.2764	0.5941
2463	12310	6.2728	0.5905
2464	12315	6.2718	0.5895
2465	12320	6.2715	0.5892
2466	12325	6.2705	0.5882
2467	12330	6.2692	0.5869
2468	12335	6.2682	0.5859
2469	12340	6.2669	0.5846
2470	12345	6.2659	0.5836
2471	12350	6.2643	0.582
2472	12355	6.264	0.5817
2473	12360	6.2627	0.5804
2474	12365	6.262	0.5797
2475	12370	6.26	0.5777
2476	12375	6.2591	0.5768
2477	12380	6.2587	0.5764
2478	12385	6.2587	0.5764
2479	12390	6.2574	0.5751
2480	12395	6.2577	0.5754
2481	12400	6.2564	0.5741
2482	12405	6.2554	0.5731
2483	12410	6.2561	0.5738
2484	12415	6.2571	0.5748
2485	12420	6.2551	0.5728
2486	12425	6.2548	0.5725
2487	12430	6.2525	0.5702
2488	12435	6.2502	0.5679
2489	12440	6.2499	0.5676
2490	12445	6.2486	0.5663
2491	12450	6.2489	0.5666
2492	12455	6.2479	0.5656
2493	12460	6.2463	0.564
2494	12465	6.2453	0.563
2495	12470	6.244	0.5617
2496	12475	6.2426	0.5603
2497	12480	6.24	0.5577
2498	12485	6.24	0.5577
2499	12490	6.2377	0.5554
2500	12495	6.2351	0.5528
2501	12500	6.2351	0.5528
2502	12505	6.2338	0.5515
2503	12510	6.2322	0.5499
2504	12515	6.2289	0.5466
2505	12520	6.2276	0.5453
2506	12525	6.2259	0.5436
2507	12530	6.2226	0.5403
2508	12535	6.2223	0.54
2509	12540	6.221	0.5387
2510	12545	6.219	0.5367
2511	12550	6.2167	0.5344
2512	12555	6.2144	0.5321
2513	12560	6.2128	0.5305
2514	12565	6.2108	0.5285

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	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	6.2089	0.5266
2516	12575	6.2072	0.5249
2517	12580	6.2052	0.5229
2518	12585	6.2043	0.522
2519	12590	6.2049	0.5226
2520	12595	6.2026	0.5203
2521	12600	6.2013	0.519
2522	12605	6.2003	0.518
2523	12610	6.2007	0.5184
2524	12615	6.1984	0.5161
2525	12620	6.197	0.5147
2526	12625	6.1964	0.5141
2527	12630	6.1951	0.5128
2528	12635	6.1957	0.5134
2529	12640	6.1947	0.5124
2530	12645	6.1944	0.5121
2531	12650	6.1931	0.5108
2532	12655	6.1921	0.5098
2533	12660	6.1925	0.5102
2534	12665	6.1911	0.5088
2535	12670	6.1888	0.5065
2536	12675	6.1882	0.5059
2537	12680	6.1869	0.5046
2538	12685	6.1869	0.5046
2539	12690	6.1872	0.5049
2540	12695	6.1862	0.5039
2541	12700	6.1872	0.5049
2542	12705	6.1852	0.5029
2543	12710	6.1862	0.5039
2544	12715	6.1839	0.5016
2545	12720	6.1842	0.5019
2546	12725	6.1836	0.5013
2547	12730	6.1833	0.501
2548	12735	6.1816	0.4993
2549	12740	6.1797	0.4974
2550	12745	6.1783	0.496
2551	12750	6.1777	0.4954
2552	12755	6.178	0.4957
2553	12760	6.1751	0.4928
2554	12765	6.176	0.4937
2555	12770	6.1767	0.4944
2556	12775	6.1764	0.4941
2557	12780	6.1764	0.4941
2558	12785	6.178	0.4957
2559	12790	6.179	0.4967
2560	12795	6.1793	0.497
2561	12800	6.1793	0.497
2562	12805	6.1787	0.4964
2563	12810	6.179	0.4967
2564	12815	6.1793	0.497
2565	12820	6.1823	0.50
2566	12825	6.1829	0.5006
2567	12830	6.1839	0.5016
2568	12835	6.1856	0.5033
2569	12840	6.1869	0.5046
2570	12845	6.1865	0.5042
2571	12850	6.1856	0.5033
2572	12855	6.1879	0.5056
2573	12860	6.1882	0.5059
2574	12865	6.1888	0.5065
2575	12870	6.1902	0.5079
2576	12875	6.1905	0.5082
2577	12880	6.1898	0.5075

Friesen Drillers Ltd.
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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2578	12885	6.1908	0.5085
2579	12890	6.1951	0.5128
2580	12895	6.1951	0.5128
2581	12900	6.1951	0.5128
2582	12905	6.1967	0.5144
2583	12910	6.1951	0.5128
2584	12915	6.1941	0.5118
2585	12920	6.1961	0.5138
2586	12925	6.1967	0.5144
2587	12930	6.1957	0.5134
2588	12935	6.1984	0.5161
2589	12940	6.198	0.5157
2590	12945	6.1987	0.5164
2591	12950	6.1941	0.5118
2592	12955	6.1977	0.5154
2593	12960	6.1957	0.5134
2594	12965	6.20	0.5177

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Page 1 of 41 Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-MC1	Static Water Level [ft]: -0.37	Radial Distance to PW [ft]: 8917

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	-0.3671	0.00
2	5	-0.3642	0.0029
3	10	-0.3533	0.0138
4	15	-0.3264	0.0407
5	20	-0.352	0.0151
6	25	-0.3465	0.0206
7	30	-0.293	0.0741
8	35	-0.332	0.0351
9	40	-0.3356	0.0315
10	45	-0.335	0.0321
11	50	-0.331	0.0361
12	55	-0.3041	0.063
13	60	-0.3245	0.0426
14	65	-0.3215	0.0456
15	70	-0.2956	0.0715
16	75	-0.291	0.0761
17	80	-0.3009	0.0662
18	85	-0.3005	0.0666
19	90	-0.2625	0.1046
20	95	-0.2352	0.1319
21	100	-0.2759	0.0912
22	105	-0.2861	0.081
23	110	-0.2825	0.0846
24	115	-0.2746	0.0925
25	120	-0.2497	0.1174
26	125	-0.2677	0.0994
27	130	-0.2684	0.0987
28	135	-0.2287	0.1384
29	140	-0.2569	0.1102
30	145	-0.2549	0.1122
31	150	-0.2513	0.1158
32	155	-0.2064	0.1607
33	160	-0.2392	0.1279
34	165	-0.2408	0.1263
35	170	-0.2343	0.1328
36	175	-0.1729	0.1942
37	180	-0.1857	0.1814
38	185	-0.2224	0.1447
39	190	-0.1749	0.1922
40	195	-0.1637	0.2034
41	200	-0.2136	0.1535
42	205	-0.2083	0.1588
43	210	-0.21	0.1571
44	215	-0.1696	0.1975
45	220	-0.2034	0.1637
46	225	-0.2037	0.1634
47	230	-0.1992	0.1679
48	235	-0.1949	0.1722
49	240	-0.1375	0.2296
50	245	-0.1886	0.1785
51	250	-0.1811	0.186
52	255	-0.1821	0.185
53	260	-0.1782	0.1889
54	265	-0.1772	0.1899
55	270	-0.1706	0.1965
56	275	-0.145	0.2221
57	280	-0.1168	0.2503

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	-0.1647	0.2024
59	290	-0.165	0.2021
60	295	-0.1631	0.204
61	300	-0.1614	0.2057
62	305	-0.1578	0.2093
63	310	-0.1549	0.2122
64	315	-0.1526	0.2145
65	320	-0.1437	0.2234
66	325	-0.146	0.2211
67	330	-0.1414	0.2257
68	335	-0.1421	0.225
69	340	-0.1319	0.2352
70	345	-0.1581	0.209
71	350	-0.0751	0.292
72	355	-0.1011	0.266
73	360	-0.0915	0.2756
74	365	-0.1191	0.248
75	370	-0.1204	0.2467
76	375	-0.1194	0.2477
77	380	-0.1178	0.2493
78	385	-0.1152	0.2519
79	390	-0.1132	0.2539
80	395	-0.1115	0.2556
81	400	-0.1083	0.2588
82	405	-0.1076	0.2595
83	410	-0.1037	0.2634
84	415	-0.1004	0.2667
85	420	-0.0991	0.268
86	425	-0.0981	0.269
87	430	-0.0922	0.2749
88	435	-0.0902	0.2769
89	440	-0.0889	0.2782
90	445	-0.0863	0.2808
91	450	-0.0833	0.2838
92	455	-0.0807	0.2864
93	460	-0.0797	0.2874
94	465	-0.0778	0.2893
95	470	-0.0751	0.292
96	475	-0.0738	0.2933
97	480	-0.0725	0.2946
98	485	-0.0689	0.2982
99	490	-0.0663	0.3008
100	495	-0.0633	0.3038
101	500	-0.0627	0.3044
102	505	-0.0597	0.3074
103	510	-0.0551	0.312
104	515	-0.0528	0.3143
105	520	-0.0492	0.3179
106	525	-0.0469	0.3202
107	530	-0.0459	0.3212
108	535	-0.0436	0.3235
109	540	-0.0423	0.3248
110	545	-0.0381	0.329
111	550	-0.0351	0.332
112	555	-0.0338	0.3333
113	560	-0.0338	0.3333
114	565	-0.0315	0.3356
115	570	-0.0302	0.3369
116	575	-0.0276	0.3395
117	580	-0.0262	0.3409
118	585	-0.024	0.3431
119	590	-0.0223	0.3448
120	595	-0.0217	0.3454

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	-0.02	0.3471
122	605	-0.0174	0.3497
123	610	-0.0167	0.3504
124	615	-0.0157	0.3514
125	620	-0.0138	0.3533
126	625	-0.0102	0.3569
127	630	-0.0085	0.3586
128	635	-0.0075	0.3596
129	640	-0.0036	0.3635
130	645	-0.0036	0.3635
131	650	-0.0033	0.3638
132	655	-0.002	0.3651
133	660	-0.001	0.3661
134	665	0.0007	0.3678
135	670	0.0026	0.3697
136	675	0.0052	0.3723
137	680	0.0069	0.374
138	685	0.0102	0.3773
139	690	0.0115	0.3786
140	695	0.0125	0.3796
141	700	0.0125	0.3796
142	705	0.0151	0.3822
143	710	0.0154	0.3825
144	715	0.0469	0.414
145	720	0.0239	0.391
146	725	0.0226	0.3897
147	730	0.0239	0.391
148	735	0.0276	0.3947
149	740	0.0272	0.3943
150	745	0.0292	0.3963
151	750	0.0302	0.3973
152	755	0.0312	0.3983
153	760	0.1129	0.48
154	765	0.0371	0.4042
155	770	0.0367	0.4038
156	775	0.0374	0.4045
157	780	0.04	0.4071
158	785	0.0778	0.4449
159	790	0.0846	0.4517
160	795	0.0463	0.4134
161	800	0.0456	0.4127
162	805	0.0482	0.4153
163	810	0.0174	0.3845
164	815	0.0843	0.4514
165	820	0.0499	0.417
166	825	0.0482	0.4153
167	830	0.0518	0.4189
168	835	0.1122	0.4793
169	840	0.1102	0.4773
170	845	0.0548	0.4219
171	850	0.0545	0.4216
172	855	0.0417	0.4088
173	860	0.0988	0.4659
174	865	0.0607	0.4278
175	870	0.0591	0.4262
176	875	0.0591	0.4262
177	880	0.1027	0.4698
178	885	0.0656	0.4327
179	890	0.0696	0.4367
180	895	0.0686	0.4357
181	900	0.0932	0.4603
182	905	0.0699	0.437
183	910	0.0673	0.4344

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	0.0676	0.4347
185	920	0.082	0.4491
186	925	0.0732	0.4403
187	930	0.0643	0.4314
188	935	0.0643	0.4314
189	940	0.0679	0.435
190	945	0.1037	0.4708
191	950	0.0663	0.4334
192	955	0.0715	0.4386
193	960	0.0725	0.4396
194	965	0.1253	0.4924
195	970	0.0948	0.4619
196	975	0.0686	0.4357
197	980	0.0715	0.4386
198	985	0.0728	0.4399
199	990	0.0659	0.433
200	995	0.1273	0.4944
201	1000	0.0745	0.4416
202	1005	0.0715	0.4386
203	1010	0.0722	0.4393
204	1015	0.0722	0.4393
205	1020	0.0725	0.4396
206	1025	0.0443	0.4114
207	1030	0.1096	0.4767
208	1035	0.0745	0.4416
209	1040	0.0791	0.4462
210	1045	0.0837	0.4508
211	1050	0.084	0.4511
212	1055	0.0823	0.4494
213	1060	0.1506	0.5177
214	1065	0.1207	0.4878
215	1070	0.0837	0.4508
216	1075	0.0807	0.4478
217	1080	0.0869	0.454
218	1085	0.083	0.4501
219	1090	0.083	0.4501
220	1095	0.0807	0.4478
221	1100	0.101	0.4681
222	1105	0.1375	0.5046
223	1110	0.0889	0.456
224	1115	0.101	0.4681
225	1120	0.086	0.4531
226	1125	0.0869	0.454
227	1130	0.1345	0.5016
228	1135	0.0905	0.4576
229	1140	0.0974	0.4645
230	1145	0.1512	0.5183
231	1150	0.0879	0.455
232	1155	0.0843	0.4514
233	1160	0.0837	0.4508
234	1165	0.083	0.4501
235	1170	0.0863	0.4534
236	1175	0.082	0.4491
237	1180	0.085	0.4521
238	1185	0.0827	0.4498
239	1190	0.0823	0.4494
240	1195	0.0853	0.4524
241	1200	0.0876	0.4547
242	1205	0.0876	0.4547
243	1210	0.0896	0.4567
244	1215	0.0902	0.4573
245	1220	0.0902	0.4573
246	1225	0.0915	0.4586

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	0.0912	0.4583
248	1235	0.0928	0.4599
249	1240	0.0932	0.4603
250	1245	0.0945	0.4616
251	1250	0.0932	0.4603
252	1255	0.0968	0.4639
253	1260	0.1014	0.4685
254	1265	0.1027	0.4698
255	1270	0.1001	0.4672
256	1275	0.0958	0.4629
257	1280	0.0958	0.4629
258	1285	0.0922	0.4593
259	1290	0.0938	0.4609
260	1295	0.0932	0.4603
261	1300	0.0925	0.4596
262	1305	0.0922	0.4593
263	1310	0.0945	0.4616
264	1315	0.0935	0.4606
265	1320	0.0938	0.4609
266	1325	0.0928	0.4599
267	1330	0.0912	0.4583
268	1335	0.0938	0.4609
269	1340	0.0958	0.4629
270	1345	0.0971	0.4642
271	1350	0.1004	0.4675
272	1355	0.1033	0.4704
273	1360	0.1024	0.4695
274	1365	0.1014	0.4685
275	1370	0.1033	0.4704
276	1375	0.1033	0.4704
277	1380	0.1056	0.4727
278	1385	0.1066	0.4737
279	1390	0.1073	0.4744
280	1395	0.1201	0.4872
281	1400	0.1588	0.5259
282	1405	0.1099	0.477
283	1410	0.1109	0.478
284	1415	0.1079	0.475
285	1420	0.1099	0.477
286	1425	0.1102	0.4773
287	1430	0.1053	0.4724
288	1435	0.1621	0.5292
289	1440	0.1142	0.4813
290	1445	0.1083	0.4754
291	1450	0.1063	0.4734
292	1455	0.1066	0.4737
293	1460	0.1076	0.4747
294	1465	0.1506	0.5177
295	1470	0.1175	0.4846
296	1475	0.1201	0.4872
297	1480	0.1237	0.4908
298	1485	0.1184	0.4855
299	1490	0.1201	0.4872
300	1495	0.247	0.6141
301	1500	0.1739	0.541
302	1505	0.1286	0.4957
303	1510	0.1296	0.4967
304	1515	0.127	0.4941
305	1520	0.1273	0.4944
306	1525	0.1273	0.4944
307	1530	0.1391	0.5062
308	1535	0.1279	0.495
309	1540	0.1276	0.4947

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	0.1289	0.496
311	1550	0.1339	0.501
312	1555	0.1772	0.5443
313	1560	0.1319	0.499
314	1565	0.1339	0.501
315	1570	0.1339	0.501
316	1575	0.1335	0.5006
317	1580	0.1348	0.5019
318	1585	0.1362	0.5033
319	1590	0.1329	0.50
320	1595	0.1352	0.5023
321	1600	0.1378	0.5049
322	1605	0.143	0.5101
323	1610	0.148	0.5151
324	1615	0.1519	0.519
325	1620	0.1545	0.5216
326	1625	0.2018	0.5689
327	1630	0.1585	0.5256
328	1635	0.1578	0.5249
329	1640	0.1522	0.5193
330	1645	0.1624	0.5295
331	1650	0.169	0.5361
332	1655	0.1683	0.5354
333	1660	0.1637	0.5308
334	1665	0.1634	0.5305
335	1670	0.1686	0.5357
336	1675	0.169	0.5361
337	1680	0.1716	0.5387
338	1685	0.2241	0.5912
339	1690	0.1713	0.5384
340	1695	0.167	0.5341
341	1700	0.1663	0.5334
342	1705	0.168	0.5351
343	1710	0.1693	0.5364
344	1715	0.1706	0.5377
345	1720	0.1713	0.5384
346	1725	0.169	0.5361
347	1730	0.1676	0.5347
348	1735	0.1752	0.5423
349	1740	0.1778	0.5449
350	1745	0.1729	0.54
351	1750	0.1719	0.539
352	1755	0.1736	0.5407
353	1760	0.1722	0.5393
354	1765	0.1719	0.539
355	1770	0.1709	0.538
356	1775	0.1759	0.543
357	1780	0.1716	0.5387
358	1785	0.167	0.5341
359	1790	0.167	0.5341
360	1795	0.1696	0.5367
361	1800	0.1673	0.5344
362	1805	0.166	0.5331
363	1810	0.166	0.5331
364	1815	0.1663	0.5334
365	1820	0.1631	0.5302
366	1825	0.1683	0.5354
367	1830	0.1673	0.5344
368	1835	0.168	0.5351
369	1840	0.1673	0.5344
370	1845	0.188	0.5551
371	1850	0.1676	0.5347
372	1855	0.1676	0.5347

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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	0.169	0.5361
374	1865	0.1791	0.5462
375	1870	0.1676	0.5347
376	1875	0.166	0.5331
377	1880	0.1686	0.5357
378	1885	0.1657	0.5328
379	1890	0.1683	0.5354
380	1895	0.1709	0.538
381	1900	0.1667	0.5338
382	1905	0.1693	0.5364
383	1910	0.1673	0.5344
384	1915	0.168	0.5351
385	1920	0.168	0.5351
386	1925	0.1676	0.5347
387	1930	0.1676	0.5347
388	1935	0.1683	0.5354
389	1940	0.1686	0.5357
390	1945	0.1706	0.5377
391	1950	0.169	0.5361
392	1955	0.1716	0.5387
393	1960	0.1719	0.539
394	1965	0.1709	0.538
395	1970	0.1752	0.5423
396	1975	0.1726	0.5397
397	1980	0.1709	0.538
398	1985	0.1673	0.5344
399	1990	0.1676	0.5347
400	1995	0.1736	0.5407
401	2000	0.1696	0.5367
402	2005	0.169	0.5361
403	2010	0.1657	0.5328
404	2015	0.1703	0.5374
405	2020	0.1706	0.5377
406	2025	0.1699	0.537
407	2030	0.1693	0.5364
408	2035	0.168	0.5351
409	2040	0.1696	0.5367
410	2045	0.1703	0.5374
411	2050	0.1683	0.5354
412	2055	0.1703	0.5374
413	2060	0.1703	0.5374
414	2065	0.1693	0.5364
415	2070	0.1716	0.5387
416	2075	0.1745	0.5416
417	2080	0.1775	0.5446
418	2085	0.1804	0.5475
419	2090	0.1824	0.5495
420	2095	0.1795	0.5466
421	2100	0.1814	0.5485
422	2105	0.1821	0.5492
423	2110	0.1834	0.5505
424	2115	0.1818	0.5489
425	2120	0.1801	0.5472
426	2125	0.1785	0.5456
427	2130	0.1798	0.5469
428	2135	0.1804	0.5475
429	2140	0.1857	0.5528
430	2145	0.1877	0.5548
431	2150	0.1873	0.5544
432	2155	0.188	0.5551
433	2160	0.1877	0.5548
434	2165	0.189	0.5561
435	2170	0.1926	0.5597

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	0.2028	0.5699
437	2180	0.1965	0.5636
438	2185	0.1949	0.562
439	2190	0.1926	0.5597
440	2195	0.1913	0.5584
441	2200	0.1919	0.559
442	2205	0.1926	0.5597
443	2210	0.1929	0.56
444	2215	0.1929	0.56
445	2220	0.1923	0.5594
446	2225	0.1942	0.5613
447	2230	0.1942	0.5613
448	2235	0.1775	0.5446
449	2240	0.2247	0.5918
450	2245	0.23	0.5971
451	2250	0.1877	0.5548
452	2255	0.2175	0.5846
453	2260	0.1929	0.56
454	2265	0.2155	0.5826
455	2270	0.2041	0.5712
456	2275	0.2526	0.6197
457	2280	0.2208	0.5879
458	2285	0.2274	0.5945
459	2290	0.268	0.6351
460	2295	0.1676	0.5347
461	2300	0.2533	0.6204
462	2305	0.252	0.6191
463	2310	0.2077	0.5748
464	2315	0.249	0.6161
465	2320	0.252	0.6191
466	2325	0.1959	0.563
467	2330	0.1903	0.5574
468	2335	0.2133	0.5804
469	2340	0.2713	0.6384
470	2345	0.2057	0.5728
471	2350	0.2359	0.603
472	2355	0.2848	0.6519
473	2360	0.248	0.6151
474	2365	0.206	0.5731
475	2370	0.2077	0.5748
476	2375	0.2057	0.5728
477	2380	0.2083	0.5754
478	2385	0.2657	0.6328
479	2390	0.2188	0.5859
480	2395	0.2149	0.582
481	2400	0.2106	0.5777
482	2405	0.2044	0.5715
483	2410	0.2297	0.5968
484	2415	0.2172	0.5843
485	2420	0.2165	0.5836
486	2425	0.2247	0.5918
487	2430	0.2552	0.6223
488	2435	0.2238	0.5909
489	2440	0.2244	0.5915
490	2445	0.2238	0.5909
491	2450	0.2231	0.5902
492	2455	0.2484	0.6155
493	2460	0.2254	0.5925
494	2465	0.2238	0.5909
495	2470	0.232	0.5991
496	2475	0.226	0.5931
497	2480	0.2707	0.6378
498	2485	0.2297	0.5968

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	0.2274	0.5945
500	2495	0.2247	0.5918
501	2500	0.2247	0.5918
502	2505	0.226	0.5931
503	2510	0.2969	0.664
504	2515	0.2323	0.5994
505	2520	0.2283	0.5954
506	2525	0.2313	0.5984
507	2530	0.2287	0.5958
508	2535	0.2267	0.5938
509	2540	0.2566	0.6237
510	2545	0.2615	0.6286
511	2550	0.2352	0.6023
512	2555	0.2346	0.6017
513	2560	0.2313	0.5984
514	2565	0.2323	0.5994
515	2570	0.2329	0.60
516	2575	0.2339	0.601
517	2580	0.2359	0.603
518	2585	0.2388	0.6059
519	2590	0.2382	0.6053
520	2595	0.2359	0.603
521	2600	0.2441	0.6112
522	2605	0.2421	0.6092
523	2610	0.2405	0.6076
524	2615	0.2392	0.6063
525	2620	0.2953	0.6624
526	2625	0.2913	0.6584
527	2630	0.2444	0.6115
528	2635	0.2379	0.605
529	2640	0.2375	0.6046
530	2645	0.2434	0.6105
531	2650	0.2375	0.6046
532	2655	0.2388	0.6059
533	2660	0.2421	0.6092
534	2665	0.2461	0.6132
535	2670	0.2438	0.6109
536	2675	0.2428	0.6099
537	2680	0.2425	0.6096
538	2685	0.2408	0.6079
539	2690	0.2425	0.6096
540	2695	0.2444	0.6115
541	2700	0.2464	0.6135
542	2705	0.2484	0.6155
543	2710	0.248	0.6151
544	2715	0.2464	0.6135
545	2720	0.2487	0.6158
546	2725	0.2461	0.6132
547	2730	0.2461	0.6132
548	2735	0.2497	0.6168
549	2740	0.248	0.6151
550	2745	0.2526	0.6197
551	2750	0.2507	0.6178
552	2755	0.2543	0.6214
553	2760	0.2615	0.6286
554	2765	0.2589	0.626
555	2770	0.2556	0.6227
556	2775	0.2582	0.6253
557	2780	0.2559	0.623
558	2785	0.2585	0.6256
559	2790	0.3048	0.6719
560	2795	0.2953	0.6624
561	2800	0.2818	0.6489

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	0.2635	0.6306
563	2810	0.2582	0.6253
564	2815	0.2585	0.6256
565	2820	0.2602	0.6273
566	2825	0.2618	0.6289
567	2830	0.2789	0.646
568	2835	0.2667	0.6338
569	2840	0.2644	0.6315
570	2845	0.2671	0.6342
571	2850	0.2654	0.6325
572	2855	0.2641	0.6312
573	2860	0.2651	0.6322
574	2865	0.2825	0.6496
575	2870	0.2628	0.6299
576	2875	0.268	0.6351
577	2880	0.269	0.6361
578	2885	0.2684	0.6355
579	2890	0.2772	0.6443
580	2895	0.2743	0.6414
581	2900	0.291	0.6581
582	2905	0.2858	0.6529
583	2910	0.2815	0.6486
584	2915	0.2782	0.6453
585	2920	0.2756	0.6427
586	2925	0.2799	0.647
587	2930	0.2825	0.6496
588	2935	0.2822	0.6493
589	2940	0.3563	0.7234
590	2945	0.2792	0.6463
591	2950	0.2756	0.6427
592	2955	0.3586	0.7257
593	2960	0.293	0.6601
594	2965	0.2917	0.6588
595	2970	0.2831	0.6502
596	2975	0.2792	0.6463
597	2980	0.2989	0.666
598	2985	0.4685	0.8356
599	2990	0.3018	0.6689
600	2995	0.3402	0.7073
601	3000	0.3491	0.7162
602	3005	0.2969	0.664
603	3010	0.294	0.6611
604	3015	0.2949	0.662
605	3020	0.2976	0.6647
606	3025	0.3061	0.6732
607	3030	0.3087	0.6758
608	3035	0.3074	0.6745
609	3040	0.3087	0.6758
610	3045	0.3094	0.6765
611	3050	0.3123	0.6794
612	3055	0.3117	0.6788
613	3060	0.31	0.6771
614	3065	0.311	0.6781
615	3070	0.3091	0.6762
616	3075	0.312	0.6791
617	3080	0.3199	0.687
618	3085	0.3307	0.6978
619	3090	0.3278	0.6949
620	3095	0.3205	0.6876
621	3100	0.3199	0.687
622	3105	0.3202	0.6873
623	3110	0.3284	0.6955
624	3115	0.3379	0.705

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	0.3363	0.7034
626	3125	0.334	0.7011
627	3130	0.335	0.7021
628	3135	0.3353	0.7024
629	3140	0.3333	0.7004
630	3145	0.3314	0.6985
631	3150	0.3291	0.6962
632	3155	0.3304	0.6975
633	3160	0.3356	0.7027
634	3165	0.355	0.7221
635	3170	0.3547	0.7218
636	3175	0.3461	0.7132
637	3180	0.3468	0.7139
638	3185	0.3405	0.7076
639	3190	0.3373	0.7044
640	3195	0.3389	0.706
641	3200	0.3665	0.7336
642	3205	0.3409	0.708
643	3210	0.3376	0.7047
644	3215	0.3405	0.7076
645	3220	0.3422	0.7093
646	3225	0.3438	0.7109
647	3230	0.352	0.7191
648	3235	0.3494	0.7165
649	3240	0.3432	0.7103
650	3245	0.3488	0.7159
651	3250	0.3478	0.7149
652	3255	0.3471	0.7142
653	3260	0.3422	0.7093
654	3265	0.3402	0.7073
655	3270	0.3399	0.707
656	3275	0.3415	0.7086
657	3280	0.3405	0.7076
658	3285	0.3396	0.7067
659	3290	0.3422	0.7093
660	3295	0.3484	0.7155
661	3300	0.2887	0.6558
662	3305	0.3556	0.7227
663	3310	0.3543	0.7214
664	3315	0.3573	0.7244
665	3320	0.3553	0.7224
666	3325	0.3596	0.7267
667	3330	0.3589	0.726
668	3335	0.3579	0.725
669	3340	0.3576	0.7247
670	3345	0.3615	0.7286
671	3350	0.3589	0.726
672	3355	0.3589	0.726
673	3360	0.3589	0.726
674	3365	0.3566	0.7237
675	3370	0.3553	0.7224
676	3375	0.356	0.7231
677	3380	0.3612	0.7283
678	3385	0.3602	0.7273
679	3390	0.3612	0.7283
680	3395	0.3612	0.7283
681	3400	0.3632	0.7303
682	3405	0.3645	0.7316
683	3410	0.3642	0.7313
684	3415	0.3812	0.7483
685	3420	0.3642	0.7313
686	3425	0.3632	0.7303
687	3430	0.3609	0.728

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	0.3583	0.7254
689	3440	0.3596	0.7267
690	3445	0.3619	0.729
691	3450	0.3622	0.7293
692	3455	0.395	0.7621
693	3460	0.3829	0.75
694	3465	0.3602	0.7273
695	3470	0.3573	0.7244
696	3475	0.356	0.7231
697	3480	0.3537	0.7208
698	3485	0.3537	0.7208
699	3490	0.3533	0.7204
700	3495	0.3996	0.7667
701	3500	0.3504	0.7175
702	3505	0.3543	0.7214
703	3510	0.354	0.7211
704	3515	0.3612	0.7283
705	3520	0.3576	0.7247
706	3525	0.356	0.7231
707	3530	0.3911	0.7582
708	3535	0.3858	0.7529
709	3540	0.3592	0.7263
710	3545	0.3583	0.7254
711	3550	0.3573	0.7244
712	3555	0.3556	0.7227
713	3560	0.5479	0.915
714	3565	0.356	0.7231
715	3570	0.3583	0.7254
716	3575	0.3573	0.7244
717	3580	0.3586	0.7257
718	3585	0.3592	0.7263
719	3590	0.3504	0.7175
720	3595	0.3888	0.7559
721	3600	0.3963	0.7634
722	3605	0.3622	0.7293
723	3610	0.372	0.7391
724	3615	0.3678	0.7349
725	3620	0.3822	0.7493
726	3625	0.3737	0.7408
727	3630	0.3701	0.7372
728	3635	0.44	0.8071
729	3640	0.378	0.7451
730	3645	0.4216	0.7887
731	3650	0.4547	0.8218
732	3655	0.3763	0.7434
733	3660	0.3747	0.7418
734	3665	0.373	0.7401
735	3670	0.3645	0.7316
736	3675	0.4373	0.8044
737	3680	0.3793	0.7464
738	3685	0.3763	0.7434
739	3690	0.3727	0.7398
740	3695	0.3691	0.7362
741	3700	0.3855	0.7526
742	3705	0.375	0.7421
743	3710	0.375	0.7421
744	3715	0.375	0.7421
745	3720	0.4491	0.8162
746	3725	0.397	0.7641
747	3730	0.3783	0.7454
748	3735	0.377	0.7441
749	3740	0.3796	0.7467
750	3745	0.4039	0.771

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	0.4537	0.8208
752	3755	0.3901	0.7572
753	3760	0.3914	0.7585
754	3765	0.3914	0.7585
755	3770	0.4173	0.7844
756	3775	0.4354	0.8025
757	3780	0.3914	0.7585
758	3785	0.3904	0.7575
759	3790	0.3914	0.7585
760	3795	0.3927	0.7598
761	3800	0.4226	0.7897
762	3805	0.3829	0.75
763	3810	0.395	0.7621
764	3815	0.3993	0.7664
765	3820	0.4026	0.7697
766	3825	0.4062	0.7733
767	3830	0.4012	0.7683
768	3835	0.5023	0.8694
769	3840	0.4258	0.7929
770	3845	0.4016	0.7687
771	3850	0.4012	0.7683
772	3855	0.4039	0.771
773	3860	0.4052	0.7723
774	3865	0.4091	0.7762
775	3870	0.4747	0.8418
776	3875	0.4386	0.8057
777	3880	0.4157	0.7828
778	3885	0.4163	0.7834
779	3890	0.4245	0.7916
780	3895	0.4199	0.787
781	3900	0.4183	0.7854
782	3905	0.4239	0.791
783	3910	0.4278	0.7949
784	3915	0.4255	0.7926
785	3920	0.4249	0.792
786	3925	0.4252	0.7923
787	3930	0.4308	0.7979
788	3935	0.4334	0.8005
789	3940	0.4636	0.8307
790	3945	0.4354	0.8025
791	3950	0.4439	0.811
792	3955	0.4386	0.8057
793	3960	0.4364	0.8035
794	3965	0.4442	0.8113
795	3970	0.5568	0.9239
796	3975	0.4439	0.811
797	3980	0.4413	0.8084
798	3985	0.4373	0.8044
799	3990	0.4393	0.8064
800	3995	0.4364	0.8035
801	4000	0.5148	0.8819
802	4005	0.4386	0.8057
803	4010	0.4357	0.8028
804	4015	0.437	0.8041
805	4020	0.4386	0.8057
806	4025	0.4377	0.8048
807	4030	0.44	0.8071
808	4035	0.4354	0.8025
809	4040	0.4344	0.8015
810	4045	0.435	0.8021
811	4050	0.4357	0.8028
812	4055	0.4357	0.8028
813	4060	0.4364	0.8035

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	0.437	0.8041
815	4070	0.4393	0.8064
816	4075	0.438	0.8051
817	4080	0.4386	0.8057
818	4085	0.4288	0.7959
819	4090	0.4396	0.8067
820	4095	0.4386	0.8057
821	4100	0.4373	0.8044
822	4105	0.437	0.8041
823	4110	0.4357	0.8028
824	4115	0.4436	0.8107
825	4120	0.4429	0.81
826	4125	0.4419	0.809
827	4130	0.4432	0.8103
828	4135	0.4432	0.8103
829	4140	0.4436	0.8107
830	4145	0.4429	0.81
831	4150	0.4439	0.811
832	4155	0.4403	0.8074
833	4160	0.437	0.8041
834	4165	0.4347	0.8018
835	4170	0.4344	0.8015
836	4175	0.4327	0.7998
837	4180	0.4321	0.7992
838	4185	0.4331	0.8002
839	4190	0.4304	0.7975
840	4195	0.4295	0.7966
841	4200	0.4272	0.7943
842	4205	0.4249	0.792
843	4210	0.4245	0.7916
844	4215	0.4229	0.79
845	4220	0.4242	0.7913
846	4225	0.4232	0.7903
847	4230	0.4222	0.7893
848	4235	0.456	0.8231
849	4240	0.4249	0.792
850	4245	0.4272	0.7943
851	4250	0.4239	0.791
852	4255	0.4242	0.7913
853	4260	0.4236	0.7907
854	4265	0.4219	0.789
855	4270	0.4222	0.7893
856	4275	0.4518	0.8189
857	4280	0.4262	0.7933
858	4285	0.4272	0.7943
859	4290	0.4258	0.7929
860	4295	0.4255	0.7926
861	4300	0.4258	0.7929
862	4305	0.4268	0.7939
863	4310	0.4262	0.7933
864	4315	0.4245	0.7916
865	4320	0.4245	0.7916
866	4325	0.4278	0.7949
867	4330	0.4275	0.7946
868	4335	0.3757	0.7428
869	4340	0.436	0.8031
870	4345	0.4318	0.7989
871	4350	0.4272	0.7943
872	4355	0.4275	0.7946
873	4360	0.4528	0.8199
874	4365	0.4108	0.7779
875	4370	0.4291	0.7962
876	4375	0.4288	0.7959

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	0.4275	0.7946
878	4385	0.4304	0.7975
879	4390	0.4334	0.8005
880	4395	0.4324	0.7995
881	4400	0.4311	0.7982
882	4405	0.4304	0.7975
883	4410	0.4314	0.7985
884	4415	0.4314	0.7985
885	4420	0.4291	0.7962
886	4425	0.6155	0.9826
887	4430	0.3944	0.7615
888	4435	0.4426	0.8097
889	4440	0.4373	0.8044
890	4445	0.4721	0.8392
891	4450	0.4341	0.8012
892	4455	0.4364	0.8035
893	4460	0.4354	0.8025
894	4465	0.438	0.8051
895	4470	0.4364	0.8035
896	4475	0.6404	1.0075
897	4480	0.438	0.8051
898	4485	0.4455	0.8126
899	4490	0.5062	0.8733
900	4495	0.3488	0.7159
901	4500	0.4409	0.808
902	4505	0.44	0.8071
903	4510	0.4377	0.8048
904	4515	0.4386	0.8057
905	4520	0.439	0.8061
906	4525	0.4409	0.808
907	4530	0.4793	0.8464
908	4535	0.4655	0.8326
909	4540	0.4482	0.8153
910	4545	0.4478	0.8149
911	4550	0.4485	0.8156
912	4555	0.4498	0.8169
913	4560	0.4514	0.8185
914	4565	0.4219	0.789
915	4570	0.4665	0.8336
916	4575	0.4567	0.8238
917	4580	0.4551	0.8222
918	4585	0.4521	0.8192
919	4590	0.4718	0.8389
920	4595	0.4655	0.8326
921	4600	0.4957	0.8628
922	4605	0.52	0.8871
923	4610	0.4633	0.8304
924	4615	0.4596	0.8267
925	4620	0.4849	0.852
926	4625	0.4646	0.8317
927	4630	0.4852	0.8523
928	4635	0.4682	0.8353
929	4640	0.4787	0.8458
930	4645	0.4685	0.8356
931	4650	0.4705	0.8376
932	4655	0.4685	0.8356
933	4660	0.4662	0.8333
934	4665	0.4662	0.8333
935	4670	0.4678	0.8349
936	4675	0.4669	0.834
937	4680	0.4688	0.8359
938	4685	0.4675	0.8346
939	4690	0.4652	0.8323

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	0.4665	0.8336
941	4700	0.4672	0.8343
942	4705	0.4678	0.8349
943	4710	0.4665	0.8336
944	4715	0.4675	0.8346
945	4720	0.4678	0.8349
946	4725	0.5052	0.8723
947	4730	0.4856	0.8527
948	4735	0.4672	0.8343
949	4740	0.4688	0.8359
950	4745	0.4652	0.8323
951	4750	0.4655	0.8326
952	4755	0.4652	0.8323
953	4760	0.4652	0.8323
954	4765	0.4675	0.8346
955	4770	0.4678	0.8349
956	4775	0.4669	0.834
957	4780	0.4672	0.8343
958	4785	0.4685	0.8356
959	4790	0.4665	0.8336
960	4795	0.4675	0.8346
961	4800	0.4665	0.8336
962	4805	0.4659	0.833
963	4810	0.4662	0.8333
964	4815	0.4662	0.8333
965	4820	0.4665	0.8336
966	4825	0.4665	0.8336
967	4830	0.4672	0.8343
968	4835	0.4708	0.8379
969	4840	0.4715	0.8386
970	4845	0.4718	0.8389
971	4850	0.4698	0.8369
972	4855	0.4692	0.8363
973	4860	0.4698	0.8369
974	4865	0.4705	0.8376
975	4870	0.4705	0.8376
976	4875	0.4698	0.8369
977	4880	0.4688	0.8359
978	4885	0.4692	0.8363
979	4890	0.4688	0.8359
980	4895	0.4682	0.8353
981	4900	0.4649	0.832
982	4905	0.4655	0.8326
983	4910	0.4655	0.8326
984	4915	0.4659	0.833
985	4920	0.4642	0.8313
986	4925	0.4636	0.8307
987	4930	0.4616	0.8287
988	4935	0.4616	0.8287
989	4940	0.4616	0.8287
990	4945	0.4593	0.8264
991	4950	0.461	0.8281
992	4955	0.4613	0.8284
993	4960	0.4636	0.8307
994	4965	0.4626	0.8297
995	4970	0.4626	0.8297
996	4975	0.461	0.8281
997	4980	0.4629	0.83
998	4985	0.4626	0.8297
999	4990	0.4619	0.829
1000	4995	0.4652	0.8323
1001	5000	0.4626	0.8297
1002	5005	0.4613	0.8284

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	0.461	0.8281
1004	5015	0.4642	0.8313
1005	5020	0.4623	0.8294
1006	5025	0.4616	0.8287
1007	5030	0.4629	0.83
1008	5035	0.4642	0.8313
1009	5040	0.461	0.8281
1010	5045	0.4642	0.8313
1011	5050	0.4649	0.832
1012	5055	0.4655	0.8326
1013	5060	0.4675	0.8346
1014	5065	0.4662	0.8333
1015	5070	0.4678	0.8349
1016	5075	0.4678	0.8349
1017	5080	0.4688	0.8359
1018	5085	0.4695	0.8366
1019	5090	0.4708	0.8379
1020	5095	0.4692	0.8363
1021	5100	0.4711	0.8382
1022	5105	0.4721	0.8392
1023	5110	0.4711	0.8382
1024	5115	0.4738	0.8409
1025	5120	0.476	0.8431
1026	5125	0.4783	0.8454
1027	5130	0.4767	0.8438
1028	5135	0.4764	0.8435
1029	5140	0.476	0.8431
1030	5145	0.4764	0.8435
1031	5150	0.477	0.8441
1032	5155	0.4764	0.8435
1033	5160	0.478	0.8451
1034	5165	0.4793	0.8464
1035	5170	0.48	0.8471
1036	5175	0.482	0.8491
1037	5180	0.4823	0.8494
1038	5185	0.4836	0.8507
1039	5190	0.4843	0.8514
1040	5195	0.4833	0.8504
1041	5200	0.4888	0.8559
1042	5205	0.4957	0.8628
1043	5210	0.4961	0.8632
1044	5215	0.4987	0.8658
1045	5220	0.4954	0.8625
1046	5225	0.4954	0.8625
1047	5230	0.4941	0.8612
1048	5235	0.4951	0.8622
1049	5240	0.4947	0.8618
1050	5245	0.4951	0.8622
1051	5250	0.4944	0.8615
1052	5255	0.4957	0.8628
1053	5260	0.4984	0.8655
1054	5265	0.4974	0.8645
1055	5270	0.4997	0.8668
1056	5275	0.4997	0.8668
1057	5280	0.4997	0.8668
1058	5285	0.5033	0.8704
1059	5290	0.5646	0.9317
1060	5295	0.5509	0.918
1061	5300	0.5233	0.8904
1062	5305	0.5082	0.8753
1063	5310	0.5141	0.8812
1064	5315	0.5449	0.912
1065	5320	0.5676	0.9347

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	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	0.5148	0.8819
1067	5330	0.522	0.8891
1068	5335	0.5367	0.9038
1069	5340	0.5758	0.9429
1070	5345	0.5262	0.8933
1071	5350	0.5243	0.8914
1072	5355	0.5272	0.8943
1073	5360	0.5499	0.917
1074	5365	0.5331	0.9002
1075	5370	0.5325	0.8996
1076	5375	0.5482	0.9153
1077	5380	0.54	0.9071
1078	5385	0.5374	0.9045
1079	5390	0.5367	0.9038
1080	5395	0.5361	0.9032
1081	5400	0.5341	0.9012
1082	5405	0.5423	0.9094
1083	5410	0.5404	0.9075
1084	5415	0.541	0.9081
1085	5420	0.5492	0.9163
1086	5425	0.5479	0.915
1087	5430	0.5486	0.9157
1088	5435	0.5479	0.915
1089	5440	0.5469	0.914
1090	5445	0.5509	0.918
1091	5450	0.5551	0.9222
1092	5455	0.5548	0.9219
1093	5460	0.5551	0.9222
1094	5465	0.5663	0.9334
1095	5470	0.5627	0.9298
1096	5475	0.5673	0.9344
1097	5480	0.563	0.9301
1098	5485	0.563	0.9301
1099	5490	0.562	0.9291
1100	5495	0.5613	0.9284
1101	5500	0.5869	0.954
1102	5505	0.6001	0.9672
1103	5510	0.5725	0.9396
1104	5515	0.5686	0.9357
1105	5520	0.5679	0.935
1106	5525	0.6545	1.0216
1107	5530	0.5958	0.9629
1108	5535	0.5732	0.9403
1109	5540	0.5758	0.9429
1110	5545	0.5699	0.937
1111	5550	0.5709	0.938
1112	5555	0.5741	0.9412
1113	5560	0.5745	0.9416
1114	5565	0.5748	0.9419
1115	5570	0.5735	0.9406
1116	5575	0.6056	0.9727
1117	5580	0.6033	0.9704
1118	5585	0.583	0.9501
1119	5590	0.5774	0.9445
1120	5595	0.5778	0.9449
1121	5600	0.5774	0.9445
1122	5605	0.5925	0.9596
1123	5610	0.6378	1.0049
1124	5615	0.6145	0.9816
1125	5620	0.5554	0.9225
1126	5625	0.5817	0.9488
1127	5630	0.6092	0.9763
1128	5635	0.6325	0.9996

Friesen Drillers Ltd. **307 PTH 12 N** **Steinbach, MB R5G 1T8**	**Pumping Test - Water Level Data**	
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	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	0.6358	1.0029
1130	5645	0.6375	1.0046
1131	5650	0.6207	0.9878
1132	5655	0.5912	0.9583
1133	5660	0.6027	0.9698
1134	5665	0.6257	0.9928
1135	5670	0.6476	1.0147
1136	5675	0.6194	0.9865
1137	5680	0.5938	0.9609
1138	5685	0.6145	0.9816
1139	5690	0.5459	0.913
1140	5695	0.6473	1.0144
1141	5700	0.6302	0.9973
1142	5705	0.5905	0.9576
1143	5710	0.5883	0.9554
1144	5715	0.5899	0.957
1145	5720	0.6312	0.9983
1146	5725	0.6293	0.9964
1147	5730	0.6247	0.9918
1148	5735	0.5971	0.9642
1149	5740	0.626	0.9931
1150	5745	0.6135	0.9806
1151	5750	0.6401	1.0072
1152	5755	0.6391	1.0062
1153	5760	0.6007	0.9678
1154	5765	0.5997	0.9668
1155	5770	0.6001	0.9672
1156	5775	0.5984	0.9655
1157	5780	0.5741	0.9412
1158	5785	0.6283	0.9954
1159	5790	0.6165	0.9836
1160	5795	0.6122	0.9793
1161	5800	0.5955	0.9626
1162	5805	0.6841	1.0512
1163	5810	0.6532	1.0203
1164	5815	0.6214	0.9885
1165	5820	0.6224	0.9895
1166	5825	0.6631	1.0302
1167	5830	0.6719	1.039
1168	5835	0.644	1.0111
1169	5840	0.6175	0.9846
1170	5845	0.668	1.0351
1171	5850	0.6414	1.0085
1172	5855	0.6739	1.041
1173	5860	0.6398	1.0069
1174	5865	0.6184	0.9855
1175	5870	0.6342	1.0013
1176	5875	0.6542	1.0213
1177	5880	0.6493	1.0164
1178	5885	0.6581	1.0252
1179	5890	0.6234	0.9905
1180	5895	0.6178	0.9849
1181	5900	0.6673	1.0344
1182	5905	0.6631	1.0302
1183	5910	0.6411	1.0082
1184	5915	0.6302	0.9973
1185	5920	0.626	0.9931
1186	5925	0.606	0.9731
1187	5930	0.6283	0.9954
1188	5935	0.6257	0.9928
1189	5940	0.625	0.9921
1190	5945	0.6319	0.999
1191	5950	0.6293	0.9964

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	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	0.6247	0.9918
1193	5960	0.624	0.9911
1194	5965	0.626	0.9931
1195	5970	0.624	0.9911
1196	5975	0.6247	0.9918
1197	5980	0.6279	0.995
1198	5985	0.6319	0.999
1199	5990	0.6319	0.999
1200	5995	0.6352	1.0023
1201	6000	0.6362	1.0033
1202	6005	0.6352	1.0023
1203	6010	0.6368	1.0039
1204	6015	0.6391	1.0062
1205	6020	0.6391	1.0062
1206	6025	0.644	1.0111
1207	6030	0.643	1.0101
1208	6035	0.647	1.0141
1209	6040	0.6503	1.0174
1210	6045	0.6532	1.0203
1211	6050	0.6549	1.022
1212	6055	0.6588	1.0259
1213	6060	0.6555	1.0226
1214	6065	0.6562	1.0233
1215	6070	0.6578	1.0249
1216	6075	0.6696	1.0367
1217	6080	0.668	1.0351
1218	6085	0.6916	1.0587
1219	6090	0.6821	1.0492
1220	6095	0.6923	1.0594
1221	6100	0.6804	1.0475
1222	6105	0.6759	1.043
1223	6110	0.6782	1.0453
1224	6115	0.6782	1.0453
1225	6120	0.6798	1.0469
1226	6125	0.6824	1.0495
1227	6130	0.6818	1.0489
1228	6135	0.6831	1.0502
1229	6140	0.6831	1.0502
1230	6145	0.688	1.0551
1231	6150	0.688	1.0551
1232	6155	0.6896	1.0567
1233	6160	0.6909	1.058
1234	6165	0.6942	1.0613
1235	6170	0.7136	1.0807
1236	6175	0.6991	1.0662
1237	6180	0.7018	1.0689
1238	6185	0.7028	1.0699
1239	6190	0.7008	1.0679
1240	6195	0.6988	1.0659
1241	6200	0.7005	1.0676
1242	6205	0.6985	1.0656
1243	6210	0.6982	1.0653
1244	6215	0.7021	1.0692
1245	6220	0.7057	1.0728
1246	6225	0.707	1.0741
1247	6230	0.7093	1.0764
1248	6235	0.7133	1.0804
1249	6240	0.7126	1.0797
1250	6245	0.7113	1.0784
1251	6250	0.7103	1.0774
1252	6255	0.7096	1.0767
1253	6260	0.7093	1.0764
1254	6265	0.7103	1.0774

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	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	0.7116	1.0787
1256	6275	0.7126	1.0797
1257	6280	0.7129	1.08
1258	6285	0.7139	1.081
1259	6290	0.7133	1.0804
1260	6295	0.7133	1.0804
1261	6300	0.7126	1.0797
1262	6305	0.7142	1.0813
1263	6310	0.7142	1.0813
1264	6315	0.7149	1.082
1265	6320	0.7247	1.0918
1266	6325	0.7201	1.0872
1267	6330	0.7211	1.0882
1268	6335	0.7205	1.0876
1269	6340	0.7185	1.0856
1270	6345	0.7188	1.0859
1271	6350	0.7178	1.0849
1272	6355	0.7152	1.0823
1273	6360	0.7152	1.0823
1274	6365	0.7152	1.0823
1275	6370	0.7185	1.0856
1276	6375	0.7172	1.0843
1277	6380	0.7149	1.082
1278	6385	0.7149	1.082
1279	6390	0.7139	1.081
1280	6395	0.7116	1.0787
1281	6400	0.7116	1.0787
1282	6405	0.7103	1.0774
1283	6410	0.7116	1.0787
1284	6415	0.7103	1.0774
1285	6420	0.7113	1.0784
1286	6425	0.7116	1.0787
1287	6430	0.7116	1.0787
1288	6435	0.7126	1.0797
1289	6440	0.7133	1.0804
1290	6445	0.7113	1.0784
1291	6450	0.7119	1.079
1292	6455	0.711	1.0781
1293	6460	0.7113	1.0784
1294	6465	0.7103	1.0774
1295	6470	0.7185	1.0856
1296	6475	0.7149	1.082
1297	6480	0.7162	1.0833
1298	6485	0.7169	1.084
1299	6490	0.7152	1.0823
1300	6495	0.7146	1.0817
1301	6500	0.7139	1.081
1302	6505	0.7162	1.0833
1303	6510	0.7169	1.084
1304	6515	0.7172	1.0843
1305	6520	0.7195	1.0866
1306	6525	0.7195	1.0866
1307	6530	0.7218	1.0889
1308	6535	0.7211	1.0882
1309	6540	0.7215	1.0886
1310	6545	0.7211	1.0882
1311	6550	0.7224	1.0895
1312	6555	0.7208	1.0879
1313	6560	0.7221	1.0892
1314	6565	0.7254	1.0925
1315	6570	0.7257	1.0928
1316	6575	0.7267	1.0938
1317	6580	0.7274	1.0945

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	0.7297	1.0968
1319	6590	0.73	1.0971
1320	6595	0.729	1.0961
1321	6600	0.7297	1.0968
1322	6605	0.7313	1.0984
1323	6610	0.7336	1.1007
1324	6615	0.7333	1.1004
1325	6620	0.7339	1.101
1326	6625	0.7342	1.1013
1327	6630	0.7359	1.103
1328	6635	0.7346	1.1017
1329	6640	0.7349	1.102
1330	6645	0.7362	1.1033
1331	6650	0.7362	1.1033
1332	6655	0.7365	1.1036
1333	6660	0.7352	1.1023
1334	6665	0.7392	1.1063
1335	6670	0.7395	1.1066
1336	6675	0.7431	1.1102
1337	6680	0.7428	1.1099
1338	6685	0.7444	1.1115
1339	6690	0.747	1.1141
1340	6695	0.7523	1.1194
1341	6700	0.75	1.1171
1342	6705	0.7575	1.1246
1343	6710	0.7582	1.1253
1344	6715	0.7595	1.1266
1345	6720	0.7618	1.1289
1346	6725	0.7621	1.1292
1347	6730	0.7628	1.1299
1348	6735	0.768	1.1351
1349	6740	0.7726	1.1397
1350	6745	0.8041	1.1712
1351	6750	0.7841	1.1512
1352	6755	0.7795	1.1466
1353	6760	0.7799	1.147
1354	6765	0.7815	1.1486
1355	6770	0.7854	1.1525
1356	6775	0.7874	1.1545
1357	6780	0.7897	1.1568
1358	6785	0.8163	1.1834
1359	6790	0.7969	1.164
1360	6795	0.8022	1.1693
1361	6800	0.8018	1.1689
1362	6805	0.8025	1.1696
1363	6810	0.8045	1.1716
1364	6815	0.8166	1.1837
1365	6820	0.8405	1.2076
1366	6825	0.8215	1.1886
1367	6830	0.8248	1.1919
1368	6835	0.8241	1.1912
1369	6840	0.8264	1.1935
1370	6845	0.8281	1.1952
1371	6850	0.8294	1.1965
1372	6855	0.8304	1.1975
1373	6860	0.832	1.1991
1374	6865	0.8337	1.2008
1375	6870	0.8356	1.2027
1376	6875	0.8405	1.2076
1377	6880	0.8438	1.2109
1378	6885	0.8468	1.2139
1379	6890	0.8468	1.2139
1380	6895	0.8537	1.2208

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	0.8517	1.2188
1382	6905	0.856	1.2231
1383	6910	0.856	1.2231
1384	6915	0.8612	1.2283
1385	6920	0.8635	1.2306
1386	6925	0.8658	1.2329
1387	6930	0.8678	1.2349
1388	6935	0.8697	1.2368
1389	6940	0.8694	1.2365
1390	6945	0.8747	1.2418
1391	6950	0.8743	1.2414
1392	6955	0.876	1.2431
1393	6960	0.8862	1.2533
1394	6965	0.8898	1.2569
1395	6970	0.8901	1.2572
1396	6975	0.8921	1.2592
1397	6980	0.9016	1.2687
1398	6985	0.8907	1.2578
1399	6990	0.8967	1.2638
1400	6995	0.8993	1.2664
1401	7000	0.9019	1.269
1402	7005	0.9049	1.272
1403	7010	0.9029	1.27
1404	7015	0.9003	1.2674
1405	7020	0.9016	1.2687
1406	7025	0.9098	1.2769
1407	7030	0.9298	1.2969
1408	7035	0.9163	1.2834
1409	7040	0.9121	1.2792
1410	7045	0.915	1.2821
1411	7050	0.9186	1.2857
1412	7055	0.9206	1.2877
1413	7060	0.9731	1.3402
1414	7065	0.9967	1.3638
1415	7070	0.9393	1.3064
1416	7075	0.956	1.3231
1417	7080	0.9898	1.3569
1418	7085	0.9724	1.3395
1419	7090	0.9528	1.3199
1420	7095	0.9449	1.312
1421	7100	0.9806	1.3477
1422	7105	0.9416	1.3087
1423	7110	0.9731	1.3402
1424	7115	0.9859	1.353
1425	7120	0.9606	1.3277
1426	7125	0.9816	1.3487
1427	7130	0.9268	1.2939
1428	7135	0.9797	1.3468
1429	7140	1.0187	1.3858
1430	7145	0.9649	1.332
1431	7150	0.9324	1.2995
1432	7155	0.9984	1.3655
1433	7160	0.9829	1.35
1434	7165	0.981	1.3481
1435	7170	0.9731	1.3402
1436	7175	0.9482	1.3153
1437	7180	1.0069	1.374
1438	7185	0.9662	1.3333
1439	7190	1.022	1.3891
1440	7195	0.9921	1.3592
1441	7200	1.0079	1.375
1442	7205	0.9833	1.3504
1443	7210	0.9711	1.3382

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	1.0075	1.3746
1445	7220	1.0108	1.3779
1446	7225	1.0049	1.372
1447	7230	1.0171	1.3842
1448	7235	1.0135	1.3806
1449	7240	1.0089	1.376
1450	7245	1.0407	1.4078
1451	7250	1.0348	1.4019
1452	7255	0.9905	1.3576
1453	7260	1.0469	1.414
1454	7265	1.0367	1.4038
1455	7270	1.0276	1.3947
1456	7275	1.00	1.3671
1457	7280	1.0013	1.3684
1458	7285	1.0075	1.3746
1459	7290	0.9701	1.3372
1460	7295	1.0394	1.4065
1461	7300	1.0046	1.3717
1462	7305	1.019	1.3861
1463	7310	0.9967	1.3638
1464	7315	1.0486	1.4157
1465	7320	1.0003	1.3674
1466	7325	1.0299	1.397
1467	7330	0.9895	1.3566
1468	7335	1.0112	1.3783
1469	7340	0.9931	1.3602
1470	7345	0.9921	1.3592
1471	7350	1.0059	1.373
1472	7355	1.0052	1.3723
1473	7360	1.0499	1.417
1474	7365	1.0512	1.4183
1475	7370	0.9974	1.3645
1476	7375	1.0472	1.4143
1477	7380	1.0718	1.4389
1478	7385	1.0577	1.4248
1479	7390	1.0079	1.375
1480	7395	1.0052	1.3723
1481	7400	1.0151	1.3822
1482	7405	1.0449	1.412
1483	7410	1.0233	1.3904
1484	7415	1.023	1.3901
1485	7420	1.0623	1.4294
1486	7425	1.0735	1.4406
1487	7430	1.0262	1.3933
1488	7435	1.0272	1.3943
1489	7440	1.061	1.4281
1490	7445	1.0466	1.4137
1491	7450	1.0292	1.3963
1492	7455	1.0262	1.3933
1493	7460	1.0515	1.4186
1494	7465	1.062	1.4291
1495	7470	1.0325	1.3996
1496	7475	1.0305	1.3976
1497	7480	1.063	1.4301
1498	7485	1.0538	1.4209
1499	7490	1.0463	1.4134
1500	7495	1.0515	1.4186
1501	7500	1.0522	1.4193
1502	7505	1.1122	1.4793
1503	7510	1.0958	1.4629
1504	7515	1.0584	1.4255
1505	7520	1.0551	1.4222
1506	7525	1.0538	1.4209

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	1.0817	1.4488
1508	7535	1.063	1.4301
1509	7540	1.0584	1.4255
1510	7545	1.0581	1.4252
1511	7550	1.0568	1.4239
1512	7555	1.0581	1.4252
1513	7560	1.0597	1.4268
1514	7565	1.0604	1.4275
1515	7570	1.061	1.4281
1516	7575	1.0623	1.4294
1517	7580	1.063	1.4301
1518	7585	1.0659	1.433
1519	7590	1.0696	1.4367
1520	7595	1.0843	1.4514
1521	7600	0.8766	1.2437
1522	7605	1.0784	1.4455
1523	7610	1.0784	1.4455
1524	7615	1.0896	1.4567
1525	7620	1.0971	1.4642
1526	7625	1.0883	1.4554
1527	7630	1.0873	1.4544
1528	7635	1.0889	1.456
1529	7640	1.0896	1.4567
1530	7645	1.0902	1.4573
1531	7650	1.0919	1.459
1532	7655	1.0951	1.4622
1533	7660	1.0951	1.4622
1534	7665	1.0994	1.4665
1535	7670	1.1001	1.4672
1536	7675	1.101	1.4681
1537	7680	1.101	1.4681
1538	7685	1.1037	1.4708
1539	7690	1.1053	1.4724
1540	7695	1.1188	1.4859
1541	7700	1.1135	1.4806
1542	7705	1.1112	1.4783
1543	7710	1.1132	1.4803
1544	7715	1.1168	1.4839
1545	7720	1.1171	1.4842
1546	7725	1.1198	1.4869
1547	7730	1.1184	1.4855
1548	7735	1.1217	1.4888
1549	7740	1.1188	1.4859
1550	7745	1.1175	1.4846
1551	7750	1.1204	1.4875
1552	7755	1.1181	1.4852
1553	7760	1.1178	1.4849
1554	7765	1.1348	1.5019
1555	7770	1.1214	1.4885
1556	7775	1.1201	1.4872
1557	7780	1.1227	1.4898
1558	7785	1.1237	1.4908
1559	7790	1.1247	1.4918
1560	7795	1.122	1.4891
1561	7800	1.1237	1.4908
1562	7805	1.1243	1.4914
1563	7810	1.124	1.4911
1564	7815	1.1302	1.4973
1565	7820	1.1325	1.4996
1566	7825	1.1296	1.4967
1567	7830	1.1263	1.4934
1568	7835	1.1257	1.4928
1569	7840	1.1243	1.4914

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	1.1227	1.4898
1571	7850	1.1217	1.4888
1572	7855	1.1237	1.4908
1573	7860	1.1217	1.4888
1574	7865	1.1201	1.4872
1575	7870	1.1257	1.4928
1576	7875	1.1204	1.4875
1577	7880	1.1161	1.4832
1578	7885	1.1194	1.4865
1579	7890	1.1234	1.4905
1580	7895	1.1224	1.4895
1581	7900	1.1214	1.4885
1582	7905	1.1188	1.4859
1583	7910	1.1171	1.4842
1584	7915	1.1234	1.4905
1585	7920	1.1739	1.541
1586	7925	1.126	1.4931
1587	7930	1.124	1.4911
1588	7935	1.1142	1.4813
1589	7940	1.1175	1.4846
1590	7945	1.1092	1.4763
1591	7950	1.1142	1.4813
1592	7955	1.1096	1.4767
1593	7960	1.1148	1.4819
1594	7965	1.1125	1.4796
1595	7970	1.125	1.4921
1596	7975	1.1348	1.5019
1597	7980	1.123	1.4901
1598	7985	1.1201	1.4872
1599	7990	1.1234	1.4905
1600	7995	1.1194	1.4865
1601	8000	1.1148	1.4819
1602	8005	1.124	1.4911
1603	8010	1.1224	1.4895
1604	8015	1.1188	1.4859
1605	8020	1.1083	1.4754
1606	8025	1.107	1.4741
1607	8030	1.0866	1.4537
1608	8035	1.0869	1.454
1609	8040	1.0827	1.4498
1610	8045	1.0817	1.4488
1611	8050	1.0794	1.4465
1612	8055	1.0876	1.4547
1613	8060	1.0912	1.4583
1614	8065	1.0883	1.4554
1615	8070	1.0942	1.4613
1616	8075	1.0948	1.4619
1617	8080	1.0892	1.4563
1618	8085	1.0856	1.4527
1619	8090	1.0755	1.4426
1620	8095	1.0758	1.4429
1621	8100	1.065	1.4321
1622	8105	1.0617	1.4288
1623	8110	1.0502	1.4173
1624	8115	1.0472	1.4143
1625	8120	1.1066	1.4737
1626	8125	1.0505	1.4176
1627	8130	1.0653	1.4324
1628	8135	1.0646	1.4317
1629	8140	1.0689	1.436
1630	8145	1.0679	1.435
1631	8150	1.0748	1.4419
1632	8155	1.0794	1.4465

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	1.0748	1.4419
1634	8165	1.0758	1.4429
1635	8170	1.0784	1.4455
1636	8175	1.0791	1.4462
1637	8180	1.085	1.4521
1638	8185	1.0932	1.4603
1639	8190	1.0942	1.4613
1640	8195	1.0787	1.4458
1641	8200	1.0673	1.4344
1642	8205	1.0682	1.4353
1643	8210	1.1368	1.5039
1644	8215	1.0801	1.4472
1645	8220	1.086	1.4531
1646	8225	1.0873	1.4544
1647	8230	1.0873	1.4544
1648	8235	1.0892	1.4563
1649	8240	1.0984	1.4655
1650	8245	1.103	1.4701
1651	8250	0.9724	1.3395
1652	8255	1.1024	1.4695
1653	8260	1.0984	1.4655
1654	8265	1.106	1.4731
1655	8270	1.1033	1.4704
1656	8275	1.0965	1.4636
1657	8280	1.0902	1.4573
1658	8285	1.1017	1.4688
1659	8290	1.0853	1.4524
1660	8295	1.0935	1.4606
1661	8300	1.1552	1.5223
1662	8305	1.0787	1.4458
1663	8310	1.1043	1.4714
1664	8315	1.1066	1.4737
1665	8320	1.1053	1.4724
1666	8325	1.1053	1.4724
1667	8330	1.1004	1.4675
1668	8335	1.1207	1.4878
1669	8340	1.1142	1.4813
1670	8345	1.1106	1.4777
1671	8350	1.1148	1.4819
1672	8355	1.1168	1.4839
1673	8360	1.1247	1.4918
1674	8365	1.1266	1.4937
1675	8370	1.1204	1.4875
1676	8375	1.1207	1.4878
1677	8380	1.1168	1.4839
1678	8385	1.1181	1.4852
1679	8390	1.1188	1.4859
1680	8395	1.1316	1.4987
1681	8400	1.1171	1.4842
1682	8405	1.1188	1.4859
1683	8410	1.1168	1.4839
1684	8415	1.1155	1.4826
1685	8420	1.124	1.4911
1686	8425	1.1211	1.4882
1687	8430	1.1161	1.4832
1688	8435	1.1155	1.4826
1689	8440	1.1142	1.4813
1690	8445	1.123	1.4901
1691	8450	1.1243	1.4914
1692	8455	1.1201	1.4872
1693	8460	1.1178	1.4849
1694	8465	1.1155	1.4826
1695	8470	1.1148	1.4819

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	1.122	1.4891
1697	8480	1.1178	1.4849
1698	8485	1.1201	1.4872
1699	8490	1.1161	1.4832
1700	8495	1.1171	1.4842
1701	8500	1.1155	1.4826
1702	8505	1.1194	1.4865
1703	8510	1.1188	1.4859
1704	8515	1.1171	1.4842
1705	8520	1.1145	1.4816
1706	8525	1.1132	1.4803
1707	8530	1.1273	1.4944
1708	8535	1.0823	1.4494
1709	8540	1.1184	1.4855
1710	8545	1.1155	1.4826
1711	8550	1.1125	1.4796
1712	8555	1.1122	1.4793
1713	8560	1.1181	1.4852
1714	8565	1.1667	1.5338
1715	8570	1.1237	1.4908
1716	8575	1.1155	1.4826
1717	8580	1.1129	1.48
1718	8585	1.1125	1.4796
1719	8590	1.1165	1.4836
1720	8595	1.1129	1.48
1721	8600	1.1158	1.4829
1722	8605	1.1138	1.4809
1723	8610	1.1109	1.478
1724	8615	1.1132	1.4803
1725	8620	1.1073	1.4744
1726	8625	1.1063	1.4734
1727	8630	1.1352	1.5023
1728	8635	1.1827	1.5498
1729	8640	1.1453	1.5124
1730	8645	1.1329	1.50
1731	8650	1.1358	1.5029
1732	8655	1.1243	1.4914
1733	8660	1.1614	1.5285
1734	8665	1.123	1.4901
1735	8670	1.1499	1.517
1736	8675	1.145	1.5121
1737	8680	1.1608	1.5279
1738	8685	1.0787	1.4458
1739	8690	1.1155	1.4826
1740	8695	1.1808	1.5479
1741	8700	1.1437	1.5108
1742	8705	1.1473	1.5144
1743	8710	1.125	1.4921
1744	8715	1.1506	1.5177
1745	8720	1.1703	1.5374
1746	8725	1.167	1.5341
1747	8730	1.144	1.5111
1748	8735	1.167	1.5341
1749	8740	1.1493	1.5164
1750	8745	1.1568	1.5239
1751	8750	1.1178	1.4849
1752	8755	1.1302	1.4973
1753	8760	1.1437	1.5108
1754	8765	1.1552	1.5223
1755	8770	1.1342	1.5013
1756	8775	1.1204	1.4875
1757	8780	1.1332	1.5003
1758	8785	1.1178	1.4849

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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	1.1083	1.4754
1760	8795	1.104	1.4711
1761	8800	1.104	1.4711
1762	8805	1.1053	1.4724
1763	8810	1.1552	1.5223
1764	8815	1.1457	1.5128
1765	8820	1.1125	1.4796
1766	8825	1.1053	1.4724
1767	8830	1.1047	1.4718
1768	8835	1.1476	1.5147
1769	8840	1.1257	1.4928
1770	8845	1.1106	1.4777
1771	8850	1.1102	1.4773
1772	8855	1.1158	1.4829
1773	8860	1.1092	1.4763
1774	8865	1.1089	1.476
1775	8870	1.1106	1.4777
1776	8875	1.1092	1.4763
1777	8880	1.1129	1.48
1778	8885	1.1181	1.4852
1779	8890	1.1135	1.4806
1780	8895	1.1119	1.479
1781	8900	1.1102	1.4773
1782	8905	1.1096	1.4767
1783	8910	1.1089	1.476
1784	8915	1.1109	1.478
1785	8920	1.1079	1.475
1786	8925	1.1086	1.4757
1787	8930	1.1119	1.479
1788	8935	1.1096	1.4767
1789	8940	1.1115	1.4786
1790	8945	1.1132	1.4803
1791	8950	1.1112	1.4783
1792	8955	1.1158	1.4829
1793	8960	1.1135	1.4806
1794	8965	1.1106	1.4777
1795	8970	1.1122	1.4793
1796	8975	1.1109	1.478
1797	8980	1.1096	1.4767
1798	8985	1.1122	1.4793
1799	8990	1.1119	1.479
1800	8995	1.1142	1.4813
1801	9000	1.1129	1.48
1802	9005	1.1125	1.4796
1803	9010	1.1161	1.4832
1804	9015	1.1142	1.4813
1805	9020	1.1129	1.48
1806	9025	1.1122	1.4793
1807	9030	1.1125	1.4796
1808	9035	1.1135	1.4806
1809	9040	1.1122	1.4793
1810	9045	1.1165	1.4836
1811	9050	1.1184	1.4855
1812	9055	1.1214	1.4885
1813	9060	1.124	1.4911
1814	9065	1.1224	1.4895
1815	9070	1.1243	1.4914
1816	9075	1.1237	1.4908
1817	9080	1.1237	1.4908
1818	9085	1.1234	1.4905
1819	9090	1.1253	1.4924
1820	9095	1.125	1.4921
1821	9100	1.126	1.4931

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

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	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	1.1263	1.4934
1823	9110	1.1263	1.4934
1824	9115	1.127	1.4941
1825	9120	1.127	1.4941
1826	9125	1.1276	1.4947
1827	9130	1.1289	1.496
1828	9135	1.1289	1.496
1829	9140	1.1909	1.558
1830	9145	1.1325	1.4996
1831	9150	1.1299	1.497
1832	9155	1.1302	1.4973
1833	9160	1.1286	1.4957
1834	9165	1.1302	1.4973
1835	9170	1.1312	1.4983
1836	9175	1.1329	1.50
1837	9180	1.1345	1.5016
1838	9185	1.1358	1.5029
1839	9190	1.1355	1.5026
1840	9195	1.1352	1.5023
1841	9200	1.1355	1.5026
1842	9205	1.1352	1.5023
1843	9210	1.2021	1.5692
1844	9215	1.1368	1.5039
1845	9220	1.1375	1.5046
1846	9225	1.1365	1.5036
1847	9230	1.1355	1.5026
1848	9235	1.1355	1.5026
1849	9240	1.1358	1.5029
1850	9245	1.1516	1.5187
1851	9250	1.1371	1.5042
1852	9255	1.1358	1.5029
1853	9260	1.1348	1.5019
1854	9265	1.1329	1.50
1855	9270	1.1332	1.5003
1856	9275	1.1348	1.5019
1857	9280	1.1535	1.5206
1858	9285	1.1247	1.4918
1859	9290	1.1332	1.5003
1860	9295	1.1306	1.4977
1861	9300	1.1266	1.4937
1862	9305	1.127	1.4941
1863	9310	1.124	1.4911
1864	9315	1.1535	1.5206
1865	9320	1.1184	1.4855
1866	9325	1.1165	1.4836
1867	9330	1.1155	1.4826
1868	9335	1.1155	1.4826
1869	9340	1.1145	1.4816
1870	9345	1.1243	1.4914
1871	9350	1.1125	1.4796
1872	9355	1.1122	1.4793
1873	9360	1.1119	1.479
1874	9365	1.1742	1.5413
1875	9370	1.1473	1.5144
1876	9375	1.1145	1.4816
1877	9380	1.1109	1.478
1878	9385	1.1076	1.4747
1879	9390	1.1043	1.4714
1880	9395	1.1247	1.4918
1881	9400	1.1119	1.479
1882	9405	1.0988	1.4659
1883	9410	1.0955	1.4626
1884	9415	1.1066	1.4737

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	1.1083	1.4754
1886	9425	1.1207	1.4878
1887	9430	1.0837	1.4508
1888	9435	1.0778	1.4449
1889	9440	1.0778	1.4449
1890	9445	1.1129	1.48
1891	9450	1.1345	1.5016
1892	9455	1.0732	1.4403
1893	9460	1.0692	1.4363
1894	9465	1.0669	1.434
1895	9470	1.0768	1.4439
1896	9475	1.0751	1.4422
1897	9480	1.0551	1.4222
1898	9485	1.0522	1.4193
1899	9490	1.0535	1.4206
1900	9495	1.1171	1.4842
1901	9500	1.0564	1.4235
1902	9505	1.0509	1.418
1903	9510	1.0482	1.4153
1904	9515	1.0938	1.4609
1905	9520	1.0712	1.4383
1906	9525	1.0469	1.414
1907	9530	1.0459	1.413
1908	9535	1.042	1.4091
1909	9540	1.0404	1.4075
1910	9545	1.0223	1.3894
1911	9550	1.0426	1.4097
1912	9555	1.041	1.4081
1913	9560	1.0377	1.4048
1914	9565	1.0354	1.4025
1915	9570	1.0348	1.4019
1916	9575	1.0873	1.4544
1917	9580	1.0384	1.4055
1918	9585	1.044	1.4111
1919	9590	1.044	1.4111
1920	9595	1.0367	1.4038
1921	9600	1.0889	1.456
1922	9605	1.0348	1.4019
1923	9610	1.0351	1.4022
1924	9615	1.0577	1.4248
1925	9620	1.0807	1.4478
1926	9625	1.044	1.4111
1927	9630	1.0354	1.4025
1928	9635	1.0912	1.4583
1929	9640	1.0367	1.4038
1930	9645	1.0486	1.4157
1931	9650	1.0354	1.4025
1932	9655	1.0318	1.3989
1933	9660	1.2313	1.5984
1934	9665	1.042	1.4091
1935	9670	1.0318	1.3989
1936	9675	1.0282	1.3953
1937	9680	1.0266	1.3937
1938	9685	1.0256	1.3927
1939	9690	1.0837	1.4508
1940	9695	1.0276	1.3947
1941	9700	1.0269	1.394
1942	9705	1.0285	1.3956
1943	9710	1.0397	1.4068
1944	9715	1.0292	1.3963
1945	9720	1.0361	1.4032
1946	9725	1.0272	1.3943
1947	9730	1.0249	1.392

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	1.0249	1.392
1949	9740	1.0249	1.392
1950	9745	1.0236	1.3907
1951	9750	1.0246	1.3917
1952	9755	1.0239	1.391
1953	9760	1.0259	1.393
1954	9765	1.0276	1.3947
1955	9770	1.1132	1.4803
1956	9775	1.0367	1.4038
1957	9780	1.0489	1.416
1958	9785	1.0154	1.3825
1959	9790	1.0541	1.4212
1960	9795	1.0495	1.4166
1961	9800	1.044	1.4111
1962	9805	1.041	1.4081
1963	9810	1.0394	1.4065
1964	9815	1.0407	1.4078
1965	9820	1.0466	1.4137
1966	9825	1.0466	1.4137
1967	9830	1.0499	1.417
1968	9835	1.0479	1.415
1969	9840	1.0472	1.4143
1970	9845	1.0512	1.4183
1971	9850	1.0545	1.4216
1972	9855	1.0502	1.4173
1973	9860	1.0499	1.417
1974	9865	1.0492	1.4163
1975	9870	1.0535	1.4206
1976	9875	1.0686	1.4357
1977	9880	1.06	1.4271
1978	9885	1.0571	1.4242
1979	9890	1.0623	1.4294
1980	9895	1.0604	1.4275
1981	9900	1.064	1.4311
1982	9905	1.0643	1.4314
1983	9910	1.0735	1.4406
1984	9915	1.082	1.4491
1985	9920	1.0696	1.4367
1986	9925	1.0712	1.4383
1987	9930	1.0699	1.437
1988	9935	1.0764	1.4435
1989	9940	1.0659	1.433
1990	9945	1.1358	1.5029
1991	9950	1.0807	1.4478
1992	9955	1.0715	1.4386
1993	9960	1.0692	1.4363
1994	9965	1.0669	1.434
1995	9970	1.0663	1.4334
1996	9975	1.0656	1.4327
1997	9980	1.064	1.4311
1998	9985	1.0623	1.4294
1999	9990	1.0568	1.4239
2000	9995	1.0535	1.4206
2001	10000	1.0581	1.4252
2002	10005	1.0459	1.413
2003	10010	1.0463	1.4134
2004	10015	1.0433	1.4104
2005	10020	1.0364	1.4035
2006	10025	1.0371	1.4042
2007	10030	1.0256	1.3927
2008	10035	1.0167	1.3838
2009	10040	1.0112	1.3783
2010	10045	1.0075	1.3746

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	1.0007	1.3678
2012	10055	0.9908	1.3579
2013	10060	1.0194	1.3865
2014	10065	0.9951	1.3622
2015	10070	0.977	1.3441
2016	10075	0.9688	1.3359
2017	10080	0.9603	1.3274
2018	10085	0.9524	1.3195
2019	10090	0.9462	1.3133
2020	10095	0.9406	1.3077
2021	10100	0.9337	1.3008
2022	10105	0.9347	1.3018
2023	10110	0.9203	1.2874
2024	10115	0.917	1.2841
2025	10120	0.9062	1.2733
2026	10125	0.8989	1.266
2027	10130	0.8914	1.2585
2028	10135	0.9373	1.3044
2029	10140	0.9088	1.2759
2030	10145	0.8694	1.2365
2031	10150	0.8619	1.229
2032	10155	0.8576	1.2247
2033	10160	0.872	1.2391
2034	10165	0.8468	1.2139
2035	10170	0.8405	1.2076
2036	10175	0.8346	1.2017
2037	10180	0.8297	1.1968
2038	10185	0.8517	1.2188
2039	10190	0.8373	1.2044
2040	10195	0.8094	1.1765
2041	10200	0.8048	1.1719
2042	10205	0.8189	1.186
2043	10210	0.8484	1.2155
2044	10215	0.789	1.1561
2045	10220	0.7808	1.1479
2046	10225	0.9731	1.3402
2047	10230	0.8012	1.1683
2048	10235	0.7638	1.1309
2049	10240	0.7602	1.1273
2050	10245	0.7546	1.1217
2051	10250	0.7966	1.1637
2052	10255	0.7365	1.1036
2053	10260	0.7336	1.1007
2054	10265	0.852	1.2191
2055	10270	0.7218	1.0889
2056	10275	0.7395	1.1066
2057	10280	0.6962	1.0633
2058	10285	0.7014	1.0685
2059	10290	0.6968	1.0639
2060	10295	0.6896	1.0567
2061	10300	0.6867	1.0538
2062	10305	0.6841	1.0512
2063	10310	0.6755	1.0426
2064	10315	0.6696	1.0367
2065	10320	0.6663	1.0334
2066	10325	0.6598	1.0269
2067	10330	0.6562	1.0233
2068	10335	0.6506	1.0177
2069	10340	0.6444	1.0115
2070	10345	0.6427	1.0098
2071	10350	0.6381	1.0052
2072	10355	0.6381	1.0052
2073	10360	0.6381	1.0052

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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	0.6352	1.0023
2075	10370	0.6322	0.9993
2076	10375	0.6276	0.9947
2077	10380	0.6207	0.9878
2078	10385	0.6155	0.9826
2079	10390	0.6073	0.9744
2080	10395	0.5863	0.9534
2081	10400	0.624	0.9911
2082	10405	0.6102	0.9773
2083	10410	0.664	1.0311
2084	10415	0.5876	0.9547
2085	10420	0.584	0.9511
2086	10425	0.6463	1.0134
2087	10430	0.5873	0.9544
2088	10435	0.5745	0.9416
2089	10440	0.5692	0.9363
2090	10445	0.6181	0.9852
2091	10450	0.6102	0.9773
2092	10455	0.5604	0.9275
2093	10460	0.5545	0.9216
2094	10465	0.5512	0.9183
2095	10470	0.5535	0.9206
2096	10475	0.5919	0.959
2097	10480	0.543	0.9101
2098	10485	0.5377	0.9048
2099	10490	0.5348	0.9019
2100	10495	0.5453	0.9124
2101	10500	0.5846	0.9517
2102	10505	0.5266	0.8937
2103	10510	0.5226	0.8897
2104	10515	0.5623	0.9294
2105	10520	0.5449	0.912
2106	10525	0.5157	0.8828
2107	10530	0.5118	0.8789
2108	10535	0.5351	0.9022
2109	10540	0.5459	0.913
2110	10545	0.5062	0.8733
2111	10550	0.5023	0.8694
2112	10555	0.5449	0.912
2113	10560	0.5259	0.893
2114	10565	0.4964	0.8635
2115	10570	0.4908	0.8579
2116	10575	0.4862	0.8533
2117	10580	0.4806	0.8477
2118	10585	0.4718	0.8389
2119	10590	0.4373	0.8044
2120	10595	0.5239	0.891
2121	10600	0.4652	0.8323
2122	10605	0.4616	0.8287
2123	10610	0.458	0.8251
2124	10615	0.5121	0.8792
2125	10620	0.439	0.8061
2126	10625	0.4462	0.8133
2127	10630	0.4449	0.812
2128	10635	0.4403	0.8074
2129	10640	0.4688	0.8359
2130	10645	0.4875	0.8546
2131	10650	0.4327	0.7998
2132	10655	0.4272	0.7943
2133	10660	0.44	0.8071
2134	10665	0.4216	0.7887
2135	10670	0.4183	0.7854
2136	10675	0.4154	0.7825

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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	0.4114	0.7785
2138	10685	0.4183	0.7854
2139	10690	0.4199	0.787
2140	10695	0.4068	0.7739
2141	10700	0.3983	0.7654
2142	10705	0.3497	0.7168
2143	10710	0.3947	0.7618
2144	10715	0.398	0.7651
2145	10720	0.3845	0.7516
2146	10725	0.3799	0.747
2147	10730	0.3973	0.7644
2148	10735	0.4659	0.833
2149	10740	0.3694	0.7365
2150	10745	0.3848	0.7519
2151	10750	0.3648	0.7319
2152	10755	0.3615	0.7286
2153	10760	0.3583	0.7254
2154	10765	0.3533	0.7204
2155	10770	0.3507	0.7178
2156	10775	0.3481	0.7152
2157	10780	0.3445	0.7116
2158	10785	0.3409	0.708
2159	10790	0.3379	0.705
2160	10795	0.335	0.7021
2161	10800	0.3317	0.6988
2162	10805	0.3294	0.6965
2163	10810	0.3251	0.6922
2164	10815	0.3228	0.6899
2165	10820	0.3205	0.6876
2166	10825	0.3166	0.6837
2167	10830	0.313	0.6801
2168	10835	0.3087	0.6758
2169	10840	0.3068	0.6739
2170	10845	0.3048	0.6719
2171	10850	0.3025	0.6696
2172	10855	0.2979	0.665
2173	10860	0.2966	0.6637
2174	10865	0.293	0.6601
2175	10870	0.2881	0.6552
2176	10875	0.2871	0.6542
2177	10880	0.2835	0.6506
2178	10885	0.2799	0.647
2179	10890	0.2749	0.642
2180	10895	0.2703	0.6374
2181	10900	0.2677	0.6348
2182	10905	0.2625	0.6296
2183	10910	0.2605	0.6276
2184	10915	0.2562	0.6233
2185	10920	0.2539	0.621
2186	10925	0.2493	0.6164
2187	10930	0.247	0.6141
2188	10935	0.2441	0.6112
2189	10940	0.2395	0.6066
2190	10945	0.2349	0.602
2191	10950	0.232	0.5991
2192	10955	0.2277	0.5948
2193	10960	0.2448	0.6119
2194	10965	0.2244	0.5915
2195	10970	0.2208	0.5879
2196	10975	0.2493	0.6164
2197	10980	0.2228	0.5899
2198	10985	0.2674	0.6345
2199	10990	0.2313	0.5984

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	0.2539	0.621
2201	11000	0.2287	0.5958
2202	11005	0.2539	0.621
2203	11010	0.2356	0.6027
2204	11015	0.2057	0.5728
2205	11020	0.185	0.5521
2206	11025	0.2333	0.6004
2207	11030	0.2398	0.6069
2208	11035	0.2408	0.6079
2209	11040	0.2297	0.5968
2210	11045	0.2129	0.58
2211	11050	0.2133	0.5804
2212	11055	0.2106	0.5777
2213	11060	0.2316	0.5987
2214	11065	0.1916	0.5587
2215	11070	0.2073	0.5744
2216	11075	0.1804	0.5475
2217	11080	0.2451	0.6122
2218	11085	0.1657	0.5328
2219	11090	0.1886	0.5557
2220	11095	0.1749	0.542
2221	11100	0.1558	0.5229
2222	11105	0.1532	0.5203
2223	11110	0.1811	0.5482
2224	11115	0.1945	0.5616
2225	11120	0.1493	0.5164
2226	11125	0.146	0.5131
2227	11130	0.1624	0.5295
2228	11135	0.1932	0.5603
2229	11140	0.1857	0.5528
2230	11145	0.1381	0.5052
2231	11150	0.1378	0.5049
2232	11155	0.1503	0.5174
2233	11160	0.1972	0.5643
2234	11165	0.1394	0.5065
2235	11170	0.1355	0.5026
2236	11175	0.1575	0.5246
2237	11180	0.19	0.5571
2238	11185	0.1332	0.5003
2239	11190	0.1634	0.5305
2240	11195	0.1503	0.5174
2241	11200	0.1427	0.5098
2242	11205	0.188	0.5551
2243	11210	0.1283	0.4954
2244	11215	0.1266	0.4937
2245	11220	0.1686	0.5357
2246	11225	0.1319	0.499
2247	11230	0.1253	0.4924
2248	11235	0.1316	0.4987
2249	11240	0.1539	0.521
2250	11245	0.1467	0.5138
2251	11250	0.1257	0.4928
2252	11255	0.1489	0.516
2253	11260	0.166	0.5331
2254	11265	0.1906	0.5577
2255	11270	0.1302	0.4973
2256	11275	0.1283	0.4954
2257	11280	0.1289	0.496
2258	11285	0.1266	0.4937
2259	11290	0.124	0.4911
2260	11295	0.1834	0.5505
2261	11300	0.1719	0.539
2262	11305	0.122	0.4891

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Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	0.1227	0.4898
2264	11315	0.1224	0.4895
2265	11320	0.1562	0.5233
2266	11325	0.167	0.5341
2267	11330	0.1299	0.497
2268	11335	0.1273	0.4944
2269	11340	0.1309	0.498
2270	11345	0.1142	0.4813
2271	11350	0.1703	0.5374
2272	11355	0.1306	0.4977
2273	11360	0.1335	0.5006
2274	11365	0.1293	0.4964
2275	11370	0.1926	0.5597
2276	11375	0.1772	0.5443
2277	11380	0.1253	0.4924
2278	11385	0.1227	0.4898
2279	11390	0.1204	0.4875
2280	11395	0.1617	0.5288
2281	11400	0.1614	0.5285
2282	11405	0.1191	0.4862
2283	11410	0.1161	0.4832
2284	11415	0.1161	0.4832
2285	11420	0.1152	0.4823
2286	11425	0.1175	0.4846
2287	11430	0.1188	0.4859
2288	11435	0.143	0.5101
2289	11440	0.1181	0.4852
2290	11445	0.1138	0.4809
2291	11450	0.1171	0.4842
2292	11455	0.1171	0.4842
2293	11460	0.1165	0.4836
2294	11465	0.1138	0.4809
2295	11470	0.1129	0.48
2296	11475	0.1119	0.479
2297	11480	0.1152	0.4823
2298	11485	0.1135	0.4806
2299	11490	0.1129	0.48
2300	11495	0.1119	0.479
2301	11500	0.1093	0.4764
2302	11505	0.1109	0.478
2303	11510	0.1099	0.477
2304	11515	0.1079	0.475
2305	11520	0.1079	0.475
2306	11525	0.1109	0.478
2307	11530	0.107	0.4741
2308	11535	0.105	0.4721
2309	11540	0.103	0.4701
2310	11545	0.1027	0.4698
2311	11550	0.1014	0.4685
2312	11555	0.1033	0.4704
2313	11560	0.104	0.4711
2314	11565	0.1001	0.4672
2315	11570	0.0978	0.4649
2316	11575	0.0971	0.4642
2317	11580	0.0951	0.4622
2318	11585	0.0948	0.4619
2319	11590	0.0935	0.4606
2320	11595	0.0928	0.4599
2321	11600	0.0905	0.4576
2322	11605	0.0899	0.457
2323	11610	0.0902	0.4573
2324	11615	0.0896	0.4567
2325	11620	0.0883	0.4554

	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	0.0948	0.4619
2327	11630	0.0919	0.459
2328	11635	0.0892	0.4563
2329	11640	0.0922	0.4593
2330	11645	0.1512	0.5183
2331	11650	0.0925	0.4596
2332	11655	0.0902	0.4573
2333	11660	0.0883	0.4554
2334	11665	0.0876	0.4547
2335	11670	0.0892	0.4563
2336	11675	0.0866	0.4537
2337	11680	0.0856	0.4527
2338	11685	0.0873	0.4544
2339	11690	0.1257	0.4928
2340	11695	0.0902	0.4573
2341	11700	0.0889	0.456
2342	11705	0.0837	0.4508
2343	11710	0.082	0.4491
2344	11715	0.0801	0.4472
2345	11720	0.0755	0.4426
2346	11725	0.0732	0.4403
2347	11730	0.0712	0.4383
2348	11735	0.0699	0.437
2349	11740	0.0705	0.4376
2350	11745	0.0663	0.4334
2351	11750	0.0643	0.4314
2352	11755	0.0623	0.4294
2353	11760	0.062	0.4291
2354	11765	0.0673	0.4344
2355	11770	0.0636	0.4307
2356	11775	0.0646	0.4317
2357	11780	0.0702	0.4373
2358	11785	0.0646	0.4317
2359	11790	0.065	0.4321
2360	11795	0.0627	0.4298
2361	11800	0.061	0.4281
2362	11805	0.0604	0.4275
2363	11810	0.06	0.4271
2364	11815	0.06	0.4271
2365	11820	0.0594	0.4265
2366	11825	0.0607	0.4278
2367	11830	0.0613	0.4284
2368	11835	0.061	0.4281
2369	11840	0.0591	0.4262
2370	11845	0.0604	0.4275
2371	11850	0.0581	0.4252
2372	11855	0.0564	0.4235
2373	11860	0.0535	0.4206
2374	11865	0.0535	0.4206
2375	11870	0.0538	0.4209
2376	11875	0.0528	0.4199
2377	11880	0.0509	0.418
2378	11885	0.0512	0.4183
2379	11890	0.0505	0.4176
2380	11895	0.0538	0.4209
2381	11900	0.0532	0.4203
2382	11905	0.0528	0.4199
2383	11910	0.0545	0.4216
2384	11915	0.0613	0.4284
2385	11920	0.0548	0.4219
2386	11925	0.0564	0.4235
2387	11930	0.0535	0.4206
2388	11935	0.0554	0.4225

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	0.0528	0.4199
2390	11945	0.0532	0.4203
2391	11950	0.0522	0.4193
2392	11955	0.0561	0.4232
2393	11960	0.0538	0.4209
2394	11965	0.0535	0.4206
2395	11970	0.0525	0.4196
2396	11975	0.0528	0.4199
2397	11980	0.0532	0.4203
2398	11985	0.0525	0.4196
2399	11990	0.0538	0.4209
2400	11995	0.0518	0.4189
2401	12000	0.0499	0.417
2402	12005	0.0509	0.418
2403	12010	0.0522	0.4193
2404	12015	0.0512	0.4183
2405	12020	0.0509	0.418
2406	12025	0.0512	0.4183
2407	12030	0.0495	0.4166
2408	12035	0.0499	0.417
2409	12040	0.0515	0.4186
2410	12045	0.0492	0.4163
2411	12050	0.0499	0.417
2412	12055	0.0499	0.417
2413	12060	0.0492	0.4163
2414	12065	0.0604	0.4275
2415	12070	0.0548	0.4219
2416	12075	0.0518	0.4189
2417	12080	0.0528	0.4199
2418	12085	0.0522	0.4193
2419	12090	0.0532	0.4203
2420	12095	0.0518	0.4189
2421	12100	0.0528	0.4199
2422	12105	0.0541	0.4212
2423	12110	0.0532	0.4203
2424	12115	0.0535	0.4206
2425	12120	0.0535	0.4206
2426	12125	0.0528	0.4199
2427	12130	0.0522	0.4193
2428	12135	0.0522	0.4193
2429	12140	0.0518	0.4189
2430	12145	0.0509	0.418
2431	12150	0.0509	0.418
2432	12155	0.0495	0.4166
2433	12160	0.0509	0.418
2434	12165	0.0515	0.4186
2435	12170	0.0682	0.4353
2436	12175	0.0515	0.4186
2437	12180	0.0505	0.4176
2438	12185	0.0518	0.4189
2439	12190	0.0482	0.4153
2440	12195	0.0476	0.4147
2441	12200	0.0449	0.412
2442	12205	0.0466	0.4137
2443	12210	0.0833	0.4504
2444	12215	0.0463	0.4134
2445	12220	0.044	0.4111
2446	12225	0.0426	0.4097
2447	12230	0.0404	0.4075
2448	12235	0.0433	0.4104
2449	12240	0.1161	0.4832
2450	12245	0.0476	0.4147
2451	12250	0.0426	0.4097

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	0.0384	0.4055
2453	12260	0.0702	0.4373
2454	12265	0.0404	0.4075
2455	12270	0.0374	0.4045
2456	12275	0.0433	0.4104
2457	12280	0.1024	0.4695
2458	12285	0.062	0.4291
2459	12290	0.0397	0.4068
2460	12295	0.0397	0.4068
2461	12300	0.0423	0.4094
2462	12305	0.0879	0.455
2463	12310	0.0404	0.4075
2464	12315	0.0351	0.4022
2465	12320	0.0331	0.4002
2466	12325	0.0994	0.4665
2467	12330	0.0902	0.4573
2468	12335	0.0322	0.3993
2469	12340	0.0302	0.3973
2470	12345	0.0292	0.3963
2471	12350	0.0541	0.4212
2472	12355	0.0279	0.395
2473	12360	0.0256	0.3927
2474	12365	0.0236	0.3907
2475	12370	0.0354	0.4025
2476	12375	0.0243	0.3914
2477	12380	0.021	0.3881
2478	12385	0.02	0.3871
2479	12390	0.0164	0.3835
2480	12395	0.0689	0.436
2481	12400	0.0151	0.3822
2482	12405	0.0105	0.3776
2483	12410	0.0095	0.3766
2484	12415	0.0259	0.393
2485	12420	0.0551	0.4222
2486	12425	0.0066	0.3737
2487	12430	0.0092	0.3763
2488	12435	0.0066	0.3737
2489	12440	0.0512	0.4183
2490	12445	0.0115	0.3786
2491	12450	-0.003	0.3641
2492	12455	-0.0033	0.3638
2493	12460	-0.0059	0.3612
2494	12465	0.0528	0.4199
2495	12470	0.0315	0.3986
2496	12475	-0.0072	0.3599
2497	12480	-0.0092	0.3579
2498	12485	-0.0115	0.3556
2499	12490	-0.0049	0.3622
2500	12495	0.021	0.3881
2501	12500	-0.0092	0.3579
2502	12505	-0.0121	0.355
2503	12510	-0.0148	0.3523
2504	12515	0.0213	0.3884
2505	12520	0.0197	0.3868
2506	12525	0.0325	0.3996
2507	12530	-0.0144	0.3527
2508	12535	-0.0108	0.3563
2509	12540	-0.0171	0.35
2510	12545	-0.02	0.3471
2511	12550	-0.0223	0.3448
2512	12555	0.0141	0.3812
2513	12560	-0.0157	0.3514
2514	12565	-0.019	0.3481

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	-0.0213	0.3458
2516	12575	-0.0207	0.3464
2517	12580	-0.0194	0.3477
2518	12585	-0.0243	0.3428
2519	12590	-0.02	0.3471
2520	12595	-0.0256	0.3415
2521	12600	-0.0217	0.3454
2522	12605	-0.0266	0.3405
2523	12610	-0.0499	0.3172
2524	12615	0.001	0.3681
2525	12620	-0.0272	0.3399
2526	12625	-0.0269	0.3402
2527	12630	-0.0305	0.3366
2528	12635	-0.0318	0.3353
2529	12640	-0.0253	0.3418
2530	12645	-0.0315	0.3356
2531	12650	-0.0338	0.3333
2532	12655	-0.0066	0.3605
2533	12660	0.0003	0.3674
2534	12665	-0.0302	0.3369
2535	12670	-0.0325	0.3346
2536	12675	-0.0335	0.3336

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-UB1	Static Water Level [ft]: 4.27	Radial Distance to PW [ft]: 6734

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	4.2714	0.00
2	5	4.3173	0.0459
3	10	4.2806	0.0092
4	15	4.2737	0.0023
5	20	4.2704	-0.001
6	25	4.2704	-0.001
7	30	4.2681	-0.0033
8	35	4.2655	-0.0059
9	40	4.2612	-0.0102
10	45	4.2615	-0.0099
11	50	4.2609	-0.0105
12	55	4.2609	-0.0105
13	60	4.2556	-0.0158
14	65	4.2537	-0.0177
15	70	4.2507	-0.0207
16	75	4.2501	-0.0213
17	80	4.2464	-0.025
18	85	6.001	1.7296
19	90	8.4413	4.1699
20	95	4.8875	0.6161
21	100	4.4909	0.2195
22	105	4.3954	0.124
23	110	4.3452	0.0738
24	115	4.3213	0.0499
25	120	4.3029	0.0315
26	125	4.2934	0.022
27	130	4.2819	0.0105
28	135	4.2733	0.0019
29	140	4.2678	-0.0036
30	145	4.2638	-0.0076
31	150	4.2553	-0.0161
32	155	4.2514	-0.02
33	160	4.2468	-0.0246
34	165	4.2376	-0.0338
35	170	4.2517	-0.0197
36	175	4.2464	-0.025
37	180	4.2405	-0.0309
38	185	4.2359	-0.0355
39	190	4.2314	-0.04
40	195	4.2314	-0.04
41	200	4.2268	-0.0446
42	205	4.2241	-0.0473
43	210	4.2245	-0.0469
44	215	4.2258	-0.0456
45	220	4.2271	-0.0443
46	225	4.2241	-0.0473
47	230	4.2205	-0.0509
48	235	4.215	-0.0564
49	240	4.2133	-0.0581
50	245	4.212	-0.0594
51	250	4.2084	-0.063
52	255	4.2156	-0.0558
53	260	4.2127	-0.0587
54	265	4.2051	-0.0663
55	270	4.2169	-0.0545
56	275	4.2228	-0.0486
57	280	4.2192	-0.0522

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	4.2153	-0.0561
59	290	4.2094	-0.062
60	295	4.2064	-0.065
61	300	4.2051	-0.0663
62	305	4.2025	-0.0689
63	310	4.2071	-0.0643
64	315	4.2179	-0.0535
65	320	4.2094	-0.062
66	325	4.2054	-0.066
67	330	4.2064	-0.065
68	335	4.2002	-0.0712
69	340	4.2067	-0.0647
70	345	4.2028	-0.0686
71	350	4.1979	-0.0735
72	355	4.1953	-0.0761
73	360	4.1933	-0.0781
74	365	4.1962	-0.0752
75	370	4.1933	-0.0781
76	375	4.1884	-0.083
77	380	4.1874	-0.084
78	385	4.1838	-0.0876
79	390	4.1838	-0.0876
80	395	4.1887	-0.0827
81	400	4.192	-0.0794
82	405	4.1943	-0.0771
83	410	4.1861	-0.0853
84	415	4.1805	-0.0909
85	420	4.5391	0.2677
86	425	4.2176	-0.0538
87	430	4.1969	-0.0745
88	435	4.1851	-0.0863
89	440	4.1841	-0.0873
90	445	4.1825	-0.0889
91	450	4.1785	-0.0929
92	455	4.1743	-0.0971
93	460	4.173	-0.0984
94	465	4.1779	-0.0935
95	470	4.1736	-0.0978
96	475	4.1713	-0.1001
97	480	4.1759	-0.0955
98	485	4.5253	0.2539
99	490	4.2146	-0.0568
100	495	4.1825	-0.0889
101	500	4.1723	-0.0991
102	505	4.1664	-0.105
103	510	4.1644	-0.107
104	515	4.1615	-0.1099
105	520	4.1598	-0.1116
106	525	4.1572	-0.1142
107	530	4.1559	-0.1155
108	535	4.1549	-0.1165
109	540	4.1543	-0.1171
110	545	4.152	-0.1194
111	550	4.1516	-0.1198
112	555	4.1506	-0.1208
113	560	4.1497	-0.1217
114	565	4.1474	-0.124
115	570	4.1461	-0.1253
116	575	5.2284	0.957
117	580	4.2222	-0.0492
118	585	4.1739	-0.0975
119	590	4.1605	-0.1109
120	595	4.1552	-0.1162

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	4.1533	-0.1181
122	605	4.1493	-0.1221
123	610	4.1503	-0.1211
124	615	4.1375	-0.1339
125	620	4.2156	-0.0558
126	625	4.1674	-0.104
127	630	4.1602	-0.1112
128	635	4.2494	-0.022
129	640	4.173	-0.0984
130	645	4.1608	-0.1106
131	650	4.1566	-0.1148
132	655	4.5539	0.2825
133	660	4.1812	-0.0902
134	665	4.1618	-0.1096
135	670	4.1602	-0.1112
136	675	4.1575	-0.1139
137	680	4.1549	-0.1165
138	685	4.1546	-0.1168
139	690	4.1546	-0.1168
140	695	4.1543	-0.1171
141	700	4.1533	-0.1181
142	705	4.1539	-0.1175
143	710	4.1543	-0.1171
144	715	4.1582	-0.1132
145	720	4.1579	-0.1135
146	725	4.1566	-0.1148
147	730	4.1566	-0.1148
148	735	4.1569	-0.1145
149	740	4.1562	-0.1152
150	745	4.1575	-0.1139
151	750	4.1575	-0.1139
152	755	4.1572	-0.1142
153	760	4.1569	-0.1145
154	765	4.1562	-0.1152
155	770	4.1569	-0.1145
156	775	4.1569	-0.1145
157	780	4.1566	-0.1148
158	785	4.1562	-0.1152
159	790	4.1585	-0.1129
160	795	4.1582	-0.1132
161	800	4.1611	-0.1103
162	805	4.1638	-0.1076
163	810	4.1634	-0.108
164	815	4.1644	-0.107
165	820	4.1634	-0.108
166	825	4.1641	-0.1073
167	830	4.1651	-0.1063
168	835	4.1654	-0.106
169	840	4.1667	-0.1047
170	845	4.167	-0.1044
171	850	4.1693	-0.1021
172	855	4.1707	-0.1007
173	860	4.1687	-0.1027
174	865	4.1707	-0.1007
175	870	4.171	-0.1004
176	875	4.1716	-0.0998
177	880	4.1713	-0.1001
178	885	4.172	-0.0994
179	890	4.173	-0.0984
180	895	4.1753	-0.0961
181	900	4.1753	-0.0961
182	905	4.1753	-0.0961
183	910	4.1762	-0.0952

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	4.1795	-0.0919
185	920	4.1825	-0.0889
186	925	4.1821	-0.0893
187	930	4.1821	-0.0893
188	935	4.1798	-0.0916
189	940	4.1792	-0.0922
190	945	4.1792	-0.0922
191	950	4.1795	-0.0919
192	955	4.1792	-0.0922
193	960	4.1802	-0.0912
194	965	4.1802	-0.0912
195	970	4.1815	-0.0899
196	975	4.1808	-0.0906
197	980	4.1802	-0.0912
198	985	4.1798	-0.0916
199	990	4.1805	-0.0909
200	995	4.1835	-0.0879
201	1000	4.1838	-0.0876
202	1005	4.1858	-0.0856
203	1010	4.2937	0.0223
204	1015	4.2133	-0.0581
205	1020	5.3803	1.1089
206	1025	4.6356	0.3642
207	1030	4.2402	-0.0312
208	1035	4.211	-0.0604
209	1040	4.2491	-0.0223
210	1045	4.2081	-0.0633
211	1050	4.1969	-0.0745
212	1055	4.192	-0.0794
213	1060	4.1969	-0.0745
214	1065	4.1979	-0.0735
215	1070	4.1936	-0.0778
216	1075	4.1992	-0.0722
217	1080	4.1966	-0.0748
218	1085	4.194	-0.0774
219	1090	5.1684	0.897
220	1095	4.2556	-0.0158
221	1100	4.2061	-0.0653
222	1105	4.1926	-0.0788
223	1110	4.1867	-0.0847
224	1115	4.1812	-0.0902
225	1120	4.1828	-0.0886
226	1125	4.1818	-0.0896
227	1130	4.1805	-0.0909
228	1135	4.1798	-0.0916
229	1140	4.1785	-0.0929
230	1145	4.1792	-0.0922
231	1150	4.1812	-0.0902
232	1155	4.1785	-0.0929
233	1160	4.1779	-0.0935
234	1165	4.1769	-0.0945
235	1170	4.1772	-0.0942
236	1175	4.1776	-0.0938
237	1180	4.1782	-0.0932
238	1185	4.1769	-0.0945
239	1190	4.1749	-0.0965
240	1195	4.169	-0.1024
241	1200	4.1753	-0.0961
242	1205	4.1697	-0.1017
243	1210	4.255	-0.0164
244	1215	4.1854	-0.086
245	1220	4.1779	-0.0935
246	1225	4.173	-0.0984

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	4.167	-0.1044
248	1235	4.1651	-0.1063
249	1240	4.167	-0.1044
250	1245	4.1621	-0.1093
251	1250	4.1618	-0.1096
252	1255	4.1598	-0.1116
253	1260	4.1621	-0.1093
254	1265	4.1588	-0.1126
255	1270	4.1598	-0.1116
256	1275	4.1582	-0.1132
257	1280	4.1559	-0.1155
258	1285	4.1562	-0.1152
259	1290	4.1559	-0.1155
260	1295	4.3121	0.0407
261	1300	4.1805	-0.0909
262	1305	4.5342	0.2628
263	1310	4.1972	-0.0742
264	1315	4.171	-0.1004
265	1320	4.1608	-0.1106
266	1325	4.1605	-0.1109
267	1330	4.1585	-0.1129
268	1335	4.1562	-0.1152
269	1340	4.1559	-0.1155
270	1345	4.1546	-0.1168
271	1350	4.1536	-0.1178
272	1355	4.1529	-0.1185
273	1360	4.1595	-0.1119
274	1365	4.1562	-0.1152
275	1370	4.1533	-0.1181
276	1375	4.15	-0.1214
277	1380	4.1497	-0.1217
278	1385	4.1477	-0.1237
279	1390	4.147	-0.1244
280	1395	4.1447	-0.1267
281	1400	4.9472	0.6758
282	1405	4.2054	-0.066
283	1410	4.1661	-0.1053
284	1415	4.1556	-0.1158
285	1420	4.1506	-0.1208
286	1425	4.1441	-0.1273
287	1430	4.1421	-0.1293
288	1435	4.1415	-0.1299
289	1440	4.1424	-0.129
290	1445	4.1385	-0.1329
291	1450	4.1352	-0.1362
292	1455	4.1365	-0.1349
293	1460	4.1336	-0.1378
294	1465	4.1369	-0.1345
295	1470	4.1395	-0.1319
296	1475	4.5115	0.2401
297	1480	4.2035	-0.0679
298	1485	4.169	-0.1024
299	1490	4.1579	-0.1135
300	1495	4.152	-0.1194
301	1500	4.1503	-0.1211
302	1505	4.1513	-0.1201
303	1510	4.1533	-0.1181
304	1515	4.1506	-0.1208
305	1520	4.1487	-0.1227
306	1525	4.1464	-0.125
307	1530	4.3078	0.0364
308	1535	4.1782	-0.0932
309	1540	4.1638	-0.1076

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	4.1582	-0.1132
311	1550	4.1523	-0.1191
312	1555	4.1526	-0.1188
313	1560	4.1516	-0.1198
314	1565	4.1477	-0.1237
315	1570	4.1457	-0.1257
316	1575	4.1447	-0.1267
317	1580	4.1454	-0.126
318	1585	4.1526	-0.1188
319	1590	4.792	0.5206
320	1595	5.0545	0.7831
321	1600	4.8934	0.622
322	1605	4.2281	-0.0433
323	1610	4.192	-0.0794
324	1615	4.1828	-0.0886
325	1620	4.9777	0.7063
326	1625	5.0503	0.7789
327	1630	4.8468	0.5754
328	1635	4.2461	-0.0253
329	1640	4.2022	-0.0692
330	1645	4.1903	-0.0811
331	1650	4.1838	-0.0876
332	1655	4.1861	-0.0853
333	1660	4.1841	-0.0873
334	1665	4.1812	-0.0902
335	1670	4.1779	-0.0935
336	1675	4.1766	-0.0948
337	1680	4.1749	-0.0965
338	1685	4.1818	-0.0896
339	1690	4.1884	-0.083
340	1695	4.1854	-0.086
341	1700	4.1884	-0.083
342	1705	4.1805	-0.0909
343	1710	4.1776	-0.0938
344	1715	4.1812	-0.0902
345	1720	4.1923	-0.0791
346	1725	4.1867	-0.0847
347	1730	4.1841	-0.0873
348	1735	4.3639	0.0925
349	1740	4.3652	0.0938
350	1745	4.2396	-0.0318
351	1750	4.6923	0.4209
352	1755	5.4997	1.2283
353	1760	4.92	0.6486
354	1765	4.483	0.2116
355	1770	4.3098	0.0384
356	1775	4.251	-0.0204
357	1780	4.2359	-0.0355
358	1785	4.2284	-0.043
359	1790	4.2254	-0.046
360	1795	4.2294	-0.042
361	1800	4.2225	-0.0489
362	1805	5.1782	0.9068
363	1810	4.752	0.4806
364	1815	4.2953	0.0239
365	1820	4.336	0.0646
366	1825	4.3347	0.0633
367	1830	4.4512	0.1798
368	1835	4.3108	0.0394
369	1840	4.2524	-0.019
370	1845	4.2373	-0.0341
371	1850	4.2277	-0.0437
372	1855	4.2238	-0.0476

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	4.2254	-0.046
374	1865	4.2212	-0.0502
375	1870	4.2169	-0.0545
376	1875	4.2163	-0.0551
377	1880	4.2281	-0.0433
378	1885	4.2212	-0.0502
379	1890	4.2189	-0.0525
380	1895	4.2172	-0.0542
381	1900	4.213	-0.0584
382	1905	4.4489	0.1775
383	1910	8.7166	4.4452
384	1915	5.0699	0.7985
385	1920	4.4712	0.1998
386	1925	4.7776	0.5062
387	1930	4.3629	0.0915
388	1935	4.3085	0.0371
389	1940	4.2904	0.019
390	1945	4.2714	0.00
391	1950	4.2619	-0.0095
392	1955	4.8291	0.5577
393	1960	4.3091	0.0377
394	1965	4.2635	-0.0079
395	1970	4.2478	-0.0236
396	1975	4.2419	-0.0295
397	1980	4.2392	-0.0322
398	1985	4.2327	-0.0387
399	1990	4.2294	-0.042
400	1995	4.2287	-0.0427
401	2000	4.2281	-0.0433
402	2005	4.2245	-0.0469
403	2010	4.2245	-0.0469
404	2015	4.2225	-0.0489
405	2020	4.2192	-0.0522
406	2025	4.2199	-0.0515
407	2030	4.2186	-0.0528
408	2035	4.2172	-0.0542
409	2040	4.215	-0.0564
410	2045	4.215	-0.0564
411	2050	4.214	-0.0574
412	2055	4.213	-0.0584
413	2060	4.215	-0.0564
414	2065	4.213	-0.0584
415	2070	4.2133	-0.0581
416	2075	4.2123	-0.0591
417	2080	4.2127	-0.0587
418	2085	4.2117	-0.0597
419	2090	4.2123	-0.0591
420	2095	4.2107	-0.0607
421	2100	4.211	-0.0604
422	2105	4.2067	-0.0647
423	2110	4.2074	-0.064
424	2115	4.2071	-0.0643
425	2120	4.2054	-0.066
426	2125	4.8567	0.5853
427	2130	4.2773	0.0059
428	2135	4.2359	-0.0355
429	2140	4.2238	-0.0476
430	2145	4.2169	-0.0545
431	2150	4.214	-0.0574
432	2155	4.2117	-0.0597
433	2160	4.2104	-0.061
434	2165	4.211	-0.0604
435	2170	4.2081	-0.0633

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	4.212	-0.0594
437	2180	4.2084	-0.063
438	2185	4.2067	-0.0647
439	2190	4.2064	-0.065
440	2195	4.2064	-0.065
441	2200	4.2084	-0.063
442	2205	5.3134	1.042
443	2210	4.273	0.0016
444	2215	4.232	-0.0394
445	2220	4.2238	-0.0476
446	2225	4.2225	-0.0489
447	2230	4.2209	-0.0505
448	2235	4.2172	-0.0542
449	2240	4.2153	-0.0561
450	2245	4.214	-0.0574
451	2250	4.2212	-0.0502
452	2255	4.2228	-0.0486
453	2260	4.231	-0.0404
454	2265	4.2379	-0.0335
455	2270	4.2428	-0.0286
456	2275	4.2484	-0.023
457	2280	4.2478	-0.0236
458	2285	4.2481	-0.0233
459	2290	4.2658	-0.0056
460	2295	4.2878	0.0164
461	2300	4.2871	0.0157
462	2305	4.2747	0.0033
463	2310	4.2645	-0.0069
464	2315	4.2569	-0.0145
465	2320	4.2556	-0.0158
466	2325	4.2517	-0.0197
467	2330	4.2481	-0.0233
468	2335	4.2497	-0.0217
469	2340	4.2481	-0.0233
470	2345	4.2497	-0.0217
471	2350	4.2478	-0.0236
472	2355	4.2487	-0.0227
473	2360	4.251	-0.0204
474	2365	4.2487	-0.0227
475	2370	4.2478	-0.0236
476	2375	4.2481	-0.0233
477	2380	4.2484	-0.023
478	2385	4.2468	-0.0246
479	2390	4.2448	-0.0266
480	2395	4.2448	-0.0266
481	2400	4.4262	0.1548
482	2405	4.2789	0.0075
483	2410	4.2622	-0.0092
484	2415	4.256	-0.0154
485	2420	4.2615	-0.0099
486	2425	4.2612	-0.0102
487	2430	4.2586	-0.0128
488	2435	4.2576	-0.0138
489	2440	4.2543	-0.0171
490	2445	4.6346	0.3632
491	2450	4.2973	0.0259
492	2455	4.2747	0.0033
493	2460	4.2711	-0.0003
494	2465	4.2819	0.0105
495	2470	4.2799	0.0085
496	2475	4.2724	0.001
497	2480	4.2714	0.00
498	2485	5.0535	0.7821

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	4.3298	0.0584
500	2495	4.4023	0.1309
501	2500	4.3085	0.0371
502	2505	4.3003	0.0289
503	2510	4.294	0.0226
504	2515	4.6342	0.3628
505	2520	4.3911	0.1197
506	2525	4.3213	0.0499
507	2530	4.6867	0.4153
508	2535	4.3386	0.0672
509	2540	4.3108	0.0394
510	2545	4.8616	0.5902
511	2550	4.3708	0.0994
512	2555	4.8587	0.5873
513	2560	4.3901	0.1187
514	2565	4.6316	0.3602
515	2570	4.3639	0.0925
516	2575	4.337	0.0656
517	2580	4.6372	0.3658
518	2585	4.3577	0.0863
519	2590	4.3344	0.063
520	2595	4.3216	0.0502
521	2600	4.4102	0.1388
522	2605	4.3301	0.0587
523	2610	4.3183	0.0469
524	2615	4.3134	0.042
525	2620	4.3117	0.0403
526	2625	4.3121	0.0407
527	2630	4.3091	0.0377
528	2635	6.0575	1.7861
529	2640	4.4905	0.2191
530	2645	4.3682	0.0968
531	2650	4.3393	0.0679
532	2655	4.3272	0.0558
533	2660	4.3209	0.0495
534	2665	4.3203	0.0489
535	2670	4.4472	0.1758
536	2675	4.3347	0.0633
537	2680	4.4479	0.1765
538	2685	4.3406	0.0692
539	2690	4.3262	0.0548
540	2695	4.3222	0.0508
541	2700	4.3176	0.0462
542	2705	4.3157	0.0443
543	2710	4.3147	0.0433
544	2715	4.3127	0.0413
545	2720	4.3088	0.0374
546	2725	4.3055	0.0341
547	2730	4.3058	0.0344
548	2735	4.3058	0.0344
549	2740	4.3052	0.0338
550	2745	4.3045	0.0331
551	2750	4.2999	0.0285
552	2755	4.3003	0.0289
553	2760	4.3003	0.0289
554	2765	4.2983	0.0269
555	2770	4.2976	0.0262
556	2775	4.5765	0.3051
557	2780	4.3327	0.0613
558	2785	4.3137	0.0423
559	2790	4.3068	0.0354
560	2795	4.3035	0.0321
561	2800	4.3012	0.0298

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	4.2999	0.0285
563	2810	4.3012	0.0298
564	2815	4.3019	0.0305
565	2820	4.2993	0.0279
566	2825	4.2993	0.0279
567	2830	4.2993	0.0279
568	2835	4.2973	0.0259
569	2840	4.2943	0.0229
570	2845	4.2917	0.0203
571	2850	4.2911	0.0197
572	2855	4.2917	0.0203
573	2860	4.2924	0.021
574	2865	4.294	0.0226
575	2870	4.293	0.0216
576	2875	4.2904	0.019
577	2880	4.293	0.0216
578	2885	4.2917	0.0203
579	2890	4.2898	0.0184
580	2895	4.2901	0.0187
581	2900	4.2917	0.0203
582	2905	4.293	0.0216
583	2910	4.295	0.0236
584	2915	4.2943	0.0229
585	2920	4.292	0.0206
586	2925	4.293	0.0216
587	2930	4.2871	0.0157
588	2935	4.2875	0.0161
589	2940	4.2917	0.0203
590	2945	4.2937	0.0223
591	2950	4.2917	0.0203
592	2955	4.2927	0.0213
593	2960	5.3888	1.1174
594	2965	5.3908	1.1194
595	2970	4.4594	0.188
596	2975	4.3475	0.0761
597	2980	4.3701	0.0987
598	2985	4.3291	0.0577
599	2990	5.2077	0.9363
600	2995	5.8682	1.5968
601	3000	4.4548	0.1834
602	3005	4.3701	0.0987
603	3010	4.3445	0.0731
604	3015	4.3347	0.0633
605	3020	4.3258	0.0544
606	3025	4.3199	0.0485
607	3030	4.3281	0.0567
608	3035	4.3249	0.0535
609	3040	4.3229	0.0515
610	3045	4.319	0.0476
611	3050	4.5066	0.2352
612	3055	4.3593	0.0879
613	3060	4.3386	0.0672
614	3065	4.3278	0.0564
615	3070	4.3213	0.0499
616	3075	4.3183	0.0469
617	3080	4.3186	0.0472
618	3085	4.3944	0.123
619	3090	4.3298	0.0584
620	3095	4.3216	0.0502
621	3100	4.3235	0.0521
622	3105	4.3219	0.0505
623	3110	4.3209	0.0495
624	3115	4.4351	0.1637

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	4.3495	0.0781
626	3125	4.3396	0.0682
627	3130	4.3337	0.0623
628	3135	4.334	0.0626
629	3140	4.336	0.0646
630	3145	4.3373	0.0659
631	3150	4.3383	0.0669
632	3155	4.3439	0.0725
633	3160	4.355	0.0836
634	3165	4.356	0.0846
635	3170	4.3583	0.0869
636	3175	4.3554	0.084
637	3180	4.5709	0.2995
638	3185	4.5017	0.2303
639	3190	4.3974	0.126
640	3195	4.752	0.4806
641	3200	4.4226	0.1512
642	3205	5.127	0.8556
643	3210	4.6129	0.3415
644	3215	4.7996	0.5282
645	3220	4.4735	0.2021
646	3225	4.4403	0.1689
647	3230	4.5004	0.229
648	3235	6.1864	1.915
649	3240	5.4213	1.1499
650	3245	5.7314	1.46
651	3250	5.0562	0.7848
652	3255	4.6753	0.4039
653	3260	4.5634	0.292
654	3265	4.9403	0.6689
655	3270	4.5663	0.2949
656	3275	4.5102	0.2388
657	3280	4.4961	0.2247
658	3285	5.8216	1.5502
659	3290	4.5532	0.2818
660	3295	4.4928	0.2214
661	3300	4.6516	0.3802
662	3305	4.4935	0.2221
663	3310	5.0194	0.748
664	3315	4.8324	0.561
665	3320	4.7067	0.4353
666	3325	5.1907	0.9193
667	3330	4.569	0.2976
668	3335	4.4955	0.2241
669	3340	4.4748	0.2034
670	3345	4.4722	0.2008
671	3350	4.4728	0.2014
672	3355	4.461	0.1896
673	3360	4.4997	0.2283
674	3365	4.4636	0.1922
675	3370	4.5017	0.2303
676	3375	4.4577	0.1863
677	3380	4.4476	0.1762
678	3385	4.443	0.1716
679	3390	4.4417	0.1703
680	3395	4.44	0.1686
681	3400	4.4341	0.1627
682	3405	4.4351	0.1637
683	3410	4.4374	0.166
684	3415	4.7999	0.5285
685	3420	9.168	4.8966
686	3425	5.3967	1.1253
687	3430	4.7881	0.5167

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	5.1733	0.9019
689	3440	4.6257	0.3543
690	3445	4.5532	0.2818
691	3450	4.526	0.2546
692	3455	4.5086	0.2372
693	3460	4.4968	0.2254
694	3465	4.4905	0.2191
695	3470	4.7569	0.4855
696	3475	4.5115	0.2401
697	3480	4.944	0.6726
698	3485	4.5745	0.3031
699	3490	4.4964	0.225
700	3495	4.4807	0.2093
701	3500	5.4754	1.204
702	3505	4.5296	0.2582
703	3510	4.4869	0.2155
704	3515	4.4764	0.205
705	3520	4.4709	0.1995
706	3525	4.4672	0.1958
707	3530	4.4653	0.1939
708	3535	4.4597	0.1883
709	3540	4.4584	0.187
710	3545	4.4567	0.1853
711	3550	4.4531	0.1817
712	3555	4.4492	0.1778
713	3560	4.5627	0.2913
714	3565	4.4669	0.1955
715	3570	4.4567	0.1853
716	3575	4.4518	0.1804
717	3580	4.4479	0.1765
718	3585	4.4456	0.1742
719	3590	4.442	0.1706
720	3595	4.4387	0.1673
721	3600	4.4364	0.165
722	3605	4.4351	0.1637
723	3610	4.4367	0.1653
724	3615	4.4348	0.1634
725	3620	4.4338	0.1624
726	3625	4.4328	0.1614
727	3630	5.5017	1.2303
728	3635	7.442	3.1706
729	3640	6.9111	2.6397
730	3645	5.5581	1.2867
731	3650	4.732	0.4606
732	3655	5.38	1.1086
733	3660	4.59	0.3186
734	3665	4.5394	0.268
735	3670	5.1897	0.9183
736	3675	4.5749	0.3035
737	3680	5.0142	0.7428
738	3685	4.5342	0.2628
739	3690	5.1132	0.8418
740	3695	4.522	0.2506
741	3700	4.7133	0.4419
742	3705	4.5188	0.2474
743	3710	4.9167	0.6453
744	3715	4.5316	0.2602
745	3720	6.4531	2.1817
746	3725	6.6244	2.353
747	3730	4.8983	0.6269
748	3735	4.6844	0.413
749	3740	4.5801	0.3087
750	3745	4.5489	0.2775

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	4.5312	0.2598
752	3755	4.5217	0.2503
753	3760	4.5158	0.2444
754	3765	4.5099	0.2385
755	3770	4.5033	0.2319
756	3775	4.4951	0.2237
757	3780	4.4919	0.2205
758	3785	4.4869	0.2155
759	3790	4.4879	0.2165
760	3795	4.4853	0.2139
761	3800	4.485	0.2136
762	3805	4.4814	0.21
763	3810	4.482	0.2106
764	3815	4.4777	0.2063
765	3820	4.4771	0.2057
766	3825	4.4787	0.2073
767	3830	4.4777	0.2063
768	3835	4.4751	0.2037
769	3840	4.4768	0.2054
770	3845	4.4771	0.2057
771	3850	4.4777	0.2063
772	3855	4.4787	0.2073
773	3860	4.4794	0.208
774	3865	4.7353	0.4639
775	3870	4.5263	0.2549
776	3875	4.5056	0.2342
777	3880	4.5027	0.2313
778	3885	4.5683	0.2969
779	3890	4.5161	0.2447
780	3895	4.5069	0.2355
781	3900	4.4994	0.228
782	3905	4.4951	0.2237
783	3910	4.5119	0.2405
784	3915	4.5132	0.2418
785	3920	4.5102	0.2388
786	3925	4.5063	0.2349
787	3930	4.5063	0.2349
788	3935	4.5027	0.2313
789	3940	4.501	0.2296
790	3945	4.501	0.2296
791	3950	4.8249	0.5535
792	3955	4.6608	0.3894
793	3960	4.6264	0.355
794	3965	4.5611	0.2897
795	3970	4.5417	0.2703
796	3975	4.5325	0.2611
797	3980	4.5293	0.2579
798	3985	4.5273	0.2559
799	3990	4.5263	0.2549
800	3995	4.5283	0.2569
801	4000	4.5279	0.2565
802	4005	4.5302	0.2588
803	4010	4.6208	0.3494
804	4015	4.5526	0.2812
805	4020	4.5427	0.2713
806	4025	4.7428	0.4714
807	4030	4.5745	0.3031
808	4035	4.5562	0.2848
809	4040	5.3741	1.1027
810	4045	4.5965	0.3251
811	4050	4.5627	0.2913
812	4055	4.5532	0.2818
813	4060	6.2169	1.9455

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	4.8094	0.538
815	4070	4.6306	0.3592
816	4075	4.8252	0.5538
817	4080	4.6119	0.3405
818	4085	4.587	0.3156
819	4090	4.5765	0.3051
820	4095	4.5693	0.2979
821	4100	4.5647	0.2933
822	4105	5.1539	0.8825
823	4110	4.6618	0.3904
824	4115	4.5886	0.3172
825	4120	4.5739	0.3025
826	4125	4.567	0.2956
827	4130	4.563	0.2916
828	4135	4.5624	0.291
829	4140	4.5604	0.289
830	4145	4.5604	0.289
831	4150	4.5562	0.2848
832	4155	4.5522	0.2808
833	4160	4.5526	0.2812
834	4165	4.5506	0.2792
835	4170	4.5506	0.2792
836	4175	4.5512	0.2798
837	4180	4.5509	0.2795
838	4185	4.5499	0.2785
839	4190	4.5499	0.2785
840	4195	4.5496	0.2782
841	4200	4.5493	0.2779
842	4205	4.546	0.2746
843	4210	4.5453	0.2739
844	4215	4.5447	0.2733
845	4220	4.544	0.2726
846	4225	4.5424	0.271
847	4230	4.5401	0.2687
848	4235	4.5391	0.2677
849	4240	4.5371	0.2657
850	4245	4.5348	0.2634
851	4250	4.5355	0.2641
852	4255	4.5348	0.2634
853	4260	4.5316	0.2602
854	4265	4.5293	0.2579
855	4270	4.5273	0.2559
856	4275	4.5256	0.2542
857	4280	4.5243	0.2529
858	4285	4.5227	0.2513
859	4290	4.5207	0.2493
860	4295	4.5188	0.2474
861	4300	4.5178	0.2464
862	4305	4.5168	0.2454
863	4310	4.5145	0.2431
864	4315	4.5129	0.2415
865	4320	4.5102	0.2388
866	4325	4.5069	0.2355
867	4330	4.5047	0.2333
868	4335	4.5122	0.2408
869	4340	4.5099	0.2385
870	4345	4.506	0.2346
871	4350	4.502	0.2306
872	4355	4.5014	0.23
873	4360	4.4991	0.2277
874	4365	4.4984	0.227
875	4370	4.4974	0.226
876	4375	4.4958	0.2244

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	4.4932	0.2218
878	4385	4.4945	0.2231
879	4390	4.4991	0.2277
880	4395	4.4968	0.2254
881	4400	4.4968	0.2254
882	4405	4.4964	0.225
883	4410	4.4938	0.2224
884	4415	4.4919	0.2205
885	4420	4.4902	0.2188
886	4425	4.4899	0.2185
887	4430	4.4899	0.2185
888	4435	4.4869	0.2155
889	4440	4.5047	0.2333
890	4445	4.5007	0.2293
891	4450	4.5017	0.2303
892	4455	4.4974	0.226
893	4460	4.4948	0.2234
894	4465	4.4932	0.2218
895	4470	4.4886	0.2172
896	4475	4.4869	0.2155
897	4480	4.4876	0.2162
898	4485	4.4863	0.2149
899	4490	4.485	0.2136
900	4495	4.4974	0.226
901	4500	4.4941	0.2227
902	4505	4.4899	0.2185
903	4510	4.4876	0.2162
904	4515	4.4869	0.2155
905	4520	4.486	0.2146
906	4525	4.4853	0.2139
907	4530	4.486	0.2146
908	4535	4.4853	0.2139
909	4540	4.4856	0.2142
910	4545	4.486	0.2146
911	4550	4.4928	0.2214
912	4555	4.4922	0.2208
913	4560	4.4896	0.2182
914	4565	4.4938	0.2224
915	4570	4.4945	0.2231
916	4575	4.4941	0.2227
917	4580	5.6057	1.3343
918	4585	4.5742	0.3028
919	4590	4.527	0.2556
920	4595	4.5132	0.2418
921	4600	4.5119	0.2405
922	4605	4.5168	0.2454
923	4610	4.5115	0.2401
924	4615	4.5083	0.2369
925	4620	4.5073	0.2359
926	4625	5.2865	1.0151
927	4630	4.6319	0.3605
928	4635	4.5427	0.2713
929	4640	4.5417	0.2703
930	4645	4.5325	0.2611
931	4650	4.5263	0.2549
932	4655	4.6083	0.3369
933	4660	5.3961	1.1247
934	4665	4.5939	0.3225
935	4670	4.5486	0.2772
936	4675	4.5384	0.267
937	4680	4.5348	0.2634
938	4685	4.628	0.3566
939	4690	4.5607	0.2893

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	Page 16 of 42
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	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	4.6008	0.3294
941	4700	4.5532	0.2818
942	4705	4.8173	0.5459
943	4710	4.5719	0.3005
944	4715	4.5496	0.2782
945	4720	4.5443	0.2729
946	4725	4.6044	0.333
947	4730	4.5545	0.2831
948	4735	4.545	0.2736
949	4740	4.5411	0.2697
950	4745	4.5411	0.2697
951	4750	4.6027	0.3313
952	4755	4.7153	0.4439
953	4760	4.5785	0.3071
954	4765	4.5611	0.2897
955	4770	4.5545	0.2831
956	4775	4.5512	0.2798
957	4780	4.5496	0.2782
958	4785	4.61	0.3386
959	4790	4.9587	0.6873
960	4795	4.5995	0.3281
961	4800	4.7386	0.4672
962	4805	4.5827	0.3113
963	4810	4.6461	0.3747
964	4815	4.6352	0.3638
965	4820	4.5824	0.311
966	4825	4.6172	0.3458
967	4830	4.5758	0.3044
968	4835	4.6779	0.4065
969	4840	4.5844	0.313
970	4845	4.567	0.2956
971	4850	4.5614	0.29
972	4855	4.9384	0.667
973	4860	4.5873	0.3159
974	4865	4.9331	0.6617
975	4870	4.6014	0.33
976	4875	4.5745	0.3031
977	4880	4.565	0.2936
978	4885	4.5614	0.29
979	4890	4.5598	0.2884
980	4895	4.5568	0.2854
981	4900	4.5565	0.2851
982	4905	5.5571	1.2857
983	4910	4.61	0.3386
984	4915	4.5693	0.2979
985	4920	4.5601	0.2887
986	4925	4.5558	0.2844
987	4930	4.5548	0.2834
988	4935	4.5516	0.2802
989	4940	4.5503	0.2789
990	4945	4.5493	0.2779
991	4950	4.5476	0.2762
992	4955	4.5473	0.2759
993	4960	4.5483	0.2769
994	4965	4.547	0.2756
995	4970	4.545	0.2736
996	4975	4.5463	0.2749
997	4980	4.5453	0.2739
998	4985	4.5434	0.272
999	4990	4.5437	0.2723
1000	4995	4.5424	0.271
1001	5000	4.5407	0.2693
1002	5005	4.7763	0.5049

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

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	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	4.5817	0.3103
1004	5015	4.5578	0.2864
1005	5020	4.548	0.2766
1006	5025	4.5434	0.272
1007	5030	4.5404	0.269
1008	5035	4.5473	0.2759
1009	5040	4.5417	0.2703
1010	5045	4.5368	0.2654
1011	5050	4.5332	0.2618
1012	5055	4.5316	0.2602
1013	5060	4.5299	0.2585
1014	5065	4.5283	0.2569
1015	5070	4.5276	0.2562
1016	5075	4.5283	0.2569
1017	5080	4.5279	0.2565
1018	5085	4.526	0.2546
1019	5090	4.5247	0.2533
1020	5095	4.5227	0.2513
1021	5100	4.523	0.2516
1022	5105	4.5243	0.2529
1023	5110	5.8613	1.5899
1024	5115	6.048	1.7766
1025	5120	4.8757	0.6043
1026	5125	5.5555	1.2841
1027	5130	4.7914	0.52
1028	5135	4.6221	0.3507
1029	5140	4.5867	0.3153
1030	5145	4.5686	0.2972
1031	5150	4.5594	0.288
1032	5155	4.5539	0.2825
1033	5160	4.548	0.2766
1034	5165	4.5434	0.272
1035	5170	4.8983	0.6269
1036	5175	4.5686	0.2972
1037	5180	4.5486	0.2772
1038	5185	4.5414	0.27
1039	5190	4.5394	0.268
1040	5195	4.5375	0.2661
1041	5200	4.5361	0.2647
1042	5205	4.5348	0.2634
1043	5210	4.5325	0.2611
1044	5215	4.5325	0.2611
1045	5220	4.5332	0.2618
1046	5225	4.5335	0.2621
1047	5230	4.5335	0.2621
1048	5235	4.5342	0.2628
1049	5240	4.5355	0.2641
1050	5245	4.5355	0.2641
1051	5250	4.5345	0.2631
1052	5255	4.5348	0.2634
1053	5260	5.2232	0.9518
1054	5265	4.5883	0.3169
1055	5270	4.5552	0.2838
1056	5275	4.5489	0.2775
1057	5280	4.5457	0.2743
1058	5285	4.5447	0.2733
1059	5290	4.5434	0.272
1060	5295	4.546	0.2746
1061	5300	4.5463	0.2749
1062	5305	4.546	0.2746
1063	5310	4.5466	0.2752
1064	5315	4.5581	0.2867
1065	5320	4.5568	0.2854

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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	4.5558	0.2844
1067	5330	4.5545	0.2831
1068	5335	4.5555	0.2841
1069	5340	4.5568	0.2854
1070	5345	4.5575	0.2861
1071	5350	4.5607	0.2893
1072	5355	4.5673	0.2959
1073	5360	4.565	0.2936
1074	5365	4.5653	0.2939
1075	5370	4.8938	0.6224
1076	5375	4.6047	0.3333
1077	5380	4.5906	0.3192
1078	5385	4.5883	0.3169
1079	5390	4.6756	0.4042
1080	5395	4.6109	0.3395
1081	5400	4.5995	0.3281
1082	5405	4.5939	0.3225
1083	5410	4.5929	0.3215
1084	5415	4.5939	0.3225
1085	5420	4.5932	0.3218
1086	5425	4.6031	0.3317
1087	5430	4.5995	0.3281
1088	5435	4.5968	0.3254
1089	5440	4.5959	0.3245
1090	5445	4.5985	0.3271
1091	5450	4.8022	0.5308
1092	5455	4.6251	0.3537
1093	5460	4.6136	0.3422
1094	5465	4.6123	0.3409
1095	5470	4.6129	0.3415
1096	5475	4.7281	0.4567
1097	5480	4.6424	0.371
1098	5485	4.6296	0.3582
1099	5490	4.6277	0.3563
1100	5495	4.6264	0.355
1101	5500	4.6251	0.3537
1102	5505	4.627	0.3556
1103	5510	5.1457	0.8743
1104	5515	4.7209	0.4495
1105	5520	5.2799	1.0085
1106	5525	4.6815	0.4101
1107	5530	4.6546	0.3832
1108	5535	4.649	0.3776
1109	5540	4.648	0.3766
1110	5545	4.6487	0.3773
1111	5550	4.7494	0.478
1112	5555	4.671	0.3996
1113	5560	4.6585	0.3871
1114	5565	4.6543	0.3829
1115	5570	4.6513	0.3799
1116	5575	4.6506	0.3792
1117	5580	4.6503	0.3789
1118	5585	4.6526	0.3812
1119	5590	4.8153	0.5439
1120	5595	4.6887	0.4173
1121	5600	4.6713	0.3999
1122	5605	5.8153	1.5439
1123	5610	5.0772	0.8058
1124	5615	5.3472	1.0758
1125	5620	4.7281	0.4567
1126	5625	4.6926	0.4212
1127	5630	5.0607	0.7893
1128	5635	4.7071	0.4357

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	4.6858	0.4144
1130	5645	4.6785	0.4071
1131	5650	5.6195	1.3481
1132	5655	4.7934	0.522
1133	5660	4.7051	0.4337
1134	5665	4.6851	0.4137
1135	5670	4.7333	0.4619
1136	5675	4.7881	0.5167
1137	5680	4.6982	0.4268
1138	5685	4.6835	0.4121
1139	5690	4.6785	0.4071
1140	5695	4.6746	0.4032
1141	5700	4.672	0.4006
1142	5705	4.671	0.3996
1143	5710	4.671	0.3996
1144	5715	4.67	0.3986
1145	5720	4.6697	0.3983
1146	5725	4.6674	0.396
1147	5730	6.7071	2.4357
1148	5735	4.7898	0.5184
1149	5740	4.7074	0.436
1150	5745	4.8675	0.5961
1151	5750	4.732	0.4606
1152	5755	4.7022	0.4308
1153	5760	5.566	1.2946
1154	5765	4.8265	0.5551
1155	5770	5.129	0.8576
1156	5775	4.7359	0.4645
1157	5780	4.7025	0.4311
1158	5785	4.692	0.4206
1159	5790	4.6877	0.4163
1160	5795	4.6812	0.4098
1161	5800	5.2035	0.9321
1162	5805	4.7635	0.4921
1163	5810	4.6959	0.4245
1164	5815	4.6861	0.4147
1165	5820	4.6772	0.4058
1166	5825	4.672	0.4006
1167	5830	4.6716	0.4002
1168	5835	4.6693	0.3979
1169	5840	4.6667	0.3953
1170	5845	4.6707	0.3993
1171	5850	4.7369	0.4655
1172	5855	4.6848	0.4134
1173	5860	4.6723	0.4009
1174	5865	4.6693	0.3979
1175	5870	4.6677	0.3963
1176	5875	4.6625	0.3911
1177	5880	4.6638	0.3924
1178	5885	4.6621	0.3907
1179	5890	4.6585	0.3871
1180	5895	4.6556	0.3842
1181	5900	4.6579	0.3865
1182	5905	4.6595	0.3881
1183	5910	4.6631	0.3917
1184	5915	4.6621	0.3907
1185	5920	9.2609	4.9895
1186	5925	5.0201	0.7487
1187	5930	5.3104	1.039
1188	5935	4.8016	0.5302
1189	5940	4.7405	0.4691
1190	5945	8.5949	4.3235
1191	5950	5.1838	0.9124

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	5.2035	0.9321
1193	5960	4.837	0.5656
1194	5965	4.7793	0.5079
1195	5970	4.7556	0.4842
1196	5975	4.7379	0.4665
1197	5980	4.7274	0.456
1198	5985	4.7294	0.458
1199	5990	4.7222	0.4508
1200	5995	4.715	0.4436
1201	6000	4.7192	0.4478
1202	6005	4.715	0.4436
1203	6010	4.7081	0.4367
1204	6015	4.7038	0.4324
1205	6020	4.7087	0.4373
1206	6025	4.7097	0.4383
1207	6030	4.7123	0.4409
1208	6035	4.7117	0.4403
1209	6040	4.7077	0.4363
1210	6045	4.7061	0.4347
1211	6050	4.7884	0.517
1212	6055	4.7245	0.4531
1213	6060	4.7117	0.4403
1214	6065	4.7094	0.438
1215	6070	4.7054	0.434
1216	6075	4.7015	0.4301
1217	6080	4.7015	0.4301
1218	6085	4.7002	0.4288
1219	6090	4.7015	0.4301
1220	6095	4.7025	0.4311
1221	6100	4.7061	0.4347
1222	6105	4.7169	0.4455
1223	6110	4.7179	0.4465
1224	6115	5.6976	1.4262
1225	6120	6.273	2.0016
1226	6125	5.005	0.7336
1227	6130	5.8039	1.5325
1228	6135	4.8403	0.5689
1229	6140	4.7852	0.5138
1230	6145	4.7694	0.498
1231	6150	4.9882	0.7168
1232	6155	4.8127	0.5413
1233	6160	4.7934	0.522
1234	6165	4.7901	0.5187
1235	6170	4.7891	0.5177
1236	6175	4.8593	0.5879
1237	6180	4.8009	0.5295
1238	6185	5.3199	1.0485
1239	6190	4.9193	0.6479
1240	6195	6.2783	2.0069
1241	6200	5.0401	0.7687
1242	6205	4.8997	0.6283
1243	6210	4.8564	0.585
1244	6215	4.9111	0.6397
1245	6220	5.2766	1.0052
1246	6225	5.3885	1.1171
1247	6230	5.5004	1.229
1248	6235	5.7658	1.4944
1249	6240	5.001	0.7296
1250	6245	5.542	1.2706
1251	6250	5.377	1.1056
1252	6255	6.5306	2.2592
1253	6260	5.6454	1.374
1254	6265	5.7455	1.4741

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	5.7658	1.4944
1256	6275	5.0207	0.7493
1257	6280	5.6136	1.3422
1258	6285	4.9663	0.6949
1259	6290	4.9016	0.6302
1260	6295	4.9692	0.6978
1261	6300	4.8941	0.6227
1262	6305	4.8754	0.604
1263	6310	4.8616	0.5902
1264	6315	4.8544	0.583
1265	6320	5.6552	1.3838
1266	6325	4.9295	0.6581
1267	6330	5.1182	0.8468
1268	6335	4.9016	0.6302
1269	6340	4.9239	0.6525
1270	6345	4.879	0.6076
1271	6350	4.8662	0.5948
1272	6355	5.1838	0.9124
1273	6360	4.9394	0.668
1274	6365	4.8718	0.6004
1275	6370	4.8587	0.5873
1276	6375	4.8514	0.58
1277	6380	4.8488	0.5774
1278	6385	4.8465	0.5751
1279	6390	4.8442	0.5728
1280	6395	4.8413	0.5699
1281	6400	4.8393	0.5679
1282	6405	4.8383	0.5669
1283	6410	4.8377	0.5663
1284	6415	4.8354	0.564
1285	6420	4.8363	0.5649
1286	6425	4.8347	0.5633
1287	6430	4.8344	0.563
1288	6435	4.8324	0.561
1289	6440	5.0808	0.8094
1290	6445	5.0519	0.7805
1291	6450	4.8724	0.601
1292	6455	4.8514	0.58
1293	6460	4.839	0.5676
1294	6465	5.005	0.7336
1295	6470	4.8642	0.5928
1296	6475	4.8436	0.5722
1297	6480	4.8357	0.5643
1298	6485	4.8324	0.561
1299	6490	4.8275	0.5561
1300	6495	4.8209	0.5495
1301	6500	4.8196	0.5482
1302	6505	4.817	0.5456
1303	6510	4.8144	0.543
1304	6515	4.8134	0.542
1305	6520	4.8098	0.5384
1306	6525	4.8094	0.538
1307	6530	4.8075	0.5361
1308	6535	4.8062	0.5348
1309	6540	4.8055	0.5341
1310	6545	4.8025	0.5311
1311	6550	4.8029	0.5315
1312	6555	4.8029	0.5315
1313	6560	4.8006	0.5292
1314	6565	4.9144	0.643
1315	6570	5.1487	0.8773
1316	6575	4.8547	0.5833
1317	6580	4.8235	0.5521

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Pumping Test - Water Level Data

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	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	4.8111	0.5397
1319	6590	4.8068	0.5354
1320	6595	4.8068	0.5354
1321	6600	4.8045	0.5331
1322	6605	4.8019	0.5305
1323	6610	4.7996	0.5282
1324	6615	4.7973	0.5259
1325	6620	4.7943	0.5229
1326	6625	4.796	0.5246
1327	6630	4.9269	0.6555
1328	6635	4.8278	0.5564
1329	6640	4.8098	0.5384
1330	6645	4.8039	0.5325
1331	6650	4.8039	0.5325
1332	6655	4.8003	0.5289
1333	6660	4.7976	0.5262
1334	6665	4.943	0.6716
1335	6670	4.8321	0.5607
1336	6675	4.814	0.5426
1337	6680	4.8104	0.539
1338	6685	4.8081	0.5367
1339	6690	4.8045	0.5331
1340	6695	4.8052	0.5338
1341	6700	4.8042	0.5328
1342	6705	5.0942	0.8228
1343	6710	4.8393	0.5679
1344	6715	4.818	0.5466
1345	6720	4.814	0.5426
1346	6725	4.8117	0.5403
1347	6730	4.8104	0.539
1348	6735	4.8104	0.539
1349	6740	4.8091	0.5377
1350	6745	4.8091	0.5377
1351	6750	4.8088	0.5374
1352	6755	4.8094	0.538
1353	6760	4.8108	0.5394
1354	6765	4.8117	0.5403
1355	6770	4.8111	0.5397
1356	6775	4.8137	0.5423
1357	6780	4.813	0.5416
1358	6785	4.817	0.5456
1359	6790	5.1401	0.8687
1360	6795	4.8616	0.5902
1361	6800	4.8413	0.5699
1362	6805	4.8357	0.5643
1363	6810	4.834	0.5626
1364	6815	4.834	0.5626
1365	6820	5.2487	0.9773
1366	6825	5.6503	1.3789
1367	6830	4.9046	0.6332
1368	6835	4.8669	0.5955
1369	6840	4.8577	0.5863
1370	6845	4.857	0.5856
1371	6850	4.8557	0.5843
1372	6855	4.8564	0.585
1373	6860	4.8646	0.5932
1374	6865	5.5391	1.2677
1375	6870	4.921	0.6496
1376	6875	4.8865	0.6151
1377	6880	4.8823	0.6109
1378	6885	4.8813	0.6099
1379	6890	4.8839	0.6125
1380	6895	4.8921	0.6207

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	4.8938	0.6224
1382	6905	4.9006	0.6292
1383	6910	4.9036	0.6322
1384	6915	4.9023	0.6309
1385	6920	4.9072	0.6358
1386	6925	4.9082	0.6368
1387	6930	4.9108	0.6394
1388	6935	4.9184	0.647
1389	6940	4.92	0.6486
1390	6945	4.9197	0.6483
1391	6950	4.9213	0.6499
1392	6955	4.9256	0.6542
1393	6960	4.9377	0.6663
1394	6965	4.9426	0.6712
1395	6970	4.94	0.6686
1396	6975	4.94	0.6686
1397	6980	4.9407	0.6693
1398	6985	5.0286	0.7572
1399	6990	5.8088	1.5374
1400	6995	6.7261	2.4547
1401	7000	5.3114	1.04
1402	7005	5.0414	0.77
1403	7010	5.0073	0.7359
1404	7015	4.9892	0.7178
1405	7020	4.9837	0.7123
1406	7025	4.9827	0.7113
1407	7030	4.9827	0.7113
1408	7035	4.982	0.7106
1409	7040	4.9817	0.7103
1410	7045	4.9827	0.7113
1411	7050	4.986	0.7146
1412	7055	4.9807	0.7093
1413	7060	4.9869	0.7155
1414	7065	4.9882	0.7168
1415	7070	4.9909	0.7195
1416	7075	4.9919	0.7205
1417	7080	4.9935	0.7221
1418	7085	4.9958	0.7244
1419	7090	4.9964	0.725
1420	7095	5.8655	1.5941
1421	7100	6.0722	1.8008
1422	7105	5.4351	1.1637
1423	7110	5.089	0.8176
1424	7115	5.0496	0.7782
1425	7120	5.0355	0.7641
1426	7125	5.0329	0.7615
1427	7130	5.0207	0.7493
1428	7135	5.0201	0.7487
1429	7140	5.0201	0.7487
1430	7145	5.0289	0.7575
1431	7150	5.0279	0.7565
1432	7155	5.0263	0.7549
1433	7160	5.0224	0.751
1434	7165	5.0201	0.7487
1435	7170	5.0247	0.7533
1436	7175	5.0233	0.7519
1437	7180	5.0214	0.75
1438	7185	5.0204	0.749
1439	7190	5.022	0.7506
1440	7195	5.0253	0.7539
1441	7200	5.0263	0.7549
1442	7205	5.0273	0.7559
1443	7210	5.0329	0.7615

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	5.0388	0.7674
1445	7220	5.0361	0.7647
1446	7225	5.0414	0.77
1447	7230	5.045	0.7736
1448	7235	5.0407	0.7693
1449	7240	5.0335	0.7621
1450	7245	5.6903	1.4189
1451	7250	5.2327	0.9613
1452	7255	5.0883	0.8169
1453	7260	5.0604	0.789
1454	7265	5.0466	0.7752
1455	7270	5.046	0.7746
1456	7275	5.0411	0.7697
1457	7280	5.0381	0.7667
1458	7285	5.0361	0.7647
1459	7290	5.0381	0.7667
1460	7295	5.0345	0.7631
1461	7300	5.0398	0.7684
1462	7305	5.0391	0.7677
1463	7310	5.0447	0.7733
1464	7315	5.0427	0.7713
1465	7320	5.042	0.7706
1466	7325	5.0391	0.7677
1467	7330	5.0417	0.7703
1468	7335	5.0434	0.772
1469	7340	5.0411	0.7697
1470	7345	5.0411	0.7697
1471	7350	5.048	0.7766
1472	7355	5.048	0.7766
1473	7360	5.5906	1.3192
1474	7365	5.0821	0.8107
1475	7370	5.0604	0.789
1476	7375	5.0529	0.7815
1477	7380	5.0457	0.7743
1478	7385	5.0486	0.7772
1479	7390	5.044	0.7726
1480	7395	5.048	0.7766
1481	7400	5.048	0.7766
1482	7405	5.0542	0.7828
1483	7410	5.0578	0.7864
1484	7415	5.065	0.7936
1485	7420	5.063	0.7916
1486	7425	5.0706	0.7992
1487	7430	5.0729	0.8015
1488	7435	5.0699	0.7985
1489	7440	5.0686	0.7972
1490	7445	5.0693	0.7979
1491	7450	5.0768	0.8054
1492	7455	5.0729	0.8015
1493	7460	5.0706	0.7992
1494	7465	5.069	0.7976
1495	7470	5.064	0.7926
1496	7475	5.0683	0.7969
1497	7480	5.0673	0.7959
1498	7485	5.0673	0.7959
1499	7490	5.0676	0.7962
1500	7495	5.0673	0.7959
1501	7500	5.0768	0.8054
1502	7505	5.0752	0.8038
1503	7510	5.0778	0.8064
1504	7515	5.0758	0.8044
1505	7520	5.0867	0.8153
1506	7525	5.0847	0.8133

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
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	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	5.0854	0.814
1508	7535	5.0857	0.8143
1509	7540	5.0886	0.8172
1510	7545	5.0903	0.8189
1511	7550	5.0932	0.8218
1512	7555	5.0965	0.8251
1513	7560	5.9456	1.6742
1514	7565	5.7238	1.4524
1515	7570	5.3491	1.0777
1516	7575	5.2127	0.9413
1517	7580	5.1539	0.8825
1518	7585	5.1385	0.8671
1519	7590	5.1316	0.8602
1520	7595	5.8665	1.5951
1521	7600	5.4325	1.1611
1522	7605	5.1976	0.9262
1523	7610	5.167	0.8956
1524	7615	5.3337	1.0623
1525	7620	5.1989	0.9275
1526	7625	5.1792	0.9078
1527	7630	5.167	0.8956
1528	7635	5.1602	0.8888
1529	7640	5.1575	0.8861
1530	7645	5.1589	0.8875
1531	7650	5.1651	0.8937
1532	7655	5.1628	0.8914
1533	7660	5.3065	1.0351
1534	7665	5.1844	0.913
1535	7670	5.1733	0.9019
1536	7675	5.1723	0.9009
1537	7680	5.1707	0.8993
1538	7685	5.3413	1.0699
1539	7690	5.2041	0.9327
1540	7695	5.1887	0.9173
1541	7700	5.1838	0.9124
1542	7705	5.1815	0.9101
1543	7710	5.1838	0.9124
1544	7715	5.1825	0.9111
1545	7720	5.1861	0.9147
1546	7725	5.1884	0.917
1547	7730	5.1907	0.9193
1548	7735	5.191	0.9196
1549	7740	5.1917	0.9203
1550	7745	5.1959	0.9245
1551	7750	5.1972	0.9258
1552	7755	5.2008	0.9294
1553	7760	5.2018	0.9304
1554	7765	5.2025	0.9311
1555	7770	5.2051	0.9337
1556	7775	5.2189	0.9475
1557	7780	5.2169	0.9455
1558	7785	5.2179	0.9465
1559	7790	5.2176	0.9462
1560	7795	5.2169	0.9455
1561	7800	5.4138	1.1424
1562	7805	5.2435	0.9721
1563	7810	5.232	0.9606
1564	7815	5.2281	0.9567
1565	7820	5.2314	0.96
1566	7825	5.234	0.9626
1567	7830	5.8396	1.5682
1568	7835	5.296	1.0246
1569	7840	8.8541	4.5827

Friesen Drillers Ltd. **307 PTH 12 N** **Steinbach, MB R5G 1T8**	**Pumping Test - Water Level Data** Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	5.5503	1.2789
1571	7850	5.3649	1.0935
1572	7855	5.3157	1.0443
1573	7860	5.2894	1.018
1574	7865	5.4413	1.1699
1575	7870	5.4446	1.1732
1576	7875	5.4403	1.1689
1577	7880	5.6589	1.3875
1578	7885	5.3098	1.0384
1579	7890	5.2809	1.0095
1580	7895	5.2714	1.00
1581	7900	5.2678	0.9964
1582	7905	5.2632	0.9918
1583	7910	5.2576	0.9862
1584	7915	5.2579	0.9865
1585	7920	5.7806	1.5092
1586	7925	5.3455	1.0741
1587	7930	5.2927	1.0213
1588	7935	5.2743	1.0029
1589	7940	5.2678	0.9964
1590	7945	5.2602	0.9888
1591	7950	5.2576	0.9862
1592	7955	5.2514	0.98
1593	7960	5.2481	0.9767
1594	7965	5.2461	0.9747
1595	7970	5.2445	0.9731
1596	7975	5.2419	0.9705
1597	7980	5.2356	0.9642
1598	7985	5.2353	0.9639
1599	7990	5.232	0.9606
1600	7995	5.2307	0.9593
1601	8000	5.2255	0.9541
1602	8005	5.232	0.9606
1603	8010	5.2304	0.959
1604	8015	5.2294	0.958
1605	8020	5.2222	0.9508
1606	8025	5.2199	0.9485
1607	8030	5.2163	0.9449
1608	8035	5.2166	0.9452
1609	8040	6.1323	1.8609
1610	8045	5.5834	1.312
1611	8050	5.2589	0.9875
1612	8055	5.231	0.9596
1613	8060	5.2225	0.9511
1614	8065	5.2169	0.9455
1615	8070	5.2136	0.9422
1616	8075	5.2022	0.9308
1617	8080	5.2012	0.9298
1618	8085	5.2028	0.9314
1619	8090	5.2232	0.9518
1620	8095	5.8403	1.5689
1621	8100	5.2579	0.9865
1622	8105	5.2258	0.9544
1623	8110	5.2189	0.9475
1624	8115	5.2127	0.9413
1625	8120	5.2074	0.936
1626	8125	5.212	0.9406
1627	8130	5.2018	0.9304
1628	8135	5.2018	0.9304
1629	8140	5.1887	0.9173
1630	8145	5.1772	0.9058
1631	8150	5.1795	0.9081
1632	8155	5.1723	0.9009

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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	5.1618	0.8904
1634	8165	5.1687	0.8973
1635	8170	5.1667	0.8953
1636	8175	5.1753	0.9039
1637	8180	5.1726	0.9012
1638	8185	5.1726	0.9012
1639	8190	5.1782	0.9068
1640	8195	5.168	0.8966
1641	8200	5.1808	0.9094
1642	8205	5.1733	0.9019
1643	8210	5.1625	0.8911
1644	8215	5.8288	1.5574
1645	8220	5.2602	0.9888
1646	8225	5.1943	0.9229
1647	8230	5.4889	1.2175
1648	8235	5.1913	0.9199
1649	8240	5.1716	0.9002
1650	8245	5.1592	0.8878
1651	8250	5.1674	0.896
1652	8255	5.1661	0.8947
1653	8260	5.1657	0.8943
1654	8265	5.1661	0.8947
1655	8270	5.1687	0.8973
1656	8275	6.1992	1.9278
1657	8280	5.649	1.3776
1658	8285	5.2701	0.9987
1659	8290	5.2911	1.0197
1660	8295	5.2209	0.9495
1661	8300	5.2146	0.9432
1662	8305	5.2097	0.9383
1663	8310	5.2022	0.9308
1664	8315	5.1798	0.9084
1665	8320	5.1739	0.9025
1666	8325	5.1802	0.9088
1667	8330	5.1736	0.9022
1668	8335	5.1858	0.9144
1669	8340	5.1858	0.9144
1670	8345	5.6477	1.3763
1671	8350	5.2527	0.9813
1672	8355	5.2268	0.9554
1673	8360	5.2284	0.957
1674	8365	5.3603	1.0889
1675	8370	7.2218	2.9504
1676	8375	5.376	1.1046
1677	8380	5.2704	0.999
1678	8385	5.2478	0.9764
1679	8390	5.463	1.1916
1680	8395	6.0178	1.7464
1681	8400	5.3042	1.0328
1682	8405	5.256	0.9846
1683	8410	5.2392	0.9678
1684	8415	5.233	0.9616
1685	8420	5.2379	0.9665
1686	8425	5.2432	0.9718
1687	8430	5.2382	0.9668
1688	8435	5.4003	1.1289
1689	8440	5.2619	0.9905
1690	8445	5.2419	0.9705
1691	8450	5.2346	0.9632
1692	8455	5.2399	0.9685
1693	8460	5.2405	0.9691
1694	8465	5.9177	1.6463
1695	8470	5.8078	1.5364

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	5.4354	1.164
1697	8480	5.3022	1.0308
1698	8485	5.2766	1.0052
1699	8490	5.2661	0.9947
1700	8495	5.2632	0.9918
1701	8500	5.6654	1.394
1702	8505	5.3108	1.0394
1703	8510	5.2766	1.0052
1704	8515	6.0342	1.7628
1705	8520	5.3445	1.0731
1706	8525	5.2904	1.019
1707	8530	5.274	1.0026
1708	8535	5.2648	0.9934
1709	8540	6.4928	2.2214
1710	8545	5.4554	1.184
1711	8550	5.3068	1.0354
1712	8555	5.2812	1.0098
1713	8560	5.9886	1.7172
1714	8565	5.8974	1.626
1715	8570	5.3977	1.1263
1716	8575	5.9371	1.6657
1717	8580	5.3445	1.0731
1718	8585	5.294	1.0226
1719	8590	5.2786	1.0072
1720	8595	5.2681	0.9967
1721	8600	5.9049	1.6335
1722	8605	5.3482	1.0768
1723	8610	5.3938	1.1224
1724	8615	5.5361	1.2647
1725	8620	5.3646	1.0932
1726	8625	5.2927	1.0213
1727	8630	5.275	1.0036
1728	8635	6.129	1.8576
1729	8640	5.3196	1.0482
1730	8645	5.2737	1.0023
1731	8650	6.2717	2.0003
1732	8655	5.3203	1.0489
1733	8660	5.2733	1.0019
1734	8665	5.2606	0.9892
1735	8670	5.2537	0.9823
1736	8675	5.2491	0.9777
1737	8680	5.2451	0.9737
1738	8685	5.2402	0.9688
1739	8690	5.2809	1.0095
1740	8695	5.2451	0.9737
1741	8700	5.2353	0.9639
1742	8705	5.2317	0.9603
1743	8710	5.2277	0.9563
1744	8715	5.2291	0.9577
1745	8720	5.2232	0.9518
1746	8725	5.2218	0.9504
1747	8730	5.2172	0.9458
1748	8735	5.215	0.9436
1749	8740	5.213	0.9416
1750	8745	5.2094	0.938
1751	8750	5.2064	0.935
1752	8755	5.3327	1.0613
1753	8760	5.2291	0.9577
1754	8765	5.2127	0.9413
1755	8770	5.2087	0.9373
1756	8775	5.2038	0.9324
1757	8780	5.2018	0.9304
1758	8785	5.1985	0.9271

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	5.1976	0.9262
1760	8795	5.1949	0.9235
1761	8800	5.1969	0.9255
1762	8805	5.1985	0.9271
1763	8810	5.1953	0.9239
1764	8815	5.1913	0.9199
1765	8820	6.0653	1.7939
1766	8825	5.2386	0.9672
1767	8830	5.2015	0.9301
1768	8835	5.1907	0.9193
1769	8840	5.1877	0.9163
1770	8845	5.1835	0.9121
1771	8850	5.1812	0.9098
1772	8855	5.7711	1.4997
1773	8860	5.2245	0.9531
1774	8865	5.194	0.9226
1775	8870	5.1838	0.9124
1776	8875	5.1805	0.9091
1777	8880	5.1776	0.9062
1778	8885	5.1756	0.9042
1779	8890	5.1739	0.9025
1780	8895	5.1733	0.9019
1781	8900	5.1733	0.9019
1782	8905	5.7363	1.4649
1783	8910	5.2045	0.9331
1784	8915	5.5427	1.2713
1785	8920	5.2251	0.9537
1786	8925	5.194	0.9226
1787	8930	5.1828	0.9114
1788	8935	5.1835	0.9121
1789	8940	5.1792	0.9078
1790	8945	5.1762	0.9048
1791	8950	5.1733	0.9019
1792	8955	5.1749	0.9035
1793	8960	5.3465	1.0751
1794	8965	5.2943	1.0229
1795	8970	6.2094	1.938
1796	8975	5.4236	1.1522
1797	8980	5.2435	0.9721
1798	8985	5.2927	1.0213
1799	8990	5.2228	0.9514
1800	8995	5.3445	1.0731
1801	9000	5.2261	0.9547
1802	9005	5.2094	0.938
1803	9010	5.2018	0.9304
1804	9015	5.1969	0.9255
1805	9020	5.6444	1.373
1806	9025	5.4092	1.1378
1807	9030	5.3524	1.081
1808	9035	5.2497	0.9783
1809	9040	5.7743	1.5029
1810	9045	5.7924	1.521
1811	9050	5.4466	1.1752
1812	9055	5.2957	1.0243
1813	9060	5.2609	0.9895
1814	9065	5.2494	0.978
1815	9070	5.2451	0.9737
1816	9075	5.2369	0.9655
1817	9080	5.2297	0.9583
1818	9085	5.2343	0.9629
1819	9090	5.234	0.9626
1820	9095	5.2359	0.9645
1821	9100	5.231	0.9596

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Pumping Test - Water Level Data

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	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	5.2264	0.955
1823	9110	5.2238	0.9524
1824	9115	5.2218	0.9504
1825	9120	5.2215	0.9501
1826	9125	5.2209	0.9495
1827	9130	5.2277	0.9563
1828	9135	5.2432	0.9718
1829	9140	5.2494	0.978
1830	9145	5.2491	0.9777
1831	9150	5.2507	0.9793
1832	9155	5.2497	0.9783
1833	9160	5.2547	0.9833
1834	9165	5.2638	0.9924
1835	9170	5.7688	1.4974
1836	9175	5.355	1.0836
1837	9180	5.3288	1.0574
1838	9185	5.3025	1.0311
1839	9190	5.2904	1.019
1840	9195	5.2809	1.0095
1841	9200	5.2733	1.0019
1842	9205	5.2691	0.9977
1843	9210	5.2658	0.9944
1844	9215	5.2635	0.9921
1845	9220	5.2612	0.9898
1846	9225	5.2609	0.9895
1847	9230	5.2592	0.9878
1848	9235	5.2606	0.9892
1849	9240	5.2583	0.9869
1850	9245	5.2596	0.9882
1851	9250	5.2602	0.9888
1852	9255	5.2596	0.9882
1853	9260	5.2599	0.9885
1854	9265	5.2592	0.9878
1855	9270	5.2586	0.9872
1856	9275	5.2592	0.9878
1857	9280	5.2576	0.9862
1858	9285	5.2576	0.9862
1859	9290	5.2589	0.9875
1860	9295	5.2599	0.9885
1861	9300	5.2602	0.9888
1862	9305	5.2602	0.9888
1863	9310	5.2606	0.9892
1864	9315	5.2596	0.9882
1865	9320	5.2602	0.9888
1866	9325	5.2576	0.9862
1867	9330	5.2583	0.9869
1868	9335	5.2566	0.9852
1869	9340	5.2556	0.9842
1870	9345	5.2533	0.9819
1871	9350	5.2537	0.9823
1872	9355	5.2537	0.9823
1873	9360	5.2527	0.9813
1874	9365	5.4312	1.1598
1875	9370	5.2842	1.0128
1876	9375	5.2655	0.9941
1877	9380	5.2569	0.9855
1878	9385	5.4141	1.1427
1879	9390	5.2783	1.0069
1880	9395	5.2596	0.9882
1881	9400	5.253	0.9816
1882	9405	5.2478	0.9764
1883	9410	5.2425	0.9711
1884	9415	5.2369	0.9655

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	5.2337	0.9623
1886	9425	5.2343	0.9629
1887	9430	5.2281	0.9567
1888	9435	5.2245	0.9531
1889	9440	5.522	1.2506
1890	9445	5.2697	0.9983
1891	9450	5.2392	0.9678
1892	9455	5.2297	0.9583
1893	9460	5.2222	0.9508
1894	9465	5.2179	0.9465
1895	9470	5.2143	0.9429
1896	9475	5.211	0.9396
1897	9480	5.2081	0.9367
1898	9485	5.2071	0.9357
1899	9490	5.2031	0.9317
1900	9495	5.1999	0.9285
1901	9500	5.1976	0.9262
1902	9505	5.193	0.9216
1903	9510	5.19	0.9186
1904	9515	5.1851	0.9137
1905	9520	5.1821	0.9107
1906	9525	5.1776	0.9062
1907	9530	5.1739	0.9025
1908	9535	5.1716	0.9002
1909	9540	5.1661	0.8947
1910	9545	5.1634	0.892
1911	9550	5.1589	0.8875
1912	9555	5.1543	0.8829
1913	9560	5.152	0.8806
1914	9565	5.1506	0.8792
1915	9570	5.1477	0.8763
1916	9575	5.1444	0.873
1917	9580	5.1401	0.8687
1918	9585	5.1379	0.8665
1919	9590	5.1333	0.8619
1920	9595	5.129	0.8576
1921	9600	5.1237	0.8523
1922	9605	6.8242	2.5528
1923	9610	5.2172	0.9458
1924	9615	5.1562	0.8848
1925	9620	5.1408	0.8694
1926	9625	5.1293	0.8579
1927	9630	5.1234	0.852
1928	9635	5.1205	0.8491
1929	9640	5.1152	0.8438
1930	9645	5.1106	0.8392
1931	9650	5.1064	0.835
1932	9655	5.1044	0.833
1933	9660	5.399	1.1276
1934	9665	5.3078	1.0364
1935	9670	5.1424	0.871
1936	9675	5.1198	0.8484
1937	9680	5.1106	0.8392
1938	9685	5.1044	0.833
1939	9690	5.1031	0.8317
1940	9695	5.1001	0.8287
1941	9700	5.1067	0.8353
1942	9705	5.1044	0.833
1943	9710	5.0985	0.8271
1944	9715	5.1031	0.8317
1945	9720	5.1004	0.829
1946	9725	5.0959	0.8245
1947	9730	5.0929	0.8215

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	5.0998	0.8284
1949	9740	5.0965	0.8251
1950	9745	5.0939	0.8225
1951	9750	5.0959	0.8245
1952	9755	5.3501	1.0787
1953	9760	5.1273	0.8559
1954	9765	5.1073	0.8359
1955	9770	5.1001	0.8287
1956	9775	5.0972	0.8258
1957	9780	5.0936	0.8222
1958	9785	5.0916	0.8202
1959	9790	5.0893	0.8179
1960	9795	5.0893	0.8179
1961	9800	5.0909	0.8195
1962	9805	5.0906	0.8192
1963	9810	5.0903	0.8189
1964	9815	5.3691	1.0977
1965	9820	9.6539	5.3825
1966	9825	6.7363	2.4649
1967	9830	5.4262	1.1548
1968	9835	5.2648	0.9934
1969	9840	5.2064	0.935
1970	9845	5.1795	0.9081
1971	9850	5.1602	0.8888
1972	9855	5.1497	0.8783
1973	9860	5.1434	0.872
1974	9865	5.1375	0.8661
1975	9870	5.1306	0.8592
1976	9875	5.1293	0.8579
1977	9880	5.1287	0.8573
1978	9885	5.1273	0.8559
1979	9890	5.1264	0.855
1980	9895	5.1264	0.855
1981	9900	5.1254	0.854
1982	9905	5.126	0.8546
1983	9910	5.128	0.8566
1984	9915	5.1293	0.8579
1985	9920	5.1293	0.8579
1986	9925	5.1296	0.8582
1987	9930	5.129	0.8576
1988	9935	5.126	0.8546
1989	9940	5.1273	0.8559
1990	9945	5.1296	0.8582
1991	9950	5.131	0.8596
1992	9955	5.1326	0.8612
1993	9960	5.1326	0.8612
1994	9965	5.1339	0.8625
1995	9970	5.1326	0.8612
1996	9975	5.1346	0.8632
1997	9980	5.1346	0.8632
1998	9985	5.1342	0.8628
1999	9990	5.1375	0.8661
2000	9995	5.1379	0.8665
2001	10000	5.1464	0.875
2002	10005	5.1454	0.874
2003	10010	5.1444	0.873
2004	10015	5.1447	0.8733
2005	10020	5.1454	0.874
2006	10025	5.1451	0.8737
2007	10030	5.1444	0.873
2008	10035	5.1441	0.8727
2009	10040	5.1461	0.8747
2010	10045	5.1444	0.873

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	Project: OBS-853
	Number: 2014-078-11472
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	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	5.1457	0.8743
2012	10055	5.1438	0.8724
2013	10060	5.1454	0.874
2014	10065	5.2405	0.9691
2015	10070	5.1654	0.894
2016	10075	5.1523	0.8809
2017	10080	5.1464	0.875
2018	10085	5.1434	0.872
2019	10090	5.1411	0.8697
2020	10095	5.1388	0.8674
2021	10100	5.1379	0.8665
2022	10105	5.1392	0.8678
2023	10110	5.2041	0.9327
2024	10115	5.148	0.8766
2025	10120	5.1411	0.8697
2026	10125	5.1369	0.8655
2027	10130	5.1323	0.8609
2028	10135	5.1333	0.8619
2029	10140	5.1303	0.8589
2030	10145	5.1264	0.855
2031	10150	5.1218	0.8504
2032	10155	5.1182	0.8468
2033	10160	5.1185	0.8471
2034	10165	5.1175	0.8461
2035	10170	5.1146	0.8432
2036	10175	5.1103	0.8389
2037	10180	5.1093	0.8379
2038	10185	5.1073	0.8359
2039	10190	5.11	0.8386
2040	10195	5.1021	0.8307
2041	10200	5.1011	0.8297
2042	10205	5.0991	0.8277
2043	10210	5.0975	0.8261
2044	10215	5.0942	0.8228
2045	10220	5.214	0.9426
2046	10225	5.1165	0.8451
2047	10230	5.0988	0.8274
2048	10235	5.0916	0.8202
2049	10240	5.0867	0.8153
2050	10245	5.0808	0.8094
2051	10250	5.0788	0.8074
2052	10255	5.0729	0.8015
2053	10260	5.5634	1.292
2054	10265	5.1149	0.8435
2055	10270	5.0991	0.8277
2056	10275	5.0844	0.813
2057	10280	5.0758	0.8044
2058	10285	5.0686	0.7972
2059	10290	5.064	0.7926
2060	10295	5.4695	1.1981
2061	10300	5.1001	0.8287
2062	10305	5.069	0.7976
2063	10310	5.0575	0.7861
2064	10315	5.3829	1.1115
2065	10320	5.1067	0.8353
2066	10325	5.0686	0.7972
2067	10330	5.0719	0.8005
2068	10335	5.068	0.7966
2069	10340	5.063	0.7916
2070	10345	5.0532	0.7818
2071	10350	5.0434	0.772
2072	10355	5.0401	0.7687
2073	10360	5.1172	0.8458

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	5.0732	0.8018
2075	10370	5.0627	0.7913
2076	10375	5.0552	0.7838
2077	10380	5.0473	0.7759
2078	10385	5.0358	0.7644
2079	10390	5.0299	0.7585
2080	10395	5.9105	1.6391
2081	10400	5.8918	1.6204
2082	10405	6.3619	2.0905
2083	10410	6.047	1.7756
2084	10415	5.2271	0.9557
2085	10420	5.1027	0.8313
2086	10425	5.067	0.7956
2087	10430	5.0571	0.7857
2088	10435	5.0447	0.7733
2089	10440	5.045	0.7736
2090	10445	5.0345	0.7631
2091	10450	5.026	0.7546
2092	10455	5.022	0.7506
2093	10460	5.0174	0.746
2094	10465	5.0207	0.7493
2095	10470	5.0243	0.7529
2096	10475	5.0217	0.7503
2097	10480	5.0148	0.7434
2098	10485	5.0102	0.7388
2099	10490	5.0073	0.7359
2100	10495	5.0043	0.7329
2101	10500	5.0014	0.73
2102	10505	5.0053	0.7339
2103	10510	5.465	1.1936
2104	10515	6.0683	1.7969
2105	10520	5.106	0.8346
2106	10525	5.0883	0.8169
2107	10530	5.0352	0.7638
2108	10535	5.0211	0.7497
2109	10540	5.0122	0.7408
2110	10545	5.0161	0.7447
2111	10550	5.7235	1.4521
2112	10555	5.0624	0.791
2113	10560	5.0768	0.8054
2114	10565	5.025	0.7536
2115	10570	5.0119	0.7405
2116	10575	5.0148	0.7434
2117	10580	5.0227	0.7513
2118	10585	5.0142	0.7428
2119	10590	5.0076	0.7362
2120	10595	5.6864	1.415
2121	10600	5.2442	0.9728
2122	10605	5.127	0.8556
2123	10610	5.6575	1.3861
2124	10615	5.0781	0.8067
2125	10620	5.0365	0.7651
2126	10625	9.6618	5.3904
2127	10630	5.6917	1.4203
2128	10635	5.5968	1.3254
2129	10640	5.1825	0.9111
2130	10645	5.1172	0.8458
2131	10650	5.0873	0.8159
2132	10655	5.0676	0.7962
2133	10660	5.0558	0.7844
2134	10665	5.047	0.7756
2135	10670	5.6858	1.4144
2136	10675	5.1513	0.8799

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	5.065	0.7936
2138	10685	5.0447	0.7733
2139	10690	5.0335	0.7621
2140	10695	5.0227	0.7513
2141	10700	5.0106	0.7392
2142	10705	5.0073	0.7359
2143	10710	5.0037	0.7323
2144	10715	5.0014	0.73
2145	10720	4.9984	0.727
2146	10725	4.9951	0.7237
2147	10730	4.9932	0.7218
2148	10735	4.9879	0.7165
2149	10740	4.9863	0.7149
2150	10745	4.982	0.7106
2151	10750	4.9814	0.71
2152	10755	4.9791	0.7077
2153	10760	4.9748	0.7034
2154	10765	4.9732	0.7018
2155	10770	4.9702	0.6988
2156	10775	4.9676	0.6962
2157	10780	4.9653	0.6939
2158	10785	4.9607	0.6893
2159	10790	5.1346	0.8632
2160	10795	4.9928	0.7214
2161	10800	4.9709	0.6995
2162	10805	4.9623	0.6909
2163	10810	4.9567	0.6853
2164	10815	4.9505	0.6791
2165	10820	4.9453	0.6739
2166	10825	4.9403	0.6689
2167	10830	6.1008	1.8294
2168	10835	7.588	3.3166
2169	10840	8.2058	3.9344
2170	10845	6.004	1.7326
2171	10850	5.2215	0.9501
2172	10855	5.8003	1.5289
2173	10860	5.0719	0.8005
2174	10865	5.0178	0.7464
2175	10870	5.2507	0.9793
2176	10875	5.0683	0.7969
2177	10880	4.9968	0.7254
2178	10885	5.0263	0.7549
2179	10890	4.9682	0.6968
2180	10895	5.0256	0.7542
2181	10900	4.9535	0.6821
2182	10905	5.0394	0.768
2183	10910	4.9433	0.6719
2184	10915	5.0601	0.7887
2185	10920	6.9692	2.6978
2186	10925	6.0151	1.7437
2187	10930	5.5365	1.2651
2188	10935	5.1621	0.8907
2189	10940	5.0063	0.7349
2190	10945	4.9633	0.6919
2191	10950	4.938	0.6666
2192	10955	4.92	0.6486
2193	10960	4.9069	0.6355
2194	10965	4.8961	0.6247
2195	10970	4.8888	0.6174
2196	10975	4.8803	0.6089
2197	10980	4.8728	0.6014
2198	10985	4.8655	0.5941
2199	10990	4.858	0.5866

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	4.8501	0.5787
2201	11000	4.8455	0.5741
2202	11005	5.0867	0.8153
2203	11010	4.8737	0.6023
2204	11015	4.8429	0.5715
2205	11020	4.8301	0.5587
2206	11025	4.8213	0.5499
2207	11030	4.8153	0.5439
2208	11035	4.8081	0.5367
2209	11040	4.8039	0.5325
2210	11045	4.7986	0.5272
2211	11050	4.792	0.5206
2212	11055	4.7996	0.5282
2213	11060	4.7901	0.5187
2214	11065	4.7809	0.5095
2215	11070	4.7763	0.5049
2216	11075	4.7714	0.50
2217	11080	4.7661	0.4947
2218	11085	4.7609	0.4895
2219	11090	6.0955	1.8241
2220	11095	4.8669	0.5955
2221	11100	4.8393	0.5679
2222	11105	4.7816	0.5102
2223	11110	4.7638	0.4924
2224	11115	4.752	0.4806
2225	11120	4.7428	0.4714
2226	11125	4.7369	0.4655
2227	11130	4.7323	0.4609
2228	11135	4.7281	0.4567
2229	11140	4.7274	0.456
2230	11145	4.7382	0.4668
2231	11150	4.7379	0.4665
2232	11155	4.7356	0.4642
2233	11160	4.735	0.4636
2234	11165	4.7248	0.4534
2235	11170	4.7258	0.4544
2236	11175	4.7156	0.4442
2237	11180	4.7074	0.436
2238	11185	4.7054	0.434
2239	11190	4.7005	0.4291
2240	11195	4.7031	0.4317
2241	11200	4.7012	0.4298
2242	11205	4.6966	0.4252
2243	11210	4.6907	0.4193
2244	11215	4.688	0.4166
2245	11220	4.6828	0.4114
2246	11225	5.3052	1.0338
2247	11230	4.7724	0.501
2248	11235	4.8025	0.5311
2249	11240	4.714	0.4426
2250	11245	4.6959	0.4245
2251	11250	4.6848	0.4134
2252	11255	4.6785	0.4071
2253	11260	4.6749	0.4035
2254	11265	4.671	0.3996
2255	11270	4.6707	0.3993
2256	11275	4.6707	0.3993
2257	11280	4.6687	0.3973
2258	11285	4.667	0.3956
2259	11290	4.6664	0.395
2260	11295	4.6634	0.392
2261	11300	4.6634	0.392
2262	11305	5.296	1.0246

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	4.7432	0.4718
2264	11315	4.6979	0.4265
2265	11320	4.6838	0.4124
2266	11325	4.9213	0.6499
2267	11330	4.709	0.4376
2268	11335	4.7848	0.5134
2269	11340	4.6962	0.4248
2270	11345	4.6818	0.4104
2271	11350	4.6772	0.4058
2272	11355	4.6733	0.4019
2273	11360	4.6713	0.3999
2274	11365	4.671	0.3996
2275	11370	4.6693	0.3979
2276	11375	4.668	0.3966
2277	11380	5.7097	1.4383
2278	11385	4.7875	0.5161
2279	11390	4.8196	0.5482
2280	11395	4.7077	0.4363
2281	11400	4.7314	0.46
2282	11405	4.6936	0.4222
2283	11410	4.6828	0.4114
2284	11415	4.8288	0.5574
2285	11420	4.8537	0.5823
2286	11425	4.7051	0.4337
2287	11430	4.8751	0.6037
2288	11435	4.7094	0.438
2289	11440	4.6917	0.4203
2290	11445	4.6858	0.4144
2291	11450	4.6825	0.4111
2292	11455	4.6805	0.4091
2293	11460	4.6785	0.4071
2294	11465	4.6769	0.4055
2295	11470	4.6759	0.4045
2296	11475	4.6739	0.4025
2297	11480	4.6743	0.4029
2298	11485	4.672	0.4006
2299	11490	4.6713	0.3999
2300	11495	4.6697	0.3983
2301	11500	4.669	0.3976
2302	11505	4.6687	0.3973
2303	11510	6.1533	1.8819
2304	11515	6.1277	1.8563
2305	11520	5.6953	1.4239
2306	11525	5.9013	1.6299
2307	11530	4.8777	0.6063
2308	11535	4.7809	0.5095
2309	11540	4.7435	0.4721
2310	11545	4.8652	0.5938
2311	11550	4.734	0.4626
2312	11555	4.711	0.4396
2313	11560	4.7002	0.4288
2314	11565	4.693	0.4216
2315	11570	4.6897	0.4183
2316	11575	4.6831	0.4117
2317	11580	4.6825	0.4111
2318	11585	4.6776	0.4062
2319	11590	4.6739	0.4025
2320	11595	4.6713	0.3999
2321	11600	4.9758	0.7044
2322	11605	4.7225	0.4511
2323	11610	4.6903	0.4189
2324	11615	4.6848	0.4134
2325	11620	4.6769	0.4055

	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	4.669	0.3976
2327	11630	4.6667	0.3953
2328	11635	4.6618	0.3904
2329	11640	4.6582	0.3868
2330	11645	4.6549	0.3835
2331	11650	4.6523	0.3809
2332	11655	4.6529	0.3815
2333	11660	4.6503	0.3789
2334	11665	4.6457	0.3743
2335	11670	4.6428	0.3714
2336	11675	4.6395	0.3681
2337	11680	4.6352	0.3638
2338	11685	4.6333	0.3619
2339	11690	4.6388	0.3674
2340	11695	4.6339	0.3625
2341	11700	4.629	0.3576
2342	11705	4.6234	0.352
2343	11710	4.6218	0.3504
2344	11715	4.6175	0.3461
2345	11720	4.6155	0.3441
2346	11725	4.6126	0.3412
2347	11730	4.61	0.3386
2348	11735	4.6077	0.3363
2349	11740	4.6037	0.3323
2350	11745	4.606	0.3346
2351	11750	4.6057	0.3343
2352	11755	4.6064	0.335
2353	11760	4.6109	0.3395
2354	11765	4.6041	0.3327
2355	11770	4.5985	0.3271
2356	11775	4.6031	0.3317
2357	11780	4.6073	0.3359
2358	11785	4.6129	0.3415
2359	11790	4.606	0.3346
2360	11795	4.6096	0.3382
2361	11800	4.6142	0.3428
2362	11805	4.6136	0.3422
2363	11810	4.6109	0.3395
2364	11815	4.609	0.3376
2365	11820	4.6237	0.3523
2366	11825	4.6395	0.3681
2367	11830	4.6349	0.3635
2368	11835	4.6201	0.3487
2369	11840	4.6087	0.3373
2370	11845	4.5995	0.3281
2371	11850	4.5955	0.3241
2372	11855	4.5909	0.3195
2373	11860	4.586	0.3146
2374	11865	4.5817	0.3103
2375	11870	4.626	0.3546
2376	11875	4.5978	0.3264
2377	11880	4.5863	0.3149
2378	11885	4.6287	0.3573
2379	11890	4.7143	0.4429
2380	11895	4.6152	0.3438
2381	11900	4.5926	0.3212
2382	11905	4.5831	0.3117
2383	11910	4.5768	0.3054
2384	11915	4.5739	0.3025
2385	11920	4.5703	0.2989
2386	11925	4.5673	0.2959
2387	11930	4.5673	0.2959
2388	11935	4.5749	0.3035

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	4.5811	0.3097
2390	11945	4.588	0.3166
2391	11950	4.7048	0.4334
2392	11955	4.608	0.3366
2393	11960	4.5893	0.3179
2394	11965	4.5814	0.31
2395	11970	4.5755	0.3041
2396	11975	4.5713	0.2999
2397	11980	4.5693	0.2979
2398	11985	4.5667	0.2953
2399	11990	4.567	0.2956
2400	11995	4.5647	0.2933
2401	12000	5.815	1.5436
2402	12005	4.7038	0.4324
2403	12010	4.6014	0.33
2404	12015	4.5831	0.3117
2405	12020	4.5758	0.3044
2406	12025	4.5749	0.3035
2407	12030	4.5735	0.3021
2408	12035	4.9679	0.6965
2409	12040	4.8062	0.5348
2410	12045	4.6192	0.3478
2411	12050	4.5995	0.3281
2412	12055	4.94	0.6686
2413	12060	5.2596	0.9882
2414	12065	4.8055	0.5341
2415	12070	4.86	0.5886
2416	12075	4.647	0.3756
2417	12080	5.152	0.8806
2418	12085	4.6664	0.395
2419	12090	4.6257	0.3543
2420	12095	4.6126	0.3412
2421	12100	4.6057	0.3343
2422	12105	4.6004	0.329
2423	12110	4.5988	0.3274
2424	12115	4.5955	0.3241
2425	12120	4.5939	0.3225
2426	12125	4.5932	0.3218
2427	12130	4.5968	0.3254
2428	12135	4.5988	0.3274
2429	12140	4.5945	0.3231
2430	12145	4.5929	0.3215
2431	12150	4.5919	0.3205
2432	12155	4.5906	0.3192
2433	12160	4.589	0.3176
2434	12165	4.59	0.3186
2435	12170	4.5916	0.3202
2436	12175	4.5913	0.3199
2437	12180	4.5913	0.3199
2438	12185	4.5916	0.3202
2439	12190	4.5919	0.3205
2440	12195	4.5919	0.3205
2441	12200	4.5906	0.3192
2442	12205	4.5906	0.3192
2443	12210	4.5909	0.3195
2444	12215	4.59	0.3186
2445	12220	4.5906	0.3192
2446	12225	4.5896	0.3182
2447	12230	4.5896	0.3182
2448	12235	4.9607	0.6893
2449	12240	4.6401	0.3687
2450	12245	4.6109	0.3395
2451	12250	4.5995	0.3281

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	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	4.5959	0.3245
2453	12260	4.5936	0.3222
2454	12265	4.5909	0.3195
2455	12270	4.5893	0.3179
2456	12275	4.5873	0.3159
2457	12280	4.5873	0.3159
2458	12285	4.5854	0.314
2459	12290	4.5847	0.3133
2460	12295	4.5837	0.3123
2461	12300	4.5831	0.3117
2462	12305	4.5814	0.31
2463	12310	4.5772	0.3058
2464	12315	4.5755	0.3041
2465	12320	4.5739	0.3025
2466	12325	4.5732	0.3018
2467	12330	4.5709	0.2995
2468	12335	4.569	0.2976
2469	12340	4.5673	0.2959
2470	12345	4.5637	0.2923
2471	12350	4.5644	0.293
2472	12355	4.5611	0.2897
2473	12360	4.5581	0.2867
2474	12365	4.5565	0.2851
2475	12370	4.8009	0.5295
2476	12375	4.5847	0.3133
2477	12380	4.564	0.2926
2478	12385	4.6707	0.3993
2479	12390	4.5827	0.3113
2480	12395	4.5663	0.2949
2481	12400	4.5588	0.2874
2482	12405	4.5529	0.2815
2483	12410	4.548	0.2766
2484	12415	4.547	0.2756
2485	12420	4.5443	0.2729
2486	12425	4.5414	0.27
2487	12430	4.5384	0.267
2488	12435	4.5342	0.2628
2489	12440	4.5332	0.2618
2490	12445	4.5316	0.2602
2491	12450	4.5273	0.2559
2492	12455	4.525	0.2536
2493	12460	4.522	0.2506
2494	12465	4.5197	0.2483
2495	12470	4.5174	0.246
2496	12475	4.5148	0.2434
2497	12480	4.5109	0.2395
2498	12485	4.6342	0.3628
2499	12490	4.5381	0.2667
2500	12495	4.5256	0.2542
2501	12500	4.5155	0.2441
2502	12505	4.5092	0.2378
2503	12510	4.503	0.2316
2504	12515	4.4984	0.227
2505	12520	4.8078	0.5364
2506	12525	4.527	0.2556
2507	12530	4.9623	0.6909
2508	12535	4.5371	0.2657
2509	12540	4.5017	0.2303
2510	12545	4.4974	0.226
2511	12550	4.4938	0.2224
2512	12555	4.484	0.2126
2513	12560	4.4787	0.2073
2514	12565	4.4712	0.1998

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	4.4686	0.1972
2516	12575	4.465	0.1936
2517	12580	4.461	0.1896
2518	12585	4.4613	0.1899
2519	12590	4.4692	0.1978
2520	12595	4.463	0.1916
2521	12600	5.5161	1.2447
2522	12605	4.5171	0.2457
2523	12610	4.4732	0.2018
2524	12615	4.4682	0.1968
2525	12620	4.4597	0.1883
2526	12625	4.4554	0.184
2527	12630	4.4502	0.1788
2528	12635	4.4476	0.1762
2529	12640	4.4518	0.1804
2530	12645	4.4489	0.1775
2531	12650	4.4512	0.1798
2532	12655	4.4443	0.1729
2533	12660	4.442	0.1706
2534	12665	4.4403	0.1689
2535	12670	4.4364	0.165
2536	12675	4.4338	0.1624
2537	12680	4.4328	0.1614
2538	12685	4.545	0.2736
2539	12690	4.46	0.1886
2540	12695	4.6175	0.3461
2541	12700	4.4653	0.1939
2542	12705	4.4459	0.1745
2543	12710	4.438	0.1666
2544	12715	4.4348	0.1634
2545	12720	5.6618	1.3904
2546	12725	4.6579	0.3865
2547	12730	4.5243	0.2529
2548	12735	4.4633	0.1919
2549	12740	4.444	0.1726
2550	12745	4.4357	0.1643
2551	12750	4.4331	0.1617
2552	12755	4.4298	0.1584
2553	12760	4.4243	0.1529
2554	12765	4.4243	0.1529
2555	12770	4.4239	0.1525
2556	12775	4.4259	0.1545
2557	12780	4.4256	0.1542
2558	12785	4.4269	0.1555
2559	12790	4.4259	0.1545
2560	12795	4.4249	0.1535
2561	12800	4.4253	0.1539
2562	12805	4.4262	0.1548
2563	12810	4.4256	0.1542
2564	12815	4.4298	0.1584
2565	12820	4.4292	0.1578
2566	12825	4.4292	0.1578
2567	12830	4.4295	0.1581
2568	12835	4.4321	0.1607
2569	12840	4.4354	0.164
2570	12845	4.4348	0.1634
2571	12850	4.4374	0.166
2572	12855	4.4367	0.1653
2573	12860	4.4354	0.164
2574	12865	4.4367	0.1653
2575	12870	4.4387	0.1673
2576	12875	4.4397	0.1683
2577	12880	4.4394	0.168

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2578	12885	4.439	0.1676
2579	12890	4.4426	0.1712
2580	12895	4.4433	0.1719
2581	12900	4.4476	0.1762
2582	12905	4.4472	0.1758
2583	12910	4.4479	0.1765
2584	12915	4.4472	0.1758
2585	12920	4.4492	0.1778
2586	12925	4.4476	0.1762
2587	12930	4.4459	0.1745
2588	12935	4.4485	0.1771
2589	12940	4.4499	0.1785
2590	12945	4.4489	0.1775
2591	12950	4.4495	0.1781
2592	12955	4.4495	0.1781
2593	12960	4.4476	0.1762
2594	12965	4.4479	0.1765
2595	12970	4.4499	0.1785
2596	12975	4.4502	0.1788
2597	12980	4.4472	0.1758
2598	12985	4.4489	0.1775
2599	12990	4.4505	0.1791
2600	12995	4.4512	0.1798
2601	13000	4.4515	0.1801
2602	13005	4.4522	0.1808
2603	13010	4.4482	0.1768
2604	13015	4.4485	0.1771
2605	13020	4.4489	0.1775
2606	13025	4.4479	0.1765
2607	13030	4.50	0.2286

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-21	Static Water Level [ft]: 2.63	Radial Distance to PW [ft]: 7321

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	2.6313	0.00
2	10	2.6422	0.0109
3	20	2.6601	0.0288
4	30	2.6879	0.0566
5	40	2.7151	0.0838
6	50	2.7461	0.1148
7	60	2.7773	0.146
8	70	2.8018	0.1705
9	80	2.8331	0.2018
10	90	2.8615	0.2302
11	100	2.8953	0.264
12	110	2.9227	0.2914
13	120	2.9473	0.316
14	130	2.9758	0.3445
15	140	2.997	0.3657
16	150	3.0196	0.3883
17	160	3.0374	0.4061
18	170	3.0597	0.4284
19	180	3.0764	0.4451
20	190	3.1011	0.4698
21	200	3.1206	0.4893
22	210	3.1401	0.5088
23	220	3.158	0.5267
24	230	3.1756	0.5443
25	240	3.1985	0.5672
26	250	3.2109	0.5796
27	260	3.2281	0.5968
28	270	3.2457	0.6144
29	280	3.2609	0.6296
30	290	3.2749	0.6436
31	300	3.2944	0.6631
32	310	3.3107	0.6794
33	320	3.3197	0.6884
34	330	3.3345	0.7032
35	340	3.3442	0.7129
36	350	3.3598	0.7285
37	360	3.3755	0.7442
38	370	3.3864	0.7551
39	380	3.3966	0.7653
40	390	3.4097	0.7784
41	400	3.4205	0.7892
42	410	3.4288	0.7975
43	420	3.4383	0.807
44	430	3.4488	0.8175
45	440	3.4597	0.8284
46	450	3.4697	0.8384
47	460	3.4825	0.8512
48	470	3.4958	0.8645
49	480	3.5019	0.8706
50	490	3.5117	0.8804
51	500	3.5173	0.886
52	510	3.5266	0.8953
53	520	3.5344	0.9031
54	530	3.5444	0.9131
55	540	3.5574	0.9261
56	550	3.5617	0.9304
57	560	3.5722	0.9409

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	3.5778	0.9465
59	580	3.586	0.9547
60	590	3.5948	0.9635
61	600	3.6019	0.9706
62	610	3.6139	0.9826
63	620	3.6169	0.9856
64	630	3.6298	0.9985
65	640	3.6379	1.0066
66	650	3.6465	1.0152
67	660	3.6513	1.02
68	670	3.6611	1.0298
69	680	3.6674	1.0361
70	690	3.6757	1.0444
71	700	3.6856	1.0543
72	710	3.6897	1.0584
73	720	3.6978	1.0665
74	730	3.7055	1.0742
75	740	3.7104	1.0791
76	750	3.7184	1.0871
77	760	3.7229	1.0916
78	770	3.7281	1.0968
79	780	3.7323	1.101
80	790	3.7394	1.1081
81	800	3.7492	1.1179
82	810	3.7533	1.122
83	820	3.7611	1.1298
84	830	3.765	1.1337
85	840	3.7716	1.1403
86	850	3.7771	1.1458
87	860	3.7833	1.152
88	870	3.7933	1.162
89	880	3.7919	1.1606
90	890	3.7973	1.166
91	900	3.8014	1.1701
92	910	3.8081	1.1768
93	920	3.8097	1.1784
94	930	3.8163	1.185
95	940	3.8174	1.1861
96	950	3.8202	1.1889
97	960	3.8278	1.1965
98	970	3.8289	1.1976
99	980	3.8329	1.2016
100	990	3.8363	1.205
101	1000	3.8419	1.2106
102	1010	3.8632	1.2319
103	1020	3.8587	1.2274
104	1030	3.8487	1.2174
105	1040	3.851	1.2197
106	1050	3.8486	1.2173
107	1060	3.8577	1.2264
108	1070	3.8499	1.2186
109	1080	3.8534	1.2221
110	1090	3.8578	1.2265
111	1100	3.8516	1.2203
112	1110	3.8513	1.22
113	1120	3.8543	1.223
114	1130	3.8595	1.2282
115	1140	3.8581	1.2268
116	1150	3.8677	1.2364
117	1160	3.8669	1.2356
118	1170	3.8672	1.2359
119	1180	3.8717	1.2404
120	1190	3.8741	1.2428

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	3.8775	1.2462
122	1210	3.8782	1.2469
123	1220	3.8743	1.243
124	1230	3.871	1.2397
125	1240	3.8757	1.2444
126	1250	3.874	1.2427
127	1260	3.8851	1.2538
128	1270	3.878	1.2467
129	1280	3.8803	1.249
130	1290	3.882	1.2507
131	1300	3.881	1.2497
132	1310	3.8795	1.2482
133	1320	3.8891	1.2578
134	1330	3.8884	1.2571
135	1340	3.8911	1.2598
136	1350	3.8925	1.2612
137	1360	3.8963	1.265
138	1370	3.8957	1.2644
139	1380	3.8973	1.266
140	1390	3.899	1.2677
141	1400	3.9003	1.269
142	1410	3.8987	1.2674
143	1420	3.8998	1.2685
144	1430	3.8995	1.2682
145	1440	3.9022	1.2709
146	1450	3.9052	1.2739
147	1460	3.9031	1.2718
148	1470	3.9102	1.2789
149	1480	3.9138	1.2825
150	1490	3.9166	1.2853
151	1500	3.9215	1.2902
152	1510	3.9229	1.2916
153	1520	3.9265	1.2952
154	1530	3.9299	1.2986
155	1540	3.9379	1.3066
156	1550	3.9369	1.3056
157	1560	3.9404	1.3091
158	1570	3.9403	1.309
159	1580	3.9423	1.311
160	1590	3.9741	1.3428
161	1600	3.9671	1.3358
162	1610	3.9582	1.3269
163	1620	3.9587	1.3274
164	1630	3.9651	1.3338
165	1640	3.9641	1.3328
166	1650	3.9685	1.3372
167	1660	3.9699	1.3386
168	1670	3.9716	1.3403
169	1680	3.9734	1.3421
170	1690	3.9783	1.347
171	1700	3.9785	1.3472
172	1710	3.9771	1.3458
173	1720	3.9831	1.3518
174	1730	3.9834	1.3521
175	1740	3.9892	1.3579
176	1750	3.9949	1.3636
177	1760	3.9938	1.3625
178	1770	4.0022	1.3709
179	1780	3.9956	1.3643
180	1790	4.0024	1.3711
181	1800	4.004	1.3727
182	1810	4.0043	1.373
183	1820	4.0024	1.3711

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	4.0061	1.3748
185	1840	4.0096	1.3783
186	1850	4.0106	1.3793
187	1860	4.0109	1.3796
188	1870	4.0138	1.3825
189	1880	4.014	1.3827
190	1890	4.0143	1.383
191	1900	4.0145	1.3832
192	1910	4.0151	1.3838
193	1920	4.0156	1.3843
194	1930	4.0192	1.3879
195	1940	4.0198	1.3885
196	1950	4.0195	1.3882
197	1960	4.02	1.3887
198	1970	4.0243	1.393
199	1980	4.0246	1.3933
200	1990	4.0248	1.3935
201	2000	4.0267	1.3954
202	2010	4.0291	1.3978
203	2020	4.0302	1.3989
204	2030	4.0282	1.3969
205	2040	4.0317	1.4004
206	2050	4.0306	1.3993
207	2060	4.033	1.4017
208	2070	4.0368	1.4055
209	2080	4.036	1.4047
210	2090	4.0374	1.4061
211	2100	4.0399	1.4086
212	2110	4.0356	1.4043
213	2120	4.0402	1.4089
214	2130	4.0398	1.4085
215	2140	4.0423	1.411
216	2150	4.0411	1.4098
217	2160	4.0421	1.4108
218	2170	4.0422	1.4109
219	2180	4.0447	1.4134
220	2190	4.045	1.4137
221	2200	4.047	1.4157
222	2210	4.0515	1.4202
223	2220	4.0547	1.4234
224	2230	4.0556	1.4243
225	2240	4.0541	1.4228
226	2250	4.0562	1.4249
227	2260	4.0595	1.4282
228	2270	4.0624	1.4311
229	2280	4.0651	1.4338
230	2290	4.0662	1.4349
231	2300	4.0692	1.4379
232	2310	4.0714	1.4401
233	2320	4.0723	1.441
234	2330	4.0712	1.4399
235	2340	4.0741	1.4428
236	2350	4.0751	1.4438
237	2360	4.0792	1.4479
238	2370	4.0792	1.4479
239	2380	4.0791	1.4478
240	2390	4.0749	1.4436
241	2400	4.0792	1.4479
242	2410	4.0792	1.4479
243	2420	4.078	1.4467
244	2430	4.0818	1.4505
245	2440	4.0962	1.4649
246	2450	4.102	1.4707

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	4.095	1.4637
248	2470	4.0962	1.4649
249	2480	4.0915	1.4602
250	2490	4.0919	1.4606
251	2500	4.095	1.4637
252	2510	4.0989	1.4676
253	2520	4.0965	1.4652
254	2530	4.0998	1.4685
255	2540	4.1021	1.4708
256	2550	4.1045	1.4732
257	2560	4.1067	1.4754
258	2570	4.1051	1.4738
259	2580	4.1102	1.4789
260	2590	4.1119	1.4806
261	2600	4.1091	1.4778
262	2610	4.1143	1.483
263	2620	4.1154	1.4841
264	2630	4.117	1.4857
265	2640	4.1154	1.4841
266	2650	4.1151	1.4838
267	2660	4.1211	1.4898
268	2670	4.1255	1.4942
269	2680	4.1272	1.4959
270	2690	4.1245	1.4932
271	2700	4.1294	1.4981
272	2710	4.1299	1.4986
273	2720	4.1266	1.4953
274	2730	4.1258	1.4945
275	2740	4.1314	1.5001
276	2750	4.1276	1.4963
277	2760	4.128	1.4967
278	2770	4.125	1.4937
279	2780	4.1556	1.5243
280	2790	4.1453	1.514
281	2800	4.142	1.5107
282	2810	4.1519	1.5206
283	2820	4.1477	1.5164
284	2830	4.1528	1.5215
285	2840	4.1482	1.5169
286	2850	4.152	1.5207
287	2860	4.1516	1.5203
288	2870	4.1669	1.5356
289	2880	4.1573	1.526
290	2890	4.1539	1.5226
291	2900	4.1563	1.525
292	2910	4.1598	1.5285
293	2920	4.1616	1.5303
294	2930	4.1574	1.5261
295	2940	4.1642	1.5329
296	2950	4.1665	1.5352
297	2960	4.1696	1.5383
298	2970	4.1699	1.5386
299	2980	4.1716	1.5403
300	2990	4.1756	1.5443
301	3000	4.1825	1.5512
302	3010	4.1817	1.5504
303	3020	4.1819	1.5506
304	3030	4.1854	1.5541
305	3040	4.1898	1.5585
306	3050	4.1917	1.5604
307	3060	4.1923	1.561
308	3070	4.1927	1.5614
309	3080	4.1935	1.5622

Friesen Drillers Ltd.
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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	4.1941	1.5628
311	3100	4.1966	1.5653
312	3110	4.199	1.5677
313	3120	4.2025	1.5712
314	3130	4.2062	1.5749
315	3140	4.2154	1.5841
316	3150	4.2307	1.5994
317	3160	4.2284	1.5971
318	3170	4.2353	1.604
319	3180	4.2355	1.6042
320	3190	4.2363	1.605
321	3200	4.2409	1.6096
322	3210	4.2432	1.6119
323	3220	4.2461	1.6148
324	3230	4.2525	1.6212
325	3240	4.2599	1.6286
326	3250	4.2626	1.6313
327	3260	4.2642	1.6329
328	3270	4.2649	1.6336
329	3280	4.271	1.6397
330	3290	4.2751	1.6438
331	3300	4.2733	1.642
332	3310	4.2714	1.6401
333	3320	4.2729	1.6416
334	3330	4.2753	1.644
335	3340	4.2792	1.6479
336	3350	4.2865	1.6552
337	3360	4.2977	1.6664
338	3370	4.2904	1.6591
339	3380	4.2876	1.6563
340	3390	4.2923	1.661
341	3400	4.2889	1.6576
342	3410	4.2954	1.6641
343	3420	4.3095	1.6782
344	3430	4.3036	1.6723
345	3440	4.3058	1.6745
346	3450	4.3071	1.6758
347	3460	4.3127	1.6814
348	3470	4.3133	1.682
349	3480	4.3121	1.6808
350	3490	4.3207	1.6894
351	3500	4.3174	1.6861
352	3510	4.317	1.6857
353	3520	4.3185	1.6872
354	3530	4.3241	1.6928
355	3540	4.3233	1.692
356	3550	4.3214	1.6901
357	3560	4.3214	1.6901
358	3570	4.3268	1.6955
359	3580	4.3243	1.693
360	3590	4.3221	1.6908
361	3600	4.3264	1.6951
362	3610	4.3224	1.6911
363	3620	4.3202	1.6889
364	3630	4.3216	1.6903
365	3640	4.3283	1.697
366	3650	4.3257	1.6944
367	3660	4.3289	1.6976
368	3670	4.327	1.6957
369	3680	4.3333	1.702
370	3690	4.333	1.7017
371	3700	4.332	1.7007
372	3710	4.3362	1.7049

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	4.3395	1.7082
374	3730	4.3379	1.7066
375	3740	4.3412	1.7099
376	3750	4.3538	1.7225
377	3760	4.3535	1.7222
378	3770	4.3533	1.722
379	3780	4.3493	1.718
380	3790	4.3543	1.723
381	3800	4.3539	1.7226
382	3810	4.3534	1.7221
383	3820	4.3512	1.7199
384	3830	4.3561	1.7248
385	3840	4.3552	1.7239
386	3850	4.3569	1.7256
387	3860	4.358	1.7267
388	3870	4.3636	1.7323
389	3880	4.369	1.7377
390	3890	4.3908	1.7595
391	3900	4.3739	1.7426
392	3910	4.3704	1.7391
393	3920	4.3726	1.7413
394	3930	4.3739	1.7426
395	3940	4.3716	1.7403
396	3950	4.3718	1.7405
397	3960	4.371	1.7397
398	3970	4.3733	1.742
399	3980	4.3756	1.7443
400	3990	4.3808	1.7495
401	4000	4.3858	1.7545
402	4010	4.39	1.7587
403	4020	4.3916	1.7603
404	4030	4.3945	1.7632
405	4040	4.3982	1.7669
406	4050	4.4029	1.7716
407	4060	4.4067	1.7754
408	4070	4.41	1.7787
409	4080	4.4128	1.7815
410	4090	4.4139	1.7826
411	4100	4.4116	1.7803
412	4110	4.4123	1.781
413	4120	4.4145	1.7832
414	4130	4.4175	1.7862
415	4140	4.4174	1.7861
416	4150	4.4203	1.789
417	4160	4.416	1.7847
418	4170	4.426	1.7947
419	4180	4.4196	1.7883
420	4190	4.4209	1.7896
421	4200	4.4195	1.7882
422	4210	4.4191	1.7878
423	4220	4.4183	1.787
424	4230	4.4177	1.7864
425	4240	4.4171	1.7858
426	4250	4.4186	1.7873
427	4260	4.42	1.7887
428	4270	4.4168	1.7855
429	4280	4.4164	1.7851
430	4290	4.4131	1.7818
431	4300	4.4141	1.7828
432	4310	4.4136	1.7823
433	4320	4.4138	1.7825
434	4330	4.4092	1.7779
435	4340	4.4104	1.7791

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	4.4076	1.7763
437	4360	4.4077	1.7764
438	4370	4.4086	1.7773
439	4380	4.4084	1.7771
440	4390	4.4105	1.7792
441	4400	4.4121	1.7808
442	4410	4.4132	1.7819
443	4420	4.414	1.7827
444	4430	4.4138	1.7825
445	4440	4.4125	1.7812
446	4450	4.4161	1.7848
447	4460	4.4154	1.7841
448	4470	4.4143	1.783
449	4480	4.4161	1.7848
450	4490	4.4157	1.7844
451	4500	4.4168	1.7855
452	4510	4.4163	1.785
453	4520	4.4187	1.7874
454	4530	4.419	1.7877
455	4540	4.42	1.7887
456	4550	4.4242	1.7929
457	4560	4.4235	1.7922
458	4570	4.4273	1.796
459	4580	4.4305	1.7992
460	4590	4.4295	1.7982
461	4600	4.4308	1.7995
462	4610	4.4318	1.8005
463	4620	4.4338	1.8025
464	4630	4.4349	1.8036
465	4640	4.4374	1.8061
466	4650	4.4379	1.8066
467	4660	4.4415	1.8102
468	4670	4.4435	1.8122
469	4680	4.4471	1.8158
470	4690	4.4483	1.817
471	4700	4.4501	1.8188
472	4710	4.4498	1.8185
473	4720	4.4612	1.8299
474	4730	4.4594	1.8281
475	4740	4.4563	1.825
476	4750	4.4623	1.831
477	4760	4.4604	1.8291
478	4770	4.461	1.8297
479	4780	4.4645	1.8332
480	4790	4.4718	1.8405
481	4800	4.4662	1.8349
482	4810	4.4655	1.8342
483	4820	4.4676	1.8363
484	4830	4.4668	1.8355
485	4840	4.4679	1.8366
486	4850	4.4658	1.8345
487	4860	4.4677	1.8364
488	4870	4.4666	1.8353
489	4880	4.4668	1.8355
490	4890	4.4683	1.837
491	4900	4.4691	1.8378
492	4910	4.4694	1.8381
493	4920	4.4689	1.8376
494	4930	4.4706	1.8393
495	4940	4.4701	1.8388
496	4950	4.4709	1.8396
497	4960	4.4733	1.842
498	4970	4.4737	1.8424

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	4.4733	1.842
500	4990	4.4734	1.8421
501	5000	4.4733	1.842
502	5010	4.4729	1.8416
503	5020	4.4708	1.8395
504	5030	4.4696	1.8383
505	5040	4.4699	1.8386
506	5050	4.4679	1.8366
507	5060	4.4667	1.8354
508	5070	4.4692	1.8379
509	5080	4.469	1.8377
510	5090	4.4693	1.838
511	5100	4.4712	1.8399
512	5110	4.4707	1.8394
513	5120	4.4701	1.8388
514	5130	4.4698	1.8385
515	5140	4.4693	1.838
516	5150	4.4733	1.842
517	5160	4.4745	1.8432
518	5170	4.4746	1.8433
519	5180	4.4775	1.8462
520	5190	4.4792	1.8479
521	5200	4.4794	1.8481
522	5210	4.4796	1.8483
523	5220	4.4821	1.8508
524	5230	4.4842	1.8529
525	5240	4.4861	1.8548
526	5250	4.4872	1.8559
527	5260	4.489	1.8577
528	5270	4.491	1.8597
529	5280	4.4918	1.8605
530	5290	4.4943	1.863
531	5300	4.4973	1.866
532	5310	4.5016	1.8703
533	5320	4.5015	1.8702
534	5330	4.5025	1.8712
535	5340	4.5084	1.8771
536	5350	4.5073	1.876
537	5360	4.5089	1.8776
538	5370	4.5099	1.8786
539	5380	4.512	1.8807
540	5390	4.5232	1.8919
541	5400	4.5435	1.9122
542	5410	4.5306	1.8993
543	5420	4.5301	1.8988
544	5430	4.5291	1.8978
545	5440	4.531	1.8997
546	5450	4.5344	1.9031
547	5460	4.5379	1.9066
548	5470	4.5412	1.9099
549	5480	4.5461	1.9148
550	5490	4.5474	1.9161
551	5500	4.5543	1.923
552	5510	4.5527	1.9214
553	5520	4.5552	1.9239
554	5530	4.5566	1.9253
555	5540	4.5617	1.9304
556	5550	4.5633	1.932
557	5560	4.5639	1.9326
558	5570	4.5772	1.9459
559	5580	4.5745	1.9432
560	5590	4.5758	1.9445
561	5600	4.5778	1.9465

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	4.5792	1.9479
563	5620	4.5805	1.9492
564	5630	4.5843	1.953
565	5640	4.5861	1.9548
566	5650	4.5884	1.9571
567	5660	4.5898	1.9585
568	5670	4.589	1.9577
569	5680	4.591	1.9597
570	5690	4.5913	1.96
571	5700	4.5937	1.9624
572	5710	4.5942	1.9629
573	5720	4.598	1.9667
574	5730	4.6002	1.9689
575	5740	4.5993	1.968
576	5750	4.6061	1.9748
577	5760	4.6026	1.9713
578	5770	4.6032	1.9719
579	5780	4.6057	1.9744
580	5790	4.6102	1.9789
581	5800	4.6069	1.9756
582	5810	4.6068	1.9755
583	5820	4.6281	1.9968
584	5830	4.6251	1.9938
585	5840	4.6216	1.9903
586	5850	4.6237	1.9924
587	5860	4.6261	1.9948
588	5870	4.6288	1.9975
589	5880	4.6284	1.9971
590	5890	4.6263	1.995
591	5900	4.6281	1.9968
592	5910	4.6357	2.0044
593	5920	4.6389	2.0076
594	5930	4.6392	2.0079
595	5940	4.6412	2.0099
596	5950	4.6417	2.0104
597	5960	4.648	2.0167
598	5970	4.6486	2.0173
599	5980	4.6507	2.0194
600	5990	4.653	2.0217
601	6000	4.6541	2.0228
602	6010	4.6569	2.0256
603	6020	4.6587	2.0274
604	6030	4.662	2.0307
605	6040	4.6698	2.0385
606	6050	4.6694	2.0381
607	6060	4.6712	2.0399
608	6070	4.6713	2.04
609	6080	4.6707	2.0394
610	6090	4.673	2.0417
611	6100	4.6785	2.0472
612	6110	4.6837	2.0524
613	6120	4.6857	2.0544
614	6130	4.6916	2.0603
615	6140	4.6959	2.0646
616	6150	4.7015	2.0702
617	6160	4.709	2.0777
618	6170	4.7209	2.0896
619	6180	4.7138	2.0825
620	6190	4.718	2.0867
621	6200	4.7212	2.0899
622	6210	4.724	2.0927
623	6220	4.7282	2.0969
624	6230	4.7336	2.1023

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	4.7372	2.1059
626	6250	4.7385	2.1072
627	6260	4.7439	2.1126
628	6270	4.7456	2.1143
629	6280	4.7531	2.1218
630	6290	4.7577	2.1264
631	6300	4.7606	2.1293
632	6310	4.7597	2.1284
633	6320	4.7607	2.1294
634	6330	4.7629	2.1316
635	6340	4.7682	2.1369
636	6350	4.7729	2.1416
637	6360	4.7723	2.141
638	6370	4.7719	2.1406
639	6380	4.7749	2.1436
640	6390	4.7773	2.146
641	6400	4.7773	2.146
642	6410	4.7798	2.1485
643	6420	4.7825	2.1512
644	6430	4.7847	2.1534
645	6440	4.7856	2.1543
646	6450	4.7875	2.1562
647	6460	4.7888	2.1575
648	6470	4.785	2.1537
649	6480	4.7865	2.1552
650	6490	4.786	2.1547
651	6500	4.7858	2.1545
652	6510	4.7846	2.1533
653	6520	4.7847	2.1534
654	6530	4.7853	2.154
655	6540	4.7865	2.1552
656	6550	4.7871	2.1558
657	6560	4.7865	2.1552
658	6570	4.7867	2.1554
659	6580	4.7878	2.1565
660	6590	4.7904	2.1591
661	6600	4.7925	2.1612
662	6610	4.7953	2.164
663	6620	4.7925	2.1612
664	6630	4.7965	2.1652
665	6640	4.7965	2.1652
666	6650	4.7988	2.1675
667	6660	4.8006	2.1693
668	6670	4.8011	2.1698
669	6680	4.8046	2.1733
670	6690	4.8071	2.1758
671	6700	4.8115	2.1802
672	6710	4.8095	2.1782
673	6720	4.8143	2.183
674	6730	4.8165	2.1852
675	6740	4.8192	2.1879
676	6750	4.8229	2.1916
677	6760	4.8218	2.1905
678	6770	4.8232	2.1919
679	6780	4.8272	2.1959
680	6790	4.8302	2.1989
681	6800	4.8338	2.2025
682	6810	4.8377	2.2064
683	6820	4.8415	2.2102
684	6830	4.8474	2.2161
685	6840	4.8594	2.2281
686	6850	4.8573	2.226
687	6860	4.8603	2.229

Friesen Drillers Ltd. **307 PTH 12 N** **Steinbach, MB R5G 1T8**	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	4.8636	2.2323
689	6880	4.8732	2.2419
690	6890	4.8787	2.2474
691	6900	4.886	2.2547
692	6910	4.8896	2.2583
693	6920	4.8938	2.2625
694	6930	4.898	2.2667
695	6940	4.9052	2.2739
696	6950	4.9109	2.2796
697	6960	4.9149	2.2836
698	6970	4.9209	2.2896
699	6980	4.9255	2.2942
700	6990	4.932	2.3007
701	7000	4.9379	2.3066
702	7010	4.9408	2.3095
703	7020	4.944	2.3127
704	7030	4.9518	2.3205
705	7040	4.9559	2.3246
706	7050	4.9597	2.3284
707	7060	4.9657	2.3344
708	7070	4.9696	2.3383
709	7080	4.9753	2.344
710	7090	4.9811	2.3498
711	7100	4.9826	2.3513
712	7110	4.9906	2.3593
713	7120	4.9958	2.3645
714	7130	4.9991	2.3678
715	7140	5.0047	2.3734
716	7150	5.01	2.3787
717	7160	5.0121	2.3808
718	7170	5.0176	2.3863
719	7180	5.0201	2.3888
720	7190	5.0247	2.3934
721	7200	5.0279	2.3966
722	7210	5.0336	2.4023
723	7220	5.0362	2.4049
724	7230	5.0428	2.4115
725	7240	5.0389	2.4076
726	7250	5.0442	2.4129
727	7260	5.0449	2.4136
728	7270	5.0473	2.416
729	7280	5.0524	2.4211
730	7290	5.0556	2.4243
731	7300	5.0591	2.4278
732	7310	5.0644	2.4331
733	7320	5.0663	2.435
734	7330	5.0722	2.4409
735	7340	5.0751	2.4438
736	7350	5.0806	2.4493
737	7360	5.0838	2.4525
738	7370	5.0835	2.4522
739	7380	5.0871	2.4558
740	7390	5.0888	2.4575
741	7400	5.0952	2.4639
742	7410	5.0972	2.4659
743	7420	5.0986	2.4673
744	7430	5.1087	2.4774
745	7440	5.1096	2.4783
746	7450	5.1115	2.4802
747	7460	5.1126	2.4813
748	7470	5.1173	2.486
749	7480	5.1201	2.4888
750	7490	5.1223	2.491

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	5.1269	2.4956
752	7510	5.1328	2.5015
753	7520	5.1365	2.5052
754	7530	5.1396	2.5083
755	7540	5.145	2.5137
756	7550	5.149	2.5177
757	7560	5.1547	2.5234
758	7570	5.1538	2.5225
759	7580	5.1625	2.5312
760	7590	5.1649	2.5336
761	7600	5.1703	2.539
762	7610	5.1777	2.5464
763	7620	5.1828	2.5515
764	7630	5.184	2.5527
765	7640	5.1899	2.5586
766	7650	5.1927	2.5614
767	7660	5.1972	2.5659
768	7670	5.2042	2.5729
769	7680	5.2056	2.5743
770	7690	5.2067	2.5754
771	7700	5.2174	2.5861
772	7710	5.2169	2.5856
773	7720	5.2238	2.5925
774	7730	5.2254	2.5941
775	7740	5.2316	2.6003
776	7750	5.2367	2.6054
777	7760	5.2385	2.6072
778	7770	5.2441	2.6128
779	7780	5.2505	2.6192
780	7790	5.2533	2.622
781	7800	5.2548	2.6235
782	7810	5.2606	2.6293
783	7820	5.2652	2.6339
784	7830	5.269	2.6377
785	7840	5.276	2.6447
786	7850	5.2751	2.6438
787	7860	5.2754	2.6441
788	7870	5.278	2.6467
789	7880	5.2793	2.648
790	7890	5.2796	2.6483
791	7900	5.283	2.6517
792	7910	5.2825	2.6512
793	7920	5.2857	2.6544
794	7930	5.2859	2.6546
795	7940	5.2864	2.6551
796	7950	5.2891	2.6578
797	7960	5.2852	2.6539
798	7970	5.2893	2.658
799	7980	5.286	2.6547
800	7990	5.2854	2.6541
801	8000	5.2817	2.6504
802	8010	5.2878	2.6565
803	8020	5.2861	2.6548
804	8030	5.284	2.6527
805	8040	5.2854	2.6541
806	8050	5.282	2.6507
807	8060	5.2802	2.6489
808	8070	5.2831	2.6518
809	8080	5.2764	2.6451
810	8090	5.2948	2.6635
811	8100	5.2871	2.6558
812	8110	5.2948	2.6635
813	8120	5.2888	2.6575

	Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
		Project: OBS-853	
		Number: 2014-078-11472	
		Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	5.2852	2.6539
815	8140	5.2799	2.6486
816	8150	5.2687	2.6374
817	8160	5.2544	2.6231
818	8170	5.2581	2.6268
819	8180	5.2656	2.6343
820	8190	5.2773	2.646
821	8200	5.2684	2.6371
822	8210	5.2545	2.6232
823	8220	5.2474	2.6161
824	8230	5.231	2.5997
825	8240	5.2297	2.5984
826	8250	5.2437	2.6124
827	8260	5.2441	2.6128
828	8270	5.2498	2.6185
829	8280	5.2522	2.6209
830	8290	5.2544	2.6231
831	8300	5.2648	2.6335
832	8310	5.2624	2.6311
833	8320	5.2437	2.6124
834	8330	5.2458	2.6145
835	8340	5.2575	2.6262
836	8350	5.2653	2.634
837	8360	5.2765	2.6452
838	8370	5.273	2.6417
839	8380	5.2679	2.6366
840	8390	5.2689	2.6376
841	8400	5.2752	2.6439
842	8410	5.265	2.6337
843	8420	5.265	2.6337
844	8430	5.2763	2.645
845	8440	5.2747	2.6434
846	8450	5.2704	2.6391
847	8460	5.2805	2.6492
848	8470	5.2917	2.6604
849	8480	5.2888	2.6575
850	8490	5.2868	2.6555
851	8500	5.2866	2.6553
852	8510	5.2869	2.6556
853	8520	5.2898	2.6585
854	8530	5.2856	2.6543
855	8540	5.2854	2.6541
856	8550	5.2836	2.6523
857	8560	5.2842	2.6529
858	8570	5.2835	2.6522
859	8580	5.2823	2.651
860	8590	5.2817	2.6504
861	8600	5.2784	2.6471
862	8610	5.2803	2.649
863	8620	5.2775	2.6462
864	8630	5.2804	2.6491
865	8640	5.2796	2.6483
866	8650	5.28	2.6487
867	8660	5.2772	2.6459
868	8670	5.2807	2.6494
869	8680	5.2804	2.6491
870	8690	5.2749	2.6436
871	8700	5.2745	2.6432
872	8710	5.2762	2.6449
873	8720	5.2749	2.6436
874	8730	5.2723	2.641
875	8740	5.2708	2.6395
876	8750	5.2697	2.6384

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	5.2686	2.6373
878	8770	5.2685	2.6372
879	8780	5.2665	2.6352
880	8790	5.2813	2.65
881	8800	5.2789	2.6476
882	8810	5.2751	2.6438
883	8820	5.2707	2.6394
884	8830	5.2698	2.6385
885	8840	5.2673	2.636
886	8850	5.2684	2.6371
887	8860	5.2674	2.6361
888	8870	5.2681	2.6368
889	8880	5.2663	2.635
890	8890	5.2647	2.6334
891	8900	5.2687	2.6374
892	8910	5.2666	2.6353
893	8920	5.2641	2.6328
894	8930	5.2665	2.6352
895	8940	5.2659	2.6346
896	8950	5.2686	2.6373
897	8960	5.2691	2.6378
898	8970	5.2698	2.6385
899	8980	5.2727	2.6414
900	8990	5.2757	2.6444
901	9000	5.2741	2.6428
902	9010	5.2737	2.6424
903	9020	5.2772	2.6459
904	9030	5.2732	2.6419
905	9040	5.2728	2.6415
906	9050	5.2724	2.6411
907	9060	5.2725	2.6412
908	9070	5.2726	2.6413
909	9080	5.2752	2.6439
910	9090	5.2759	2.6446
911	9100	5.2755	2.6442
912	9110	5.278	2.6467
913	9120	5.2779	2.6466
914	9130	5.2801	2.6488
915	9140	5.2791	2.6478
916	9150	5.2802	2.6489
917	9160	5.281	2.6497
918	9170	5.2842	2.6529
919	9180	5.2846	2.6533
920	9190	5.2887	2.6574
921	9200	5.2879	2.6566
922	9210	5.2887	2.6574
923	9220	5.289	2.6577
924	9230	5.2895	2.6582
925	9240	5.293	2.6617
926	9250	5.2938	2.6625
927	9260	5.2951	2.6638
928	9270	5.2939	2.6626
929	9280	5.2937	2.6624
930	9290	5.2963	2.665
931	9300	5.2987	2.6674
932	9310	5.2997	2.6684
933	9320	5.301	2.6697
934	9330	5.3059	2.6746
935	9340	5.30	2.6687
936	9350	5.2989	2.6676
937	9360	5.2992	2.6679
938	9370	5.3007	2.6694
939	9380	5.298	2.6667

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	5.3016	2.6703
941	9400	5.2961	2.6648
942	9410	5.2904	2.6591
943	9420	5.2866	2.6553
944	9430	5.2839	2.6526
945	9440	5.2802	2.6489
946	9450	5.2794	2.6481
947	9460	5.2747	2.6434
948	9470	5.2736	2.6423
949	9480	5.2713	2.64
950	9490	5.2705	2.6392
951	9500	5.2676	2.6363
952	9510	5.2624	2.6311
953	9520	5.2576	2.6263
954	9530	5.2508	2.6195
955	9540	5.2476	2.6163
956	9550	5.2388	2.6075
957	9560	5.2361	2.6048
958	9570	5.233	2.6017
959	9580	5.2292	2.5979
960	9590	5.2222	2.5909
961	9600	5.2146	2.5833
962	9610	5.2125	2.5812
963	9620	5.2091	2.5778
964	9630	5.2056	2.5743
965	9640	5.2191	2.5878
966	9650	5.2144	2.5831
967	9660	5.2007	2.5694
968	9670	5.1953	2.564
969	9680	5.19	2.5587
970	9690	5.1899	2.5586
971	9700	5.1875	2.5562
972	9710	5.1858	2.5545
973	9720	5.1839	2.5526
974	9730	5.18	2.5487
975	9740	5.1829	2.5516
976	9750	5.1799	2.5486
977	9760	5.179	2.5477
978	9770	5.1788	2.5475
979	9780	5.1763	2.545
980	9790	5.1745	2.5432
981	9800	5.1748	2.5435
982	9810	5.177	2.5457
983	9820	5.1764	2.5451
984	9830	5.1758	2.5445
985	9840	5.1743	2.543
986	9850	5.1742	2.5429
987	9860	5.1764	2.5451
988	9870	5.1724	2.5411
989	9880	5.1749	2.5436
990	9890	5.1906	2.5593
991	9900	5.1809	2.5496
992	9910	5.1825	2.5512
993	9920	5.1847	2.5534
994	9930	5.1825	2.5512
995	9940	5.1831	2.5518
996	9950	5.1868	2.5555
997	9960	5.1896	2.5583
998	9970	5.1883	2.557
999	9980	5.2142	2.5829
1000	9990	5.2091	2.5778
1001	10000	5.2047	2.5734
1002	10010	5.2031	2.5718

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	5.2041	2.5728
1004	10030	5.2055	2.5742
1005	10040	5.2185	2.5872
1006	10050	5.2081	2.5768
1007	10060	5.2067	2.5754
1008	10070	5.2207	2.5894
1009	10080	5.2049	2.5736
1010	10090	5.2018	2.5705
1011	10100	5.1905	2.5592
1012	10110	5.1669	2.5356
1013	10120	5.1414	2.5101
1014	10130	5.1122	2.4809
1015	10140	5.086	2.4547
1016	10150	5.0527	2.4214
1017	10160	5.0202	2.3889
1018	10170	4.9845	2.3532
1019	10180	4.9512	2.3199
1020	10190	4.9196	2.2883
1021	10200	4.8832	2.2519
1022	10210	4.8526	2.2213
1023	10220	4.8207	2.1894
1024	10230	4.7867	2.1554
1025	10240	4.7523	2.121
1026	10250	4.7202	2.0889
1027	10260	4.6921	2.0608
1028	10270	4.6622	2.0309
1029	10280	4.6345	2.0032
1030	10290	4.6071	1.9758
1031	10300	4.5786	1.9473
1032	10310	4.5509	1.9196
1033	10320	4.5227	1.8914
1034	10330	4.4988	1.8675
1035	10340	4.4732	1.8419
1036	10350	4.4498	1.8185
1037	10360	4.4283	1.797
1038	10370	4.4046	1.7733
1039	10380	4.3816	1.7503
1040	10390	4.3597	1.7284
1041	10400	4.3375	1.7062
1042	10410	4.3154	1.6841
1043	10420	4.299	1.6677
1044	10430	4.2777	1.6464
1045	10440	4.2593	1.628
1046	10450	4.2392	1.6079
1047	10460	4.2202	1.5889
1048	10470	4.2042	1.5729
1049	10480	4.1863	1.555
1050	10490	4.1713	1.54
1051	10500	4.155	1.5237
1052	10510	4.137	1.5057
1053	10520	4.1214	1.4901
1054	10530	4.1053	1.474
1055	10540	4.0925	1.4612
1056	10550	4.0796	1.4483
1057	10560	4.069	1.4377
1058	10570	4.0523	1.421
1059	10580	4.0406	1.4093
1060	10590	4.0251	1.3938
1061	10600	4.0151	1.3838
1062	10610	4.003	1.3717
1063	10620	3.9897	1.3584
1064	10630	3.9782	1.3469
1065	10640	3.9672	1.3359

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	3.9569	1.3256
1067	10660	3.9455	1.3142
1068	10670	3.9352	1.3039
1069	10680	3.9246	1.2933
1070	10690	3.9113	1.28
1071	10700	3.8923	1.261
1072	10710	3.8799	1.2486
1073	10720	3.8713	1.24
1074	10730	3.8579	1.2266
1075	10740	3.8461	1.2148
1076	10750	3.8355	1.2042
1077	10760	3.8259	1.1946
1078	10770	3.8128	1.1815
1079	10780	3.8024	1.1711
1080	10790	3.7908	1.1595
1081	10800	3.7797	1.1484
1082	10810	3.7706	1.1393
1083	10820	3.7567	1.1254
1084	10830	3.7463	1.115
1085	10840	3.7366	1.1053
1086	10850	3.7234	1.0921
1087	10860	3.7128	1.0815
1088	10870	3.7017	1.0704
1089	10880	3.6935	1.0622
1090	10890	3.6824	1.0511
1091	10900	3.6805	1.0492
1092	10910	3.6637	1.0324
1093	10920	3.6544	1.0231
1094	10930	3.6423	1.011
1095	10940	3.6339	1.0026
1096	10950	3.6232	0.9919
1097	10960	3.6122	0.9809
1098	10970	3.604	0.9727
1099	10980	3.5945	0.9632
1100	10990	3.5849	0.9536
1101	11000	3.5749	0.9436
1102	11010	3.5635	0.9322
1103	11020	3.553	0.9217
1104	11030	3.544	0.9127
1105	11040	3.5343	0.903
1106	11050	3.5255	0.8942
1107	11060	3.5147	0.8834
1108	11070	3.5082	0.8769
1109	11080	3.5116	0.8803
1110	11090	3.5139	0.8826
1111	11100	3.4888	0.8575
1112	11110	3.4761	0.8448
1113	11120	3.4656	0.8343
1114	11130	3.4565	0.8252
1115	11140	3.4508	0.8195
1116	11150	3.4415	0.8102
1117	11160	3.434	0.8027
1118	11170	3.4254	0.7941
1119	11180	3.4182	0.7869
1120	11190	3.4111	0.7798
1121	11200	3.4058	0.7745
1122	11210	3.398	0.7667
1123	11220	3.3896	0.7583
1124	11230	3.3958	0.7645
1125	11240	3.382	0.7507
1126	11250	3.3748	0.7435
1127	11260	3.3705	0.7392
1128	11270	3.3662	0.7349

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	3.3608	0.7295
1130	11290	3.3578	0.7265
1131	11300	3.353	0.7217
1132	11310	3.3479	0.7166
1133	11320	3.3441	0.7128
1134	11330	3.3417	0.7104
1135	11340	3.3395	0.7082
1136	11350	3.3362	0.7049
1137	11360	3.3331	0.7018
1138	11370	3.3313	0.70
1139	11380	3.327	0.6957
1140	11390	3.3259	0.6946
1141	11400	3.3237	0.6924
1142	11410	3.3203	0.689
1143	11420	3.3167	0.6854
1144	11430	3.316	0.6847
1145	11440	3.3171	0.6858
1146	11450	3.3169	0.6856
1147	11460	3.3141	0.6828
1148	11470	3.3105	0.6792
1149	11480	3.309	0.6777
1150	11490	3.3061	0.6748
1151	11500	3.3039	0.6726
1152	11510	3.3025	0.6712
1153	11520	3.2984	0.6671
1154	11530	3.2962	0.6649
1155	11540	3.2927	0.6614
1156	11550	3.2931	0.6618
1157	11560	3.2904	0.6591
1158	11570	3.2876	0.6563
1159	11580	3.2873	0.656
1160	11590	3.2842	0.6529
1161	11600	3.3127	0.6814
1162	11610	3.2945	0.6632
1163	11620	3.2869	0.6556
1164	11630	3.2825	0.6512
1165	11640	3.2779	0.6466
1166	11650	3.2756	0.6443
1167	11660	3.2771	0.6458
1168	11670	3.268	0.6367
1169	11680	3.2657	0.6344
1170	11690	3.2669	0.6356
1171	11700	3.2588	0.6275
1172	11710	3.2621	0.6308
1173	11720	3.2529	0.6216
1174	11730	3.2503	0.619
1175	11740	3.2467	0.6154
1176	11750	3.2421	0.6108
1177	11760	3.2375	0.6062
1178	11770	3.2361	0.6048
1179	11780	3.2325	0.6012
1180	11790	3.2301	0.5988
1181	11800	3.2271	0.5958
1182	11810	3.2244	0.5931
1183	11820	3.2226	0.5913
1184	11830	3.2188	0.5875
1185	11840	3.2155	0.5842
1186	11850	3.2138	0.5825
1187	11860	3.2112	0.5799
1188	11870	3.207	0.5757
1189	11880	3.205	0.5737
1190	11890	3.2043	0.573
1191	11900	3.2014	0.5701

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	3.201	0.5697
1193	11920	3.1969	0.5656
1194	11930	3.197	0.5657
1195	11940	3.1953	0.564
1196	11950	3.1948	0.5635
1197	11960	3.1934	0.5621
1198	11970	3.1916	0.5603
1199	11980	3.1894	0.5581
1200	11990	3.1884	0.5571
1201	12000	3.192	0.5607
1202	12010	3.1876	0.5563
1203	12020	3.1862	0.5549
1204	12030	3.1873	0.556
1205	12040	3.1875	0.5562
1206	12050	3.1878	0.5565
1207	12060	3.1865	0.5552
1208	12070	3.1849	0.5536
1209	12080	3.185	0.5537
1210	12090	3.184	0.5527
1211	12100	3.1827	0.5514
1212	12110	3.1813	0.55
1213	12120	3.1796	0.5483
1214	12130	3.181	0.5497
1215	12140	3.1804	0.5491
1216	12150	3.1782	0.5469
1217	12160	3.1785	0.5472
1218	12170	3.1794	0.5481
1219	12180	3.1797	0.5484
1220	12190	3.1782	0.5469
1221	12200	3.1769	0.5456
1222	12210	3.1767	0.5454
1223	12220	3.1759	0.5446
1224	12230	3.1758	0.5445
1225	12240	3.1751	0.5438
1226	12250	3.1733	0.542
1227	12260	3.1728	0.5415
1228	12270	3.1706	0.5393
1229	12280	3.1695	0.5382
1230	12290	3.1691	0.5378
1231	12300	3.1693	0.538
1232	12310	3.1645	0.5332
1233	12320	3.1619	0.5306
1234	12330	3.1607	0.5294
1235	12340	3.1599	0.5286
1236	12350	3.1562	0.5249
1237	12360	3.1536	0.5223
1238	12370	3.1505	0.5192
1239	12380	3.1489	0.5176
1240	12390	3.1489	0.5176
1241	12400	3.1479	0.5166
1242	12410	3.1468	0.5155
1243	12420	3.1454	0.5141
1244	12430	3.1422	0.5109
1245	12440	3.1396	0.5083
1246	12450	3.139	0.5077
1247	12460	3.1363	0.505
1248	12470	3.1355	0.5042
1249	12480	3.1301	0.4988
1250	12490	3.1269	0.4956
1251	12500	3.126	0.4947
1252	12510	3.1221	0.4908
1253	12520	3.1359	0.5046
1254	12530	3.125	0.4937

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	3.1148	0.4835
1256	12550	3.1087	0.4774
1257	12560	3.1028	0.4715
1258	12570	3.0998	0.4685
1259	12580	3.0955	0.4642
1260	12590	3.092	0.4607
1261	12600	3.0893	0.458
1262	12610	3.0867	0.4554
1263	12620	3.0837	0.4524
1264	12630	3.0819	0.4506
1265	12640	3.0802	0.4489
1266	12650	3.0773	0.446
1267	12660	3.0774	0.4461
1268	12670	3.0737	0.4424
1269	12680	3.0724	0.4411
1270	12690	3.0723	0.441
1271	12700	3.0698	0.4385
1272	12710	3.0687	0.4374
1273	12720	3.0654	0.4341
1274	12730	3.0664	0.4351
1275	12740	3.062	0.4307
1276	12750	3.0581	0.4268
1277	12760	3.0558	0.4245
1278	12770	3.0593	0.428
1279	12780	3.0604	0.4291
1280	12790	3.0599	0.4286
1281	12800	3.0587	0.4274
1282	12810	3.0596	0.4283
1283	12820	3.0665	0.4352
1284	12830	3.0646	0.4333
1285	12840	3.0673	0.436
1286	12850	3.0689	0.4376
1287	12860	3.0698	0.4385
1288	12870	2.91	0.2787

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-24	Static Water Level [ft]: 4.39	Radial Distance to PW [ft]: 13003

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	4.3893	0.00
2	10	4.3902	0.0009
3	20	4.3904	0.0011
4	30	4.3933	0.004
5	40	4.3925	0.0032
6	50	4.393	0.0037
7	60	4.3936	0.0043
8	70	4.3923	0.003
9	80	4.3929	0.0036
10	90	4.3911	0.0018
11	100	4.3943	0.005
12	110	4.3911	0.0018
13	120	4.3937	0.0044
14	130	4.3982	0.0089
15	140	4.4066	0.0173
16	150	4.4086	0.0193
17	160	4.4032	0.0139
18	170	4.4065	0.0172
19	180	4.4049	0.0156
20	190	4.4044	0.0151
21	200	4.4074	0.0181
22	210	4.4091	0.0198
23	220	4.4118	0.0225
24	230	4.4101	0.0208
25	240	4.4072	0.0179
26	250	4.4188	0.0295
27	260	4.422	0.0327
28	270	4.4235	0.0342
29	280	4.429	0.0397
30	290	4.4374	0.0481
31	300	4.4298	0.0405
32	310	4.4307	0.0414
33	320	4.4321	0.0428
34	330	4.4292	0.0399
35	340	4.4288	0.0395
36	350	4.4329	0.0436
37	360	4.4323	0.043
38	370	4.4264	0.0371
39	380	4.4305	0.0412
40	390	4.4273	0.038
41	400	4.4361	0.0468
42	410	4.4366	0.0473
43	420	4.4342	0.0449
44	430	4.4404	0.0511
45	440	4.4308	0.0415
46	450	4.4446	0.0553
47	460	4.4472	0.0579
48	470	4.4439	0.0546
49	480	4.4462	0.0569
50	490	4.4427	0.0534
51	500	4.4425	0.0532
52	510	4.4405	0.0512
53	520	4.4399	0.0506
54	530	4.4411	0.0518
55	540	4.439	0.0497
56	550	4.4415	0.0522
57	560	4.4379	0.0486

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	4.4374	0.0481
59	580	4.4385	0.0492
60	590	4.4398	0.0505
61	600	4.44	0.0507
62	610	4.4379	0.0486
63	620	4.4404	0.0511
64	630	4.4359	0.0466
65	640	4.4356	0.0463
66	650	4.4358	0.0465
67	660	4.4464	0.0571
68	670	4.4494	0.0601
69	680	4.4431	0.0538
70	690	4.4457	0.0564
71	700	4.4426	0.0533
72	710	4.4416	0.0523
73	720	4.4426	0.0533
74	730	4.4447	0.0554
75	740	4.4438	0.0545
76	750	4.4431	0.0538
77	760	4.4417	0.0524
78	770	4.4377	0.0484
79	780	4.436	0.0467
80	790	4.4359	0.0466
81	800	4.4389	0.0496
82	810	4.4378	0.0485
83	820	4.4355	0.0462
84	830	4.4348	0.0455
85	840	4.436	0.0467
86	850	4.4342	0.0449
87	860	4.4351	0.0458
88	870	4.4412	0.0519
89	880	4.4402	0.0509
90	890	4.4434	0.0541
91	900	4.4411	0.0518
92	910	4.4386	0.0493
93	920	4.4425	0.0532
94	930	4.4447	0.0554
95	940	4.4468	0.0575
96	950	4.448	0.0587
97	960	4.4497	0.0604
98	970	4.4505	0.0612
99	980	4.4562	0.0669
100	990	4.4549	0.0656
101	1000	4.4564	0.0671
102	1010	4.4307	0.0414
103	1020	4.4321	0.0428
104	1030	4.4292	0.0399
105	1040	4.4288	0.0395
106	1050	4.4329	0.0436
107	1060	4.4323	0.043
108	1070	4.4264	0.0371
109	1080	4.4305	0.0412
110	1090	4.4273	0.038
111	1100	4.4361	0.0468
112	1110	4.4366	0.0473
113	1120	4.4342	0.0449
114	1130	4.4404	0.0511
115	1140	4.4308	0.0415
116	1150	4.4264	0.0371
117	1160	4.4305	0.0412
118	1170	4.4273	0.038
119	1180	4.4361	0.0468
120	1190	4.4366	0.0473

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	4.4342	0.0449
122	1210	4.4305	0.0412
123	1220	4.4273	0.038
124	1230	4.4361	0.0468
125	1240	4.4366	0.0473
126	1250	4.3769	-0.0124
127	1260	4.379	-0.0103
128	1270	4.3795	-0.0098
129	1280	4.3767	-0.0126
130	1290	4.3815	-0.0078
131	1300	4.3797	-0.0096
132	1310	4.3784	-0.0109
133	1320	4.3878	-0.0015
134	1330	4.3905	0.0012
135	1340	4.3893	0.00
136	1350	4.3902	0.0009
137	1360	4.3904	0.0011
138	1370	4.3933	0.004
139	1380	4.3925	0.0032
140	1390	4.393	0.0037
141	1400	4.3936	0.0043
142	1410	4.3923	0.003
143	1420	4.3929	0.0036
144	1430	4.3911	0.0018
145	1440	4.3943	0.005
146	1450	4.3911	0.0018
147	1460	4.3937	0.0044
148	1470	4.3982	0.0089
149	1480	4.4066	0.0173
150	1490	4.4086	0.0193
151	1500	4.4032	0.0139
152	1510	4.4065	0.0172
153	1520	4.4049	0.0156
154	1530	4.4044	0.0151
155	1540	4.4074	0.0181
156	1550	4.4091	0.0198
157	1560	4.4118	0.0225
158	1570	4.4101	0.0208
159	1580	4.4072	0.0179
160	1590	4.4188	0.0295
161	1600	4.422	0.0327
162	1610	4.4235	0.0342
163	1620	4.429	0.0397
164	1630	4.4374	0.0481
165	1640	4.4298	0.0405
166	1650	4.4307	0.0414
167	1660	4.4321	0.0428
168	1670	4.4292	0.0399
169	1680	4.4288	0.0395
170	1690	4.4329	0.0436
171	1700	4.4323	0.043
172	1710	4.4264	0.0371
173	1720	4.4305	0.0412
174	1730	4.4273	0.038
175	1740	4.4361	0.0468
176	1750	4.4366	0.0473
177	1760	4.4342	0.0449
178	1770	4.4404	0.0511
179	1780	4.4308	0.0415
180	1790	4.4446	0.0553
181	1800	4.4472	0.0579
182	1810	4.4439	0.0546
183	1820	4.4462	0.0569

Friesen Drillers Ltd. **307 PTH 12 N** **Steinbach, MB R5G 1T8**	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	4.4427	0.0534
185	1840	4.4425	0.0532
186	1850	4.4405	0.0512
187	1860	4.4399	0.0506
188	1870	4.4411	0.0518
189	1880	4.439	0.0497
190	1890	4.4415	0.0522
191	1900	4.4379	0.0486
192	1910	4.4374	0.0481
193	1920	4.4385	0.0492
194	1930	4.4398	0.0505
195	1940	4.44	0.0507
196	1950	4.4379	0.0486
197	1960	4.4404	0.0511
198	1970	4.4359	0.0466
199	1980	4.4356	0.0463
200	1990	4.4358	0.0465
201	2000	4.4464	0.0571
202	2010	4.4494	0.0601
203	2020	4.4431	0.0538
204	2030	4.4457	0.0564
205	2040	4.4426	0.0533
206	2050	4.4416	0.0523
207	2060	4.4426	0.0533
208	2070	4.4447	0.0554
209	2080	4.4438	0.0545
210	2090	4.4431	0.0538
211	2100	4.4417	0.0524
212	2110	4.4377	0.0484
213	2120	4.436	0.0467
214	2130	4.4359	0.0466
215	2140	4.4389	0.0496
216	2150	4.4378	0.0485
217	2160	4.4355	0.0462
218	2170	4.4348	0.0455
219	2180	4.436	0.0467
220	2190	4.4342	0.0449
221	2200	4.4351	0.0458
222	2210	4.4412	0.0519
223	2220	4.4402	0.0509
224	2230	4.4434	0.0541
225	2240	4.4411	0.0518
226	2250	4.4386	0.0493
227	2260	4.4425	0.0532
228	2270	4.4447	0.0554
229	2280	4.4468	0.0575
230	2290	4.448	0.0587
231	2300	4.4497	0.0604
232	2310	4.4505	0.0612
233	2320	4.4562	0.0669
234	2330	4.4549	0.0656
235	2340	4.4564	0.0671
236	2350	4.4569	0.0676
237	2360	4.4626	0.0733
238	2370	4.4606	0.0713
239	2380	4.4594	0.0701
240	2390	4.4565	0.0672
241	2400	4.4624	0.0731
242	2410	4.4572	0.0679
243	2420	4.4557	0.0664
244	2430	4.4574	0.0681
245	2440	4.4604	0.0711
246	2450	4.4634	0.0741

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	4.4682	0.0789
248	2470	4.4717	0.0824
249	2480	4.4679	0.0786
250	2490	4.4704	0.0811
251	2500	4.4762	0.0869
252	2510	4.4844	0.0951
253	2520	4.4842	0.0949
254	2530	4.4849	0.0956
255	2540	4.4912	0.1019
256	2550	4.497	0.1077
257	2560	4.4945	0.1052
258	2570	4.499	0.1097
259	2580	4.4961	0.1068
260	2590	4.4914	0.1021
261	2600	4.4942	0.1049
262	2610	4.4937	0.1044
263	2620	4.4936	0.1043
264	2630	4.498	0.1087
265	2640	4.4974	0.1081
266	2650	4.4953	0.106
267	2660	4.4958	0.1065
268	2670	4.4989	0.1096
269	2680	4.5038	0.1145
270	2690	4.5041	0.1148
271	2700	4.5054	0.1161
272	2710	4.5077	0.1184
273	2720	4.5052	0.1159
274	2730	4.5044	0.1151
275	2740	4.5053	0.116
276	2750	4.5061	0.1168
277	2760	4.502	0.1127
278	2770	4.5025	0.1132
279	2780	4.5061	0.1168
280	2790	4.5084	0.1191
281	2800	4.5062	0.1169
282	2810	4.5087	0.1194
283	2820	4.5149	0.1256
284	2830	4.5147	0.1254
285	2840	4.5137	0.1244
286	2850	4.51	0.1207
287	2860	4.5117	0.1224
288	2870	4.5149	0.1256
289	2880	4.5165	0.1272
290	2890	4.5171	0.1278
291	2900	4.5192	0.1299
292	2910	4.5218	0.1325
293	2920	4.5232	0.1339
294	2930	4.5214	0.1321
295	2940	4.5231	0.1338
296	2950	4.5271	0.1378
297	2960	4.5281	0.1388
298	2970	4.5304	0.1411
299	2980	4.5337	0.1444
300	2990	4.5375	0.1482
301	3000	4.5412	0.1519
302	3010	4.5424	0.1531
303	3020	4.5424	0.1531
304	3030	4.5476	0.1583
305	3040	4.5511	0.1618
306	3050	4.5518	0.1625
307	3060	4.5531	0.1638
308	3070	4.5558	0.1665
309	3080	4.5535	0.1642

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	4.5523	0.163
311	3100	4.5512	0.1619
312	3110	4.5536	0.1643
313	3120	4.5547	0.1654
314	3130	4.5595	0.1702
315	3140	4.566	0.1767
316	3150	4.5705	0.1812
317	3160	4.5804	0.1911
318	3170	4.5888	0.1995
319	3180	4.5855	0.1962
320	3190	4.5849	0.1956
321	3200	4.5859	0.1966
322	3210	4.591	0.2017
323	3220	4.5935	0.2042
324	3230	4.5995	0.2102
325	3240	4.604	0.2147
326	3250	4.6068	0.2175
327	3260	4.617	0.2277
328	3270	4.6114	0.2221
329	3280	4.617	0.2277
330	3290	4.6226	0.2333
331	3300	4.6239	0.2346
332	3310	4.6195	0.2302
333	3320	4.6185	0.2292
334	3330	4.6192	0.2299
335	3340	4.6237	0.2344
336	3350	4.634	0.2447
337	3360	4.6265	0.2372
338	3370	4.6257	0.2364
339	3380	4.6196	0.2303
340	3390	4.62	0.2307
341	3400	4.6229	0.2336
342	3410	4.6284	0.2391
343	3420	4.6363	0.247
344	3430	4.6406	0.2513
345	3440	4.6514	0.2621
346	3450	4.6463	0.257
347	3460	4.6483	0.259
348	3470	4.6498	0.2605
349	3480	4.6488	0.2595
350	3490	4.646	0.2567
351	3500	4.6562	0.2669
352	3510	4.6552	0.2659
353	3520	4.6558	0.2665
354	3530	4.6549	0.2656
355	3540	4.6529	0.2636
356	3550	4.6512	0.2619
357	3560	4.6498	0.2605
358	3570	4.6509	0.2616
359	3580	4.6507	0.2614
360	3590	4.6483	0.259
361	3600	4.6437	0.2544
362	3610	4.6432	0.2539
363	3620	4.6431	0.2538
364	3630	4.6428	0.2535
365	3640	4.6436	0.2543
366	3650	4.6407	0.2514
367	3660	4.6437	0.2544
368	3670	4.6442	0.2549
369	3680	4.6438	0.2545
370	3690	4.6445	0.2552
371	3700	4.643	0.2537
372	3710	4.6473	0.258

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	4.6531	0.2638
374	3730	4.6516	0.2623
375	3740	4.6525	0.2632
376	3750	4.6553	0.266
377	3760	4.6617	0.2724
378	3770	4.6624	0.2731
379	3780	4.6586	0.2693
380	3790	4.6579	0.2686
381	3800	4.6617	0.2724
382	3810	4.6595	0.2702
383	3820	4.6594	0.2701
384	3830	4.6614	0.2721
385	3840	4.6612	0.2719
386	3850	4.6625	0.2732
387	3860	4.663	0.2737
388	3870	4.6654	0.2761
389	3880	4.6774	0.2881
390	3890	4.6818	0.2925
391	3900	4.6825	0.2932
392	3910	4.6788	0.2895
393	3920	4.682	0.2927
394	3930	4.6858	0.2965
395	3940	4.6876	0.2983
396	3950	4.6879	0.2986
397	3960	4.689	0.2997
398	3970	4.6892	0.2999
399	3980	4.6914	0.3021
400	3990	4.6952	0.3059
401	4000	4.7006	0.3113
402	4010	4.7054	0.3161
403	4020	4.708	0.3187
404	4030	4.7093	0.32
405	4040	4.7126	0.3233
406	4050	4.7162	0.3269
407	4060	4.7189	0.3296
408	4070	4.7287	0.3394
409	4080	4.7273	0.338
410	4090	4.7283	0.339
411	4100	4.7272	0.3379
412	4110	4.7276	0.3383
413	4120	4.7302	0.3409
414	4130	4.7314	0.3421
415	4140	4.7347	0.3454
416	4150	4.7341	0.3448
417	4160	4.7288	0.3395
418	4170	4.7288	0.3395
419	4180	4.7333	0.344
420	4190	4.7415	0.3522
421	4200	4.7413	0.352
422	4210	4.7404	0.3511
423	4220	4.7423	0.353
424	4230	4.7419	0.3526
425	4240	4.7397	0.3504
426	4250	4.7423	0.353
427	4260	4.7384	0.3491
428	4270	4.7345	0.3452
429	4280	4.7364	0.3471
430	4290	4.7322	0.3429
431	4300	4.7301	0.3408
432	4310	4.7299	0.3406
433	4320	4.7253	0.336
434	4330	4.7197	0.3304
435	4340	4.7219	0.3326

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	4.7208	0.3315
437	4360	4.7179	0.3286
438	4370	4.7198	0.3305
439	4380	4.7174	0.3281
440	4390	4.7171	0.3278
441	4400	4.721	0.3317
442	4410	4.7216	0.3323
443	4420	4.7235	0.3342
444	4430	4.7231	0.3338
445	4440	4.7231	0.3338
446	4450	4.7225	0.3332
447	4460	4.7234	0.3341
448	4470	4.7264	0.3371
449	4480	4.7245	0.3352
450	4490	4.7231	0.3338
451	4500	4.7271	0.3378
452	4510	4.7203	0.331
453	4520	4.7173	0.328
454	4530	4.7205	0.3312
455	4540	4.7206	0.3313
456	4550	4.722	0.3327
457	4560	4.7315	0.3422
458	4570	4.7272	0.3379
459	4580	4.7332	0.3439
460	4590	4.7309	0.3416
461	4600	4.7339	0.3446
462	4610	4.7352	0.3459
463	4620	4.7373	0.348
464	4630	4.7389	0.3496
465	4640	4.7454	0.3561
466	4650	4.7467	0.3574
467	4660	4.7547	0.3654
468	4670	4.7515	0.3622
469	4680	4.75	0.3607
470	4690	4.7526	0.3633
471	4700	4.7534	0.3641
472	4710	4.7558	0.3665
473	4720	4.7597	0.3704
474	4730	4.7591	0.3698
475	4740	4.759	0.3697
476	4750	4.7598	0.3705
477	4760	4.7598	0.3705
478	4770	4.7611	0.3718
479	4780	4.7633	0.374
480	4790	4.7657	0.3764
481	4800	4.769	0.3797
482	4810	4.7701	0.3808
483	4820	4.7684	0.3791
484	4830	4.7737	0.3844
485	4840	4.7748	0.3855
486	4850	4.7694	0.3801
487	4860	4.7726	0.3833
488	4870	4.7749	0.3856
489	4880	4.7706	0.3813
490	4890	4.771	0.3817
491	4900	4.7704	0.3811
492	4910	4.7684	0.3791
493	4920	4.7679	0.3786
494	4930	4.7675	0.3782
495	4940	4.7671	0.3778
496	4950	4.7654	0.3761
497	4960	4.7716	0.3823
498	4970	4.7729	0.3836

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	4.7698	0.3805
500	4990	4.7765	0.3872
501	5000	4.7771	0.3878
502	5010	4.7714	0.3821
503	5020	4.7669	0.3776
504	5030	4.7697	0.3804
505	5040	4.7647	0.3754
506	5050	4.7607	0.3714
507	5060	4.7584	0.3691
508	5070	4.7577	0.3684
509	5080	4.7572	0.3679
510	5090	4.7577	0.3684
511	5100	4.7555	0.3662
512	5110	4.7561	0.3668
513	5120	4.7537	0.3644
514	5130	4.7572	0.3679
515	5140	4.7582	0.3689
516	5150	4.7557	0.3664
517	5160	4.7568	0.3675
518	5170	4.7586	0.3693
519	5180	4.7599	0.3706
520	5190	4.7594	0.3701
521	5200	4.759	0.3697
522	5210	4.756	0.3667
523	5220	4.7646	0.3753
524	5230	4.7629	0.3736
525	5240	4.7629	0.3736
526	5250	4.765	0.3757
527	5260	4.7657	0.3764
528	5270	4.7627	0.3734
529	5280	4.7657	0.3764
530	5290	4.7683	0.379
531	5300	4.7702	0.3809
532	5310	4.7724	0.3831
533	5320	4.7712	0.3819
534	5330	4.7726	0.3833
535	5340	4.7774	0.3881
536	5350	4.7822	0.3929
537	5360	4.781	0.3917
538	5370	4.7847	0.3954
539	5380	4.7885	0.3992
540	5390	4.7894	0.4001
541	5400	4.7947	0.4054
542	5410	4.80	0.4107
543	5420	4.8093	0.42
544	5430	4.8153	0.426
545	5440	4.8109	0.4216
546	5450	4.8158	0.4265
547	5460	4.8186	0.4293
548	5470	4.8192	0.4299
549	5480	4.8228	0.4335
550	5490	4.8256	0.4363
551	5500	4.8267	0.4374
552	5510	4.8287	0.4394
553	5520	4.8303	0.441
554	5530	4.8409	0.4516
555	5540	4.8509	0.4616
556	5550	4.8554	0.4661
557	5560	4.8548	0.4655
558	5570	4.8524	0.4631
559	5580	4.8526	0.4633
560	5590	4.8564	0.4671
561	5600	4.8641	0.4748

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	4.8637	0.4744
563	5620	4.8657	0.4764
564	5630	4.8669	0.4776
565	5640	4.8699	0.4806
566	5650	4.8713	0.482
567	5660	4.8752	0.4859
568	5670	4.8732	0.4839
569	5680	4.8774	0.4881
570	5690	4.8764	0.4871
571	5700	4.8794	0.4901
572	5710	4.8836	0.4943
573	5720	4.8891	0.4998
574	5730	4.8914	0.5021
575	5740	4.8923	0.503
576	5750	4.8945	0.5052
577	5760	4.8997	0.5104
578	5770	4.898	0.5087
579	5780	4.8965	0.5072
580	5790	4.9018	0.5125
581	5800	4.905	0.5157
582	5810	4.902	0.5127
583	5820	4.9043	0.515
584	5830	4.9137	0.5244
585	5840	4.9095	0.5202
586	5850	4.9125	0.5232
587	5860	4.9189	0.5296
588	5870	4.9183	0.529
589	5880	4.9201	0.5308
590	5890	4.9227	0.5334
591	5900	4.9203	0.531
592	5910	4.9286	0.5393
593	5920	4.9367	0.5474
594	5930	4.9331	0.5438
595	5940	4.9347	0.5454
596	5950	4.9343	0.545
597	5960	4.9341	0.5448
598	5970	4.9396	0.5503
599	5980	4.9423	0.553
600	5990	4.9444	0.5551
601	6000	4.9481	0.5588
602	6010	4.9468	0.5575
603	6020	4.9454	0.5561
604	6030	4.9501	0.5608
605	6040	4.9548	0.5655
606	6050	4.9545	0.5652
607	6060	4.9555	0.5662
608	6070	4.9584	0.5691
609	6080	4.9545	0.5652
610	6090	4.9583	0.569
611	6100	4.9613	0.572
612	6110	4.9643	0.575
613	6120	4.9668	0.5775
614	6130	4.9702	0.5809
615	6140	4.9681	0.5788
616	6150	4.9761	0.5868
617	6160	4.9794	0.5901
618	6170	4.9825	0.5932
619	6180	4.9837	0.5944
620	6190	4.9868	0.5975
621	6200	4.9936	0.6043
622	6210	4.998	0.6087
623	6220	5.0004	0.6111
624	6230	5.0037	0.6144

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	5.0137	0.6244
626	6250	5.0119	0.6226
627	6260	5.0185	0.6292
628	6270	5.0208	0.6315
629	6280	5.0249	0.6356
630	6290	5.0319	0.6426
631	6300	5.0359	0.6466
632	6310	5.0373	0.648
633	6320	5.0376	0.6483
634	6330	5.0373	0.648
635	6340	5.0452	0.6559
636	6350	5.0528	0.6635
637	6360	5.0522	0.6629
638	6370	5.0512	0.6619
639	6380	5.054	0.6647
640	6390	5.0546	0.6653
641	6400	5.054	0.6647
642	6410	5.0571	0.6678
643	6420	5.0546	0.6653
644	6430	5.0575	0.6682
645	6440	5.0631	0.6738
646	6450	5.0662	0.6769
647	6460	5.0666	0.6773
648	6470	5.0637	0.6744
649	6480	5.0645	0.6752
650	6490	5.0615	0.6722
651	6500	5.0584	0.6691
652	6510	5.0556	0.6663
653	6520	5.0544	0.6651
654	6530	5.0538	0.6645
655	6540	5.0538	0.6645
656	6550	5.0532	0.6639
657	6560	5.0513	0.662
658	6570	5.0503	0.661
659	6580	5.0483	0.659
660	6590	5.054	0.6647
661	6600	5.0554	0.6661
662	6610	5.0525	0.6632
663	6620	5.0508	0.6615
664	6630	5.0517	0.6624
665	6640	5.0565	0.6672
666	6650	5.0559	0.6666
667	6660	5.0592	0.6699
668	6670	5.0561	0.6668
669	6680	5.0557	0.6664
670	6690	5.059	0.6697
671	6700	5.0601	0.6708
672	6710	5.0604	0.6711
673	6720	5.0608	0.6715
674	6730	5.0613	0.672
675	6740	5.0644	0.6751
676	6750	5.0651	0.6758
677	6760	5.0664	0.6771
678	6770	5.067	0.6777
679	6780	5.0675	0.6782
680	6790	5.0724	0.6831
681	6800	5.0737	0.6844
682	6810	5.0763	0.687
683	6820	5.0789	0.6896
684	6830	5.083	0.6937
685	6840	5.0893	0.70
686	6850	5.093	0.7037
687	6860	5.0981	0.7088

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	5.1085	0.7192
689	6880	5.1116	0.7223
690	6890	5.1166	0.7273
691	6900	5.1259	0.7366
692	6910	5.1338	0.7445
693	6920	5.139	0.7497
694	6930	5.1419	0.7526
695	6940	5.1498	0.7605
696	6950	5.1544	0.7651
697	6960	5.1599	0.7706
698	6970	5.1657	0.7764
699	6980	5.1709	0.7816
700	6990	5.186	0.7967
701	7000	5.193	0.8037
702	7010	5.1998	0.8105
703	7020	5.2032	0.8139
704	7030	5.2087	0.8194
705	7040	5.2159	0.8266
706	7050	5.2194	0.8301
707	7060	5.2223	0.833
708	7070	5.2338	0.8445
709	7080	5.2318	0.8425
710	7090	5.2448	0.8555
711	7100	5.2595	0.8702
712	7110	5.257	0.8677
713	7120	5.271	0.8817
714	7130	5.2798	0.8905
715	7140	5.2827	0.8934
716	7150	5.2879	0.8986
717	7160	5.2913	0.902
718	7170	5.2956	0.9063
719	7180	5.3037	0.9144
720	7190	5.3084	0.9191
721	7200	5.3116	0.9223
722	7210	5.3205	0.9312
723	7220	5.3168	0.9275
724	7230	5.3212	0.9319
725	7240	5.3264	0.9371
726	7250	5.3228	0.9335
727	7260	5.3317	0.9424
728	7270	5.3274	0.9381
729	7280	5.3324	0.9431
730	7290	5.3363	0.947
731	7300	5.3393	0.95
732	7310	5.3397	0.9504
733	7320	5.3475	0.9582
734	7330	5.35	0.9607
735	7340	5.3561	0.9668
736	7350	5.3638	0.9745
737	7360	5.3659	0.9766
738	7370	5.3593	0.97
739	7380	5.3678	0.9785
740	7390	5.3659	0.9766
741	7400	5.3759	0.9866
742	7410	5.376	0.9867
743	7420	5.3821	0.9928
744	7430	5.3834	0.9941
745	7440	5.3947	1.0054
746	7450	5.3994	1.0101
747	7460	5.3964	1.0071
748	7470	5.4064	1.0171
749	7480	5.4054	1.0161
750	7490	5.4056	1.0163

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Page 13 of 21
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	5.4067	1.0174
752	7510	5.4101	1.0208
753	7520	5.4119	1.0226
754	7530	5.4108	1.0215
755	7540	5.4167	1.0274
756	7550	5.4193	1.03
757	7560	5.4259	1.0366
758	7570	5.4261	1.0368
759	7580	5.4302	1.0409
760	7590	5.4294	1.0401
761	7600	5.4342	1.0449
762	7610	5.44	1.0507
763	7620	5.4484	1.0591
764	7630	5.4508	1.0615
765	7640	5.4501	1.0608
766	7650	5.4582	1.0689
767	7660	5.4601	1.0708
768	7670	5.4718	1.0825
769	7680	5.4697	1.0804
770	7690	5.4746	1.0853
771	7700	5.467	1.0777
772	7710	5.4761	1.0868
773	7720	5.4818	1.0925
774	7730	5.4838	1.0945
775	7740	5.4906	1.1013
776	7750	5.4927	1.1034
777	7760	5.4962	1.1069
778	7770	5.5029	1.1136
779	7780	5.5077	1.1184
780	7790	5.5103	1.121
781	7800	5.5149	1.1256
782	7810	5.5164	1.1271
783	7820	5.5216	1.1323
784	7830	5.5285	1.1392
785	7840	5.5307	1.1414
786	7850	5.532	1.1427
787	7860	5.5288	1.1395
788	7870	5.53	1.1407
789	7880	5.5318	1.1425
790	7890	5.5317	1.1424
791	7900	5.5316	1.1423
792	7910	5.5368	1.1475
793	7920	5.5346	1.1453
794	7930	5.533	1.1437
795	7940	5.533	1.1437
796	7950	5.5332	1.1439
797	7960	5.5278	1.1385
798	7970	5.5273	1.138
799	7980	5.5264	1.1371
800	7990	5.5235	1.1342
801	8000	5.5206	1.1313
802	8010	5.5245	1.1352
803	8020	5.5235	1.1342
804	8030	5.5166	1.1273
805	8040	5.5161	1.1268
806	8050	5.5128	1.1235
807	8060	5.5098	1.1205
808	8070	5.5064	1.1171
809	8080	5.4967	1.1074
810	8090	5.5097	1.1204
811	8100	5.509	1.1197
812	8110	5.507	1.1177
813	8120	5.5009	1.1116

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	5.5049	1.1156
815	8140	5.4908	1.1015
816	8150	5.4711	1.0818
817	8160	5.4661	1.0768
818	8170	5.4574	1.0681
819	8180	5.4668	1.0775
820	8190	5.4685	1.0792
821	8200	5.4578	1.0685
822	8210	5.4454	1.0561
823	8220	5.4395	1.0502
824	8230	5.4221	1.0328
825	8240	5.4145	1.0252
826	8250	5.4236	1.0343
827	8260	5.4293	1.04
828	8270	5.432	1.0427
829	8280	5.434	1.0447
830	8290	5.4381	1.0488
831	8300	5.4462	1.0569
832	8310	5.4595	1.0702
833	8320	5.4308	1.0415
834	8330	5.4296	1.0403
835	8340	5.4382	1.0489
836	8350	5.4459	1.0566
837	8360	5.4571	1.0678
838	8370	5.4596	1.0703
839	8380	5.4435	1.0542
840	8390	5.4587	1.0694
841	8400	5.4637	1.0744
842	8410	5.4398	1.0505
843	8420	5.4613	1.072
844	8430	5.4593	1.07
845	8440	5.4594	1.0701
846	8450	5.4533	1.064
847	8460	5.4625	1.0732
848	8470	5.4634	1.0741
849	8480	5.4682	1.0789
850	8490	5.4662	1.0769
851	8500	5.4664	1.0771
852	8510	5.4644	1.0751
853	8520	5.4638	1.0745
854	8530	5.4665	1.0772
855	8540	5.4633	1.074
856	8550	5.473	1.0837
857	8560	5.4674	1.0781
858	8570	5.4703	1.081
859	8580	5.4677	1.0784
860	8590	5.466	1.0767
861	8600	5.4663	1.077
862	8610	5.4664	1.0771
863	8620	5.4652	1.0759
864	8630	5.4633	1.074
865	8640	5.4685	1.0792
866	8650	5.4591	1.0698
867	8660	5.4647	1.0754
868	8670	5.4643	1.075
869	8680	5.4627	1.0734
870	8690	5.4627	1.0734
871	8700	5.4593	1.07
872	8710	5.4554	1.0661
873	8720	5.4643	1.075
874	8730	5.4559	1.0666
875	8740	5.4532	1.0639
876	8750	5.4578	1.0685

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	5.4488	1.0595
878	8770	5.452	1.0627
879	8780	5.463	1.0737
880	8790	5.4584	1.0691
881	8800	5.4607	1.0714
882	8810	5.4618	1.0725
883	8820	5.457	1.0677
884	8830	5.4546	1.0653
885	8840	5.4519	1.0626
886	8850	5.4531	1.0638
887	8860	5.4475	1.0582
888	8870	5.449	1.0597
889	8880	5.4506	1.0613
890	8890	5.4517	1.0624
891	8900	5.4527	1.0634
892	8910	5.4521	1.0628
893	8920	5.4515	1.0622
894	8930	5.4485	1.0592
895	8940	5.4488	1.0595
896	8950	5.4481	1.0588
897	8960	5.4487	1.0594
898	8970	5.4483	1.059
899	8980	5.4481	1.0588
900	8990	5.4491	1.0598
901	9000	5.447	1.0577
902	9010	5.4479	1.0586
903	9020	5.4461	1.0568
904	9030	5.4571	1.0678
905	9040	5.4496	1.0603
906	9050	5.4458	1.0565
907	9060	5.4484	1.0591
908	9070	5.446	1.0567
909	9080	5.4459	1.0566
910	9090	5.4458	1.0565
911	9100	5.445	1.0557
912	9110	5.4432	1.0539
913	9120	5.4449	1.0556
914	9130	5.449	1.0597
915	9140	5.4483	1.059
916	9150	5.4473	1.058
917	9160	5.4483	1.059
918	9170	5.4506	1.0613
919	9180	5.4573	1.068
920	9190	5.4576	1.0683
921	9200	5.4595	1.0702
922	9210	5.4593	1.07
923	9220	5.4652	1.0759
924	9230	5.4707	1.0814
925	9240	5.4689	1.0796
926	9250	5.4679	1.0786
927	9260	5.4698	1.0805
928	9270	5.4683	1.079
929	9280	5.4676	1.0783
930	9290	5.468	1.0787
931	9300	5.4699	1.0806
932	9310	5.4766	1.0873
933	9320	5.4802	1.0909
934	9330	5.4751	1.0858
935	9340	5.4764	1.0871
936	9350	5.4766	1.0873
937	9360	5.4735	1.0842
938	9370	5.4728	1.0835
939	9380	5.4706	1.0813

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	5.4683	1.079
941	9400	5.467	1.0777
942	9410	5.4618	1.0725
943	9420	5.4551	1.0658
944	9430	5.4515	1.0622
945	9440	5.446	1.0567
946	9450	5.4419	1.0526
947	9460	5.441	1.0517
948	9470	5.4351	1.0458
949	9480	5.4332	1.0439
950	9490	5.4309	1.0416
951	9500	5.4275	1.0382
952	9510	5.4224	1.0331
953	9520	5.4221	1.0328
954	9530	5.4121	1.0228
955	9540	5.4127	1.0234
956	9550	5.4048	1.0155
957	9560	5.3957	1.0064
958	9570	5.3923	1.003
959	9580	5.3873	0.998
960	9590	5.3779	0.9886
961	9600	5.3708	0.9815
962	9610	5.3644	0.9751
963	9620	5.3632	0.9739
964	9630	5.3565	0.9672
965	9640	5.3544	0.9651
966	9650	5.3461	0.9568
967	9660	5.3444	0.9551
968	9670	5.3342	0.9449
969	9680	5.3301	0.9408
970	9690	5.3332	0.9439
971	9700	5.3357	0.9464
972	9710	5.3317	0.9424
973	9720	5.3331	0.9438
974	9730	5.3317	0.9424
975	9740	5.3257	0.9364
976	9750	5.3215	0.9322
977	9760	5.3195	0.9302
978	9770	5.3168	0.9275
979	9780	5.3113	0.922
980	9790	5.3075	0.9182
981	9800	5.3054	0.9161
982	9810	5.3064	0.9171
983	9820	5.3045	0.9152
984	9830	5.3031	0.9138
985	9840	5.3028	0.9135
986	9850	5.3009	0.9116
987	9860	5.2992	0.9099
988	9870	5.2959	0.9066
989	9880	5.2984	0.9091
990	9890	5.2997	0.9104
991	9900	5.3036	0.9143
992	9910	5.3049	0.9156
993	9920	5.3083	0.919
994	9930	5.3072	0.9179
995	9940	5.3053	0.916
996	9950	5.3114	0.9221
997	9960	5.3127	0.9234
998	9970	5.3144	0.9251
999	9980	5.316	0.9267
1000	9990	5.3229	0.9336
1001	10000	5.324	0.9347
1002	10010	5.3293	0.94

Friesen Drillers Ltd.
307 PTH 12 N
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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	5.3326	0.9433
1004	10030	5.3415	0.9522
1005	10040	5.3409	0.9516
1006	10050	5.3398	0.9505
1007	10060	5.3409	0.9516
1008	10070	5.3411	0.9518
1009	10080	5.3401	0.9508
1010	10090	5.3415	0.9522
1011	10100	5.341	0.9517
1012	10110	5.3429	0.9536
1013	10120	5.3402	0.9509
1014	10130	5.3442	0.9549
1015	10140	5.3427	0.9534
1016	10150	5.3396	0.9503
1017	10160	5.3363	0.947
1018	10170	5.3338	0.9445
1019	10180	5.3299	0.9406
1020	10190	5.3323	0.943
1021	10200	5.3275	0.9382
1022	10210	5.3235	0.9342
1023	10220	5.3255	0.9362
1024	10230	5.3193	0.93
1025	10240	5.3198	0.9305
1026	10250	5.3153	0.926
1027	10260	5.3091	0.9198
1028	10270	5.3043	0.915
1029	10280	5.3012	0.9119
1030	10290	5.2966	0.9073
1031	10300	5.2998	0.9105
1032	10310	5.298	0.9087
1033	10320	5.2962	0.9069
1034	10330	5.2828	0.8935
1035	10340	5.2778	0.8885
1036	10350	5.2727	0.8834
1037	10360	5.2677	0.8784
1038	10370	5.2641	0.8748
1039	10380	5.2605	0.8712
1040	10390	5.2587	0.8694
1041	10400	5.2517	0.8624
1042	10410	5.2461	0.8568
1043	10420	5.2491	0.8598
1044	10430	5.2419	0.8526
1045	10440	5.2364	0.8471
1046	10450	5.2461	0.8568
1047	10460	5.2409	0.8516
1048	10470	5.2333	0.844
1049	10480	5.2387	0.8494
1050	10490	5.2402	0.8509
1051	10500	5.2363	0.847
1052	10510	5.2296	0.8403
1053	10520	5.2269	0.8376
1054	10530	5.2221	0.8328
1055	10540	5.2195	0.8302
1056	10550	5.2189	0.8296
1057	10560	5.215	0.8257
1058	10570	5.2159	0.8266
1059	10580	5.2113	0.822
1060	10590	5.2138	0.8245
1061	10600	5.2091	0.8198
1062	10610	5.2073	0.818
1063	10620	5.2093	0.82
1064	10630	5.2067	0.8174
1065	10640	5.205	0.8157

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	5.2067	0.8174
1067	10660	5.2026	0.8133
1068	10670	5.2012	0.8119
1069	10680	5.2025	0.8132
1070	10690	5.2049	0.8156
1071	10700	5.1965	0.8072
1072	10710	5.1852	0.7959
1073	10720	5.1823	0.793
1074	10730	5.1772	0.7879
1075	10740	5.1729	0.7836
1076	10750	5.1683	0.779
1077	10760	5.165	0.7757
1078	10770	5.1598	0.7705
1079	10780	5.1568	0.7675
1080	10790	5.1508	0.7615
1081	10800	5.1471	0.7578
1082	10810	5.1427	0.7534
1083	10820	5.1369	0.7476
1084	10830	5.1314	0.7421
1085	10840	5.1252	0.7359
1086	10850	5.1241	0.7348
1087	10860	5.1142	0.7249
1088	10870	5.1104	0.7211
1089	10880	5.1061	0.7168
1090	10890	5.099	0.7097
1091	10900	5.0932	0.7039
1092	10910	5.0889	0.6996
1093	10920	5.0907	0.7014
1094	10930	5.0795	0.6902
1095	10940	5.0744	0.6851
1096	10950	5.0682	0.6789
1097	10960	5.0675	0.6782
1098	10970	5.0576	0.6683
1099	10980	5.0517	0.6624
1100	10990	5.0459	0.6566
1101	11000	5.0391	0.6498
1102	11010	5.0303	0.641
1103	11020	5.0219	0.6326
1104	11030	5.0157	0.6264
1105	11040	5.0097	0.6204
1106	11050	5.0043	0.615
1107	11060	4.9962	0.6069
1108	11070	4.9884	0.5991
1109	11080	4.9751	0.5858
1110	11090	4.9669	0.5776
1111	11100	4.9666	0.5773
1112	11110	4.958	0.5687
1113	11120	4.9498	0.5605
1114	11130	4.9457	0.5564
1115	11140	4.9453	0.556
1116	11150	4.9396	0.5503
1117	11160	4.937	0.5477
1118	11170	4.9358	0.5465
1119	11180	4.9302	0.5409
1120	11190	4.9198	0.5305
1121	11200	4.9157	0.5264
1122	11210	4.9173	0.528
1123	11220	4.9096	0.5203
1124	11230	4.9094	0.5201
1125	11240	4.9164	0.5271
1126	11250	4.9085	0.5192
1127	11260	4.9105	0.5212
1128	11270	4.9062	0.5169

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
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	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	4.9041	0.5148
1130	11290	4.9021	0.5128
1131	11300	4.8993	0.51
1132	11310	4.897	0.5077
1133	11320	4.8985	0.5092
1134	11330	4.8949	0.5056
1135	11340	4.8951	0.5058
1136	11350	4.8914	0.5021
1137	11360	4.8917	0.5024
1138	11370	4.8917	0.5024
1139	11380	4.8911	0.5018
1140	11390	4.8923	0.503
1141	11400	4.8907	0.5014
1142	11410	4.888	0.4987
1143	11420	4.8881	0.4988
1144	11430	4.8879	0.4986
1145	11440	4.8927	0.5034
1146	11450	4.8915	0.5022
1147	11460	4.8914	0.5021
1148	11470	4.8916	0.5023
1149	11480	4.8915	0.5022
1150	11490	4.8909	0.5016
1151	11500	4.8913	0.502
1152	11510	4.8871	0.4978
1153	11520	4.8873	0.498
1154	11530	4.8863	0.497
1155	11540	4.8856	0.4963
1156	11550	4.8859	0.4966
1157	11560	4.8856	0.4963
1158	11570	4.8842	0.4949
1159	11580	4.8845	0.4952
1160	11590	4.8873	0.498
1161	11600	4.8863	0.497
1162	11610	4.8853	0.496
1163	11620	4.8836	0.4943
1164	11630	4.8823	0.493
1165	11640	4.8807	0.4914
1166	11650	4.878	0.4887
1167	11660	4.8765	0.4872
1168	11670	4.8734	0.4841
1169	11680	4.8754	0.4861
1170	11690	4.8701	0.4808
1171	11700	4.868	0.4787
1172	11710	4.8634	0.4741
1173	11720	4.8606	0.4713
1174	11730	4.8573	0.468
1175	11740	4.8547	0.4654
1176	11750	4.8516	0.4623
1177	11760	4.8521	0.4628
1178	11770	4.8481	0.4588
1179	11780	4.8496	0.4603
1180	11790	4.8437	0.4544
1181	11800	4.8406	0.4513
1182	11810	4.841	0.4517
1183	11820	4.8394	0.4501
1184	11830	4.8357	0.4464
1185	11840	4.8375	0.4482
1186	11850	4.8323	0.443
1187	11860	4.8308	0.4415
1188	11870	4.8334	0.4441
1189	11880	4.8319	0.4426
1190	11890	4.8289	0.4396
1191	11900	4.8321	0.4428

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	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	4.8247	0.4354
1193	11920	4.8265	0.4372
1194	11930	4.8246	0.4353
1195	11940	4.822	0.4327
1196	11950	4.8215	0.4322
1197	11960	4.8207	0.4314
1198	11970	4.8171	0.4278
1199	11980	4.8151	0.4258
1200	11990	4.8178	0.4285
1201	12000	4.814	0.4247
1202	12010	4.8161	0.4268
1203	12020	4.8135	0.4242
1204	12030	4.8145	0.4252
1205	12040	4.8218	0.4325
1206	12050	4.8258	0.4365
1207	12060	4.8227	0.4334
1208	12070	4.8186	0.4293
1209	12080	4.8213	0.432
1210	12090	4.8188	0.4295
1211	12100	4.8184	0.4291
1212	12110	4.8189	0.4296
1213	12120	4.8158	0.4265
1214	12130	4.8185	0.4292
1215	12140	4.8173	0.428
1216	12150	4.8177	0.4284
1217	12160	4.8157	0.4264
1218	12170	4.8176	0.4283
1219	12180	4.8161	0.4268
1220	12190	4.8127	0.4234
1221	12200	4.8101	0.4208
1222	12210	4.8106	0.4213
1223	12220	4.8106	0.4213
1224	12230	4.8104	0.4211
1225	12240	4.8196	0.4303
1226	12250	4.8191	0.4298
1227	12260	4.8171	0.4278
1228	12270	4.8163	0.427
1229	12280	4.8149	0.4256
1230	12290	4.817	0.4277
1231	12300	4.8149	0.4256
1232	12310	4.8128	0.4235
1233	12320	4.8107	0.4214
1234	12330	4.8019	0.4126
1235	12340	4.799	0.4097
1236	12350	4.7959	0.4066
1237	12360	4.7934	0.4041
1238	12370	4.7941	0.4048
1239	12380	4.7972	0.4079
1240	12390	4.7966	0.4073
1241	12400	4.7959	0.4066
1242	12410	4.7939	0.4046
1243	12420	4.7959	0.4066
1244	12430	4.7952	0.4059
1245	12440	4.7918	0.4025
1246	12450	4.7904	0.4011
1247	12460	4.7794	0.3901
1248	12470	4.7762	0.3869
1249	12480	4.7753	0.386
1250	12490	4.7711	0.3818
1251	12500	4.7722	0.3829
1252	12510	4.7724	0.3831
1253	12520	4.7678	0.3785
1254	12530	4.7607	0.3714

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	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	4.7638	0.3745
1256	12550	4.7596	0.3703
1257	12560	4.7574	0.3681
1258	12570	4.7548	0.3655
1259	12580	4.7507	0.3614
1260	12590	4.7469	0.3576
1261	12600	4.7446	0.3553
1262	12610	4.7479	0.3586
1263	12620	4.7456	0.3563
1264	12630	4.7414	0.3521
1265	12640	4.7414	0.3521
1266	12650	4.7299	0.3406
1267	12660	4.7243	0.335
1268	12670	4.7206	0.3313
1269	12680	4.7155	0.3262
1270	12690	4.7238	0.3345
1271	12700	4.722	0.3327
1272	12710	4.7185	0.3292
1273	12720	4.7177	0.3284
1274	12730	4.7157	0.3264
1275	12740	4.713	0.3237
1276	12750	4.709	0.3197
1277	12760	4.707	0.3177
1278	12770	4.7043	0.315
1279	12780	4.7052	0.3159
1280	12790	4.7111	0.3218
1281	12800	4.6996	0.3103
1282	12810	4.6959	0.3066
1283	12820	4.6968	0.3075
1284	12830	4.7024	0.3131
1285	12840	4.7143	0.325
1286	12850	4.7125	0.3232
1287	12860	4.7158	0.3265
1288	12870	4.7169	0.3276
1289	12880	4.7176	0.3283
1290	12890	4.7215	0.3322
1291	12900	4.7205	0.3312
1292	12910	4.725	0.3357
1293	12920	4.7235	0.3342
1294	12930	4.7226	0.3333
1295	12940	4.7262	0.3369
1296	12950	4.7233	0.334
1297	12960	4.7224	0.3331
1298	12970	4.7234	0.3341
1299	12980	4.7221	0.3328
1300	12990	4.7282	0.3389
1301	13000	4.7278	0.3385
1302	13010	4.7265	0.3372

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: G05OJ069	Static Water Level [ft]: 8.92	Radial Distance to PW [ft]: 10831

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	8.921	0.00
2	10	8.921	0.00
3	20	8.921	0.00
4	30	8.921	0.00
5	40	8.921	0.00
6	50	8.921	0.00
7	60	8.921	0.00
8	70	8.888	-0.033
9	80	8.921	0.00
10	90	8.888	-0.033
11	100	8.888	-0.033
12	110	8.888	-0.033
13	120	8.888	-0.033
14	130	8.888	-0.033
15	140	8.888	-0.033
16	150	8.888	-0.033
17	160	8.888	-0.033
18	170	8.854	-0.067
19	180	8.888	-0.033
20	190	8.854	-0.067
21	200	8.854	-0.067
22	210	8.854	-0.067
23	220	8.854	-0.067
24	230	8.854	-0.067
25	240	8.854	-0.067
26	250	8.854	-0.067
27	260	8.854	-0.067
28	270	8.854	-0.067
29	280	8.854	-0.067
30	290	8.854	-0.067
31	300	8.854	-0.067
32	310	8.854	-0.067
33	320	8.854	-0.067
34	330	8.854	-0.067
35	340	8.854	-0.067
36	350	8.854	-0.067
37	360	8.821	-0.10
38	370	8.821	-0.10
39	380	8.854	-0.067
40	390	8.821	-0.10
41	400	8.821	-0.10
42	410	8.821	-0.10
43	420	8.821	-0.10
44	430	8.821	-0.10
45	440	8.821	-0.10
46	450	8.854	-0.067
47	460	8.821	-0.10
48	470	8.821	-0.10
49	480	8.854	-0.067
50	490	8.821	-0.10
51	500	8.821	-0.10
52	510	8.854	-0.067
53	520	8.821	-0.10
54	530	8.821	-0.10
55	540	8.821	-0.10
56	550	8.821	-0.10
57	560	8.854	-0.067

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	8.821	-0.10
59	580	8.821	-0.10
60	590	8.821	-0.10
61	600	8.821	-0.10
62	610	8.821	-0.10
63	620	8.821	-0.10
64	630	8.821	-0.10
65	640	8.821	-0.10
66	650	8.821	-0.10
67	660	8.821	-0.10
68	670	8.821	-0.10
69	680	8.821	-0.10
70	690	8.821	-0.10
71	700	8.821	-0.10
72	710	8.787	-0.134
73	720	8.821	-0.10
74	730	8.821	-0.10
75	740	8.787	-0.134
76	750	8.821	-0.10
77	760	8.821	-0.10
78	770	8.821	-0.10
79	780	8.821	-0.10
80	790	8.821	-0.10
81	800	8.821	-0.10
82	810	8.821	-0.10
83	820	8.821	-0.10
84	830	8.821	-0.10
85	840	8.787	-0.134
86	850	8.787	-0.134
87	860	8.787	-0.134
88	870	8.821	-0.10
89	880	8.787	-0.134
90	890	8.787	-0.134
91	900	8.787	-0.134
92	910	8.787	-0.134
93	920	8.787	-0.134
94	930	8.787	-0.134
95	940	8.787	-0.134
96	950	8.787	-0.134
97	960	8.787	-0.134
98	970	8.787	-0.134
99	980	8.787	-0.134
100	990	8.787	-0.134
101	1000	8.787	-0.134
102	1010	8.787	-0.134
103	1020	8.787	-0.134
104	1030	8.787	-0.134
105	1040	8.787	-0.134
106	1050	8.787	-0.134
107	1060	8.787	-0.134
108	1070	8.787	-0.134
109	1080	8.787	-0.134
110	1090	8.787	-0.134
111	1100	8.821	-0.10
112	1110	8.821	-0.10
113	1120	8.821	-0.10
114	1130	8.821	-0.10
115	1140	8.821	-0.10
116	1150	8.821	-0.10
117	1160	8.821	-0.10
118	1170	8.821	-0.10
119	1180	8.821	-0.10
120	1190	8.821	-0.10

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	8.787	-0.134
122	1210	8.821	-0.10
123	1220	8.821	-0.10
124	1230	8.821	-0.10
125	1240	8.821	-0.10
126	1250	8.821	-0.10
127	1260	8.821	-0.10
128	1270	8.821	-0.10
129	1280	8.821	-0.10
130	1290	8.821	-0.10
131	1300	8.787	-0.134
132	1310	8.821	-0.10
133	1320	8.821	-0.10
134	1330	8.821	-0.10
135	1340	8.821	-0.10
136	1350	8.821	-0.10
137	1360	8.787	-0.134
138	1370	8.821	-0.10
139	1380	8.821	-0.10
140	1390	8.787	-0.134
141	1400	8.821	-0.10
142	1410	8.787	-0.134
143	1420	8.821	-0.10
144	1430	8.821	-0.10
145	1440	8.787	-0.134
146	1450	8.787	-0.134
147	1460	8.787	-0.134
148	1470	8.787	-0.134
149	1480	8.787	-0.134
150	1490	8.787	-0.134
151	1500	8.787	-0.134
152	1510	8.787	-0.134
153	1520	8.787	-0.134
154	1530	8.787	-0.134
155	1540	8.754	-0.167
156	1550	8.787	-0.134
157	1560	8.754	-0.167
158	1570	8.787	-0.134
159	1580	8.754	-0.167
160	1590	8.787	-0.134
161	1600	8.754	-0.167
162	1610	8.787	-0.134
163	1620	8.754	-0.167
164	1630	8.754	-0.167
165	1640	8.754	-0.167
166	1650	8.754	-0.167
167	1660	8.754	-0.167
168	1670	8.754	-0.167
169	1680	8.754	-0.167
170	1690	8.754	-0.167
171	1700	8.754	-0.167
172	1710	8.754	-0.167
173	1720	8.754	-0.167
174	1730	8.754	-0.167
175	1740	8.754	-0.167
176	1750	8.721	-0.20
177	1760	8.721	-0.20
178	1770	8.721	-0.20
179	1780	8.754	-0.167
180	1790	8.754	-0.167
181	1800	8.754	-0.167
182	1810	8.754	-0.167
183	1820	8.754	-0.167

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	8.754	-0.167
185	1840	8.721	-0.20
186	1850	8.754	-0.167
187	1860	8.754	-0.167
188	1870	8.754	-0.167
189	1880	8.754	-0.167
190	1890	8.754	-0.167
191	1900	8.721	-0.20
192	1910	8.754	-0.167
193	1920	8.754	-0.167
194	1930	8.721	-0.20
195	1940	8.754	-0.167
196	1950	8.754	-0.167
197	1960	8.754	-0.167
198	1970	8.721	-0.20
199	1980	8.754	-0.167
200	1990	8.754	-0.167
201	2000	8.754	-0.167
202	2010	8.721	-0.20
203	2020	8.754	-0.167
204	2030	8.754	-0.167
205	2040	8.754	-0.167
206	2050	8.721	-0.20
207	2060	8.754	-0.167
208	2070	8.721	-0.20
209	2080	8.721	-0.20
210	2090	8.721	-0.20
211	2100	8.721	-0.20
212	2110	8.721	-0.20
213	2120	8.721	-0.20
214	2130	8.721	-0.20
215	2140	8.721	-0.20
216	2150	8.721	-0.20
217	2160	8.754	-0.167
218	2170	8.721	-0.20
219	2180	8.721	-0.20
220	2190	8.721	-0.20
221	2200	8.721	-0.20
222	2210	8.721	-0.20
223	2220	8.721	-0.20
224	2230	8.721	-0.20
225	2240	8.721	-0.20
226	2250	8.721	-0.20
227	2260	8.721	-0.20
228	2270	8.721	-0.20
229	2280	8.721	-0.20
230	2290	8.721	-0.20
231	2300	8.721	-0.20
232	2310	8.721	-0.20
233	2320	8.721	-0.20
234	2330	8.721	-0.20
235	2340	8.721	-0.20
236	2350	8.721	-0.20
237	2360	8.721	-0.20
238	2370	8.721	-0.20
239	2380	8.721	-0.20
240	2390	8.721	-0.20
241	2400	8.721	-0.20
242	2410	8.721	-0.20
243	2420	8.721	-0.20
244	2430	8.721	-0.20
245	2440	8.721	-0.20
246	2450	8.721	-0.20

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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	8.721	-0.20
248	2470	8.721	-0.20
249	2480	8.721	-0.20
250	2490	8.721	-0.20
251	2500	8.721	-0.20
252	2510	8.721	-0.20
253	2520	8.721	-0.20
254	2530	8.721	-0.20
255	2540	8.721	-0.20
256	2550	8.721	-0.20
257	2560	8.721	-0.20
258	2570	8.721	-0.20
259	2580	8.721	-0.20
260	2590	8.721	-0.20
261	2600	8.721	-0.20
262	2610	8.687	-0.234
263	2620	8.687	-0.234
264	2630	8.687	-0.234
265	2640	8.687	-0.234
266	2650	8.687	-0.234
267	2660	8.687	-0.234
268	2670	8.687	-0.234
269	2680	8.687	-0.234
270	2690	8.687	-0.234
271	2700	8.687	-0.234
272	2710	8.687	-0.234
273	2720	8.687	-0.234
274	2730	8.687	-0.234
275	2740	8.687	-0.234
276	2750	8.687	-0.234
277	2760	8.687	-0.234
278	2770	8.687	-0.234
279	2780	8.687	-0.234
280	2790	8.687	-0.234
281	2800	8.687	-0.234
282	2810	8.687	-0.234
283	2820	8.687	-0.234
284	2830	8.687	-0.234
285	2840	8.687	-0.234
286	2850	8.687	-0.234
287	2860	8.687	-0.234
288	2870	8.654	-0.267
289	2880	8.654	-0.267
290	2890	8.654	-0.267
291	2900	8.654	-0.267
292	2910	8.654	-0.267
293	2920	8.654	-0.267
294	2930	8.654	-0.267
295	2940	8.654	-0.267
296	2950	8.654	-0.267
297	2960	8.654	-0.267
298	2970	8.654	-0.267
299	2980	8.62	-0.301
300	2990	8.62	-0.301
301	3000	8.62	-0.301
302	3010	8.62	-0.301
303	3020	8.62	-0.301
304	3030	8.62	-0.301
305	3040	8.62	-0.301
306	3050	8.62	-0.301
307	3060	8.62	-0.301
308	3070	8.62	-0.301
309	3080	8.62	-0.301

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	8.62	-0.301
311	3100	8.62	-0.301
312	3110	8.62	-0.301
313	3120	8.587	-0.334
314	3130	8.587	-0.334
315	3140	8.587	-0.334
316	3150	8.587	-0.334
317	3160	8.587	-0.334
318	3170	8.587	-0.334
319	3180	8.587	-0.334
320	3190	8.587	-0.334
321	3200	8.553	-0.368
322	3210	8.553	-0.368
323	3220	8.587	-0.334
324	3230	8.553	-0.368
325	3240	8.553	-0.368
326	3250	8.553	-0.368
327	3260	8.553	-0.368
328	3270	8.553	-0.368
329	3280	8.553	-0.368
330	3290	8.553	-0.368
331	3300	8.553	-0.368
332	3310	8.553	-0.368
333	3320	8.553	-0.368
334	3330	8.553	-0.368
335	3340	8.553	-0.368
336	3350	8.553	-0.368
337	3360	8.553	-0.368
338	3370	8.553	-0.368
339	3380	8.553	-0.368
340	3390	8.553	-0.368
341	3400	8.553	-0.368
342	3410	8.553	-0.368
343	3420	8.553	-0.368
344	3430	8.553	-0.368
345	3440	8.553	-0.368
346	3450	8.52	-0.401
347	3460	8.52	-0.401
348	3470	8.52	-0.401
349	3480	8.52	-0.401
350	3490	8.52	-0.401
351	3500	8.52	-0.401
352	3510	8.52	-0.401
353	3520	8.52	-0.401
354	3530	8.52	-0.401
355	3540	8.52	-0.401
356	3550	8.52	-0.401
357	3560	8.52	-0.401
358	3570	8.52	-0.401
359	3580	8.52	-0.401
360	3590	8.52	-0.401
361	3600	8.52	-0.401
362	3610	8.52	-0.401
363	3620	8.52	-0.401
364	3630	8.52	-0.401
365	3640	8.52	-0.401
366	3650	8.52	-0.401
367	3660	8.487	-0.434
368	3670	8.487	-0.434
369	3680	8.487	-0.434
370	3690	8.52	-0.401
371	3700	8.487	-0.434
372	3710	8.487	-0.434

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	8.487	-0.434
374	3730	8.487	-0.434
375	3740	8.487	-0.434
376	3750	8.487	-0.434
377	3760	8.487	-0.434
378	3770	8.487	-0.434
379	3780	8.487	-0.434
380	3790	8.487	-0.434
381	3800	8.487	-0.434
382	3810	8.487	-0.434
383	3820	8.487	-0.434
384	3830	8.487	-0.434
385	3840	8.487	-0.434
386	3850	8.487	-0.434
387	3860	8.487	-0.434
388	3870	8.487	-0.434
389	3880	8.487	-0.434
390	3890	8.487	-0.434
391	3900	8.487	-0.434
392	3910	8.487	-0.434
393	3920	8.487	-0.434
394	3930	8.487	-0.434
395	3940	8.487	-0.434
396	3950	8.487	-0.434
397	3960	8.487	-0.434
398	3970	8.487	-0.434
399	3980	8.487	-0.434
400	3990	8.487	-0.434
401	4000	8.487	-0.434
402	4010	8.453	-0.468
403	4020	8.453	-0.468
404	4030	8.453	-0.468
405	4040	8.453	-0.468
406	4050	8.453	-0.468
407	4060	8.453	-0.468
408	4070	8.453	-0.468
409	4080	8.453	-0.468
410	4090	8.453	-0.468
411	4100	8.453	-0.468
412	4110	8.453	-0.468
413	4120	8.453	-0.468
414	4130	8.453	-0.468
415	4140	8.453	-0.468
416	4150	8.453	-0.468
417	4160	8.453	-0.468
418	4170	8.453	-0.468
419	4180	8.42	-0.501
420	4190	8.42	-0.501
421	4200	8.42	-0.501
422	4210	8.42	-0.501
423	4220	8.42	-0.501
424	4230	8.42	-0.501
425	4240	8.42	-0.501
426	4250	8.42	-0.501
427	4260	8.42	-0.501
428	4270	8.42	-0.501
429	4280	8.42	-0.501
430	4290	8.42	-0.501
431	4300	8.42	-0.501
432	4310	8.42	-0.501
433	4320	8.42	-0.501
434	4330	8.42	-0.501
435	4340	8.42	-0.501

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	8.42	-0.501
437	4360	8.42	-0.501
438	4370	8.42	-0.501
439	4380	8.42	-0.501
440	4390	8.42	-0.501
441	4400	8.42	-0.501
442	4410	8.42	-0.501
443	4420	8.42	-0.501
444	4430	8.42	-0.501
445	4440	8.42	-0.501
446	4450	8.42	-0.501
447	4460	8.42	-0.501
448	4470	8.42	-0.501
449	4480	8.42	-0.501
450	4490	8.42	-0.501
451	4500	8.386	-0.535
452	4510	8.42	-0.501
453	4520	8.42	-0.501
454	4530	8.386	-0.535
455	4540	8.42	-0.501
456	4550	8.386	-0.535
457	4560	8.386	-0.535
458	4570	8.386	-0.535
459	4580	8.386	-0.535
460	4590	8.386	-0.535
461	4600	8.386	-0.535
462	4610	8.386	-0.535
463	4620	8.386	-0.535
464	4630	8.386	-0.535
465	4640	8.386	-0.535
466	4650	8.386	-0.535
467	4660	8.386	-0.535
468	4670	8.386	-0.535
469	4680	8.386	-0.535
470	4690	8.386	-0.535
471	4700	8.386	-0.535
472	4710	8.386	-0.535
473	4720	8.386	-0.535
474	4730	8.386	-0.535
475	4740	8.386	-0.535
476	4750	8.386	-0.535
477	4760	8.386	-0.535
478	4770	8.386	-0.535
479	4780	8.386	-0.535
480	4790	8.353	-0.568
481	4800	8.386	-0.535
482	4810	8.386	-0.535
483	4820	8.386	-0.535
484	4830	8.386	-0.535
485	4840	8.386	-0.535
486	4850	8.353	-0.568
487	4860	8.386	-0.535
488	4870	8.386	-0.535
489	4880	8.386	-0.535
490	4890	8.353	-0.568
491	4900	8.386	-0.535
492	4910	8.353	-0.568
493	4920	8.386	-0.535
494	4930	8.353	-0.568
495	4940	8.353	-0.568
496	4950	8.353	-0.568
497	4960	8.353	-0.568
498	4970	8.353	-0.568

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	8.353	-0.568
500	4990	8.353	-0.568
501	5000	8.353	-0.568
502	5010	8.353	-0.568
503	5020	8.353	-0.568
504	5030	8.353	-0.568
505	5040	8.353	-0.568
506	5050	8.353	-0.568
507	5060	8.353	-0.568
508	5070	8.353	-0.568
509	5080	8.353	-0.568
510	5090	8.353	-0.568
511	5100	8.353	-0.568
512	5110	8.353	-0.568
513	5120	8.353	-0.568
514	5130	8.353	-0.568
515	5140	8.353	-0.568
516	5150	8.353	-0.568
517	5160	8.353	-0.568
518	5170	8.353	-0.568
519	5180	8.353	-0.568
520	5190	8.353	-0.568
521	5200	8.353	-0.568
522	5210	8.353	-0.568
523	5220	8.32	-0.601
524	5230	8.353	-0.568
525	5240	8.353	-0.568
526	5250	8.353	-0.568
527	5260	8.353	-0.568
528	5270	8.353	-0.568
529	5280	8.353	-0.568
530	5290	8.353	-0.568
531	5300	8.353	-0.568
532	5310	8.353	-0.568
533	5320	8.32	-0.601
534	5330	8.32	-0.601
535	5340	8.32	-0.601
536	5350	8.32	-0.601
537	5360	8.353	-0.568
538	5370	8.32	-0.601
539	5380	8.32	-0.601
540	5390	8.32	-0.601
541	5400	8.32	-0.601
542	5410	8.32	-0.601
543	5420	8.32	-0.601
544	5430	8.32	-0.601
545	5440	8.32	-0.601
546	5450	8.32	-0.601
547	5460	8.32	-0.601
548	5470	8.32	-0.601
549	5480	8.32	-0.601
550	5490	8.32	-0.601
551	5500	8.32	-0.601
552	5510	8.32	-0.601
553	5520	8.32	-0.601
554	5530	8.286	-0.635
555	5540	8.286	-0.635
556	5550	8.32	-0.601
557	5560	8.286	-0.635
558	5570	8.286	-0.635
559	5580	8.286	-0.635
560	5590	8.286	-0.635
561	5600	8.286	-0.635

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	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	8.286	-0.635
563	5620	8.286	-0.635
564	5630	8.286	-0.635
565	5640	8.286	-0.635
566	5650	8.286	-0.635
567	5660	8.253	-0.668
568	5670	8.286	-0.635
569	5680	8.286	-0.635
570	5690	8.253	-0.668
571	5700	8.253	-0.668
572	5710	8.286	-0.635
573	5720	8.253	-0.668
574	5730	8.253	-0.668
575	5740	8.253	-0.668
576	5750	8.253	-0.668
577	5760	8.253	-0.668
578	5770	8.253	-0.668
579	5780	8.253	-0.668
580	5790	8.219	-0.702
581	5800	8.219	-0.702
582	5810	8.219	-0.702
583	5820	8.219	-0.702
584	5830	8.219	-0.702
585	5840	8.219	-0.702
586	5850	8.219	-0.702
587	5860	8.219	-0.702
588	5870	8.219	-0.702
589	5880	8.219	-0.702
590	5890	8.219	-0.702
591	5900	8.219	-0.702
592	5910	8.186	-0.735
593	5920	8.186	-0.735
594	5930	8.186	-0.735
595	5940	8.186	-0.735
596	5950	8.186	-0.735
597	5960	8.186	-0.735
598	5970	8.186	-0.735
599	5980	8.186	-0.735
600	5990	8.186	-0.735
601	6000	8.186	-0.735
602	6010	8.153	-0.768
603	6020	8.153	-0.768
604	6030	8.153	-0.768
605	6040	8.153	-0.768
606	6050	8.153	-0.768
607	6060	8.153	-0.768
608	6070	8.153	-0.768
609	6080	8.153	-0.768
610	6090	8.153	-0.768
611	6100	8.153	-0.768
612	6110	8.153	-0.768
613	6120	8.153	-0.768
614	6130	8.153	-0.768
615	6140	8.153	-0.768
616	6150	8.119	-0.802
617	6160	8.119	-0.802
618	6170	8.119	-0.802
619	6180	8.119	-0.802
620	6190	8.119	-0.802
621	6200	8.119	-0.802
622	6210	8.119	-0.802
623	6220	8.119	-0.802
624	6230	8.119	-0.802

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	8.086	-0.835
626	6250	8.119	-0.802
627	6260	8.086	-0.835
628	6270	8.086	-0.835
629	6280	8.086	-0.835
630	6290	8.086	-0.835
631	6300	8.086	-0.835
632	6310	8.086	-0.835
633	6320	8.086	-0.835
634	6330	8.086	-0.835
635	6340	8.086	-0.835
636	6350	8.086	-0.835
637	6360	8.086	-0.835
638	6370	8.086	-0.835
639	6380	8.086	-0.835
640	6390	8.086	-0.835
641	6400	8.086	-0.835
642	6410	8.052	-0.869
643	6420	8.052	-0.869
644	6430	8.052	-0.869
645	6440	8.052	-0.869
646	6450	8.052	-0.869
647	6460	8.052	-0.869
648	6470	8.052	-0.869
649	6480	8.052	-0.869
650	6490	8.052	-0.869
651	6500	8.052	-0.869
652	6510	8.052	-0.869
653	6520	8.052	-0.869
654	6530	8.052	-0.869
655	6540	8.052	-0.869
656	6550	8.052	-0.869
657	6560	8.052	-0.869
658	6570	8.052	-0.869
659	6580	8.052	-0.869
660	6590	8.052	-0.869
661	6600	8.019	-0.902
662	6610	8.052	-0.869
663	6620	8.019	-0.902
664	6630	8.019	-0.902
665	6640	8.019	-0.902
666	6650	8.019	-0.902
667	6660	8.019	-0.902
668	6670	8.019	-0.902
669	6680	8.019	-0.902
670	6690	8.019	-0.902
671	6700	8.019	-0.902
672	6710	8.019	-0.902
673	6720	8.019	-0.902
674	6730	8.019	-0.902
675	6740	8.019	-0.902
676	6750	8.019	-0.902
677	6760	8.019	-0.902
678	6770	8.019	-0.902
679	6780	8.019	-0.902
680	6790	8.019	-0.902
681	6800	8.019	-0.902
682	6810	8.019	-0.902
683	6820	7.985	-0.936
684	6830	7.985	-0.936
685	6840	7.985	-0.936
686	6850	7.985	-0.936
687	6860	7.985	-0.936

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	7.985	-0.936
689	6880	7.985	-0.936
690	6890	7.985	-0.936
691	6900	7.952	-0.969
692	6910	7.952	-0.969
693	6920	7.952	-0.969
694	6930	7.952	-0.969
695	6940	7.952	-0.969
696	6950	7.952	-0.969
697	6960	7.952	-0.969
698	6970	7.952	-0.969
699	6980	7.919	-1.002
700	6990	7.919	-1.002
701	7000	7.919	-1.002
702	7010	7.919	-1.002
703	7020	7.919	-1.002
704	7030	7.919	-1.002
705	7040	7.919	-1.002
706	7050	7.919	-1.002
707	7060	7.919	-1.002
708	7070	7.885	-1.036
709	7080	7.885	-1.036
710	7090	7.885	-1.036
711	7100	7.885	-1.036
712	7110	7.885	-1.036
713	7120	7.885	-1.036
714	7130	7.885	-1.036
715	7140	7.885	-1.036
716	7150	7.852	-1.069
717	7160	7.852	-1.069
718	7170	7.852	-1.069
719	7180	7.852	-1.069
720	7190	7.852	-1.069
721	7200	7.818	-1.103
722	7210	7.852	-1.069
723	7220	7.818	-1.103
724	7230	7.818	-1.103
725	7240	7.818	-1.103
726	7250	7.818	-1.103
727	7260	7.818	-1.103
728	7270	7.818	-1.103
729	7280	7.818	-1.103
730	7290	7.785	-1.136
731	7300	7.785	-1.136
732	7310	7.785	-1.136
733	7320	7.785	-1.136
734	7330	7.785	-1.136
735	7340	7.752	-1.169
736	7350	7.752	-1.169
737	7360	7.752	-1.169
738	7370	7.752	-1.169
739	7380	7.752	-1.169
740	7390	7.752	-1.169
741	7400	7.752	-1.169
742	7410	7.752	-1.169
743	7420	7.718	-1.203
744	7430	7.718	-1.203
745	7440	7.718	-1.203
746	7450	7.718	-1.203
747	7460	7.718	-1.203
748	7470	7.718	-1.203
749	7480	7.718	-1.203
750	7490	7.718	-1.203

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	7.718	-1.203
752	7510	7.685	-1.236
753	7520	7.685	-1.236
754	7530	7.685	-1.236
755	7540	7.685	-1.236
756	7550	7.685	-1.236
757	7560	7.685	-1.236
758	7570	7.685	-1.236
759	7580	7.685	-1.236
760	7590	7.685	-1.236
761	7600	7.685	-1.236
762	7610	7.651	-1.27
763	7620	7.651	-1.27
764	7630	7.651	-1.27
765	7640	7.651	-1.27
766	7650	7.651	-1.27
767	7660	7.651	-1.27
768	7670	7.651	-1.27
769	7680	7.651	-1.27
770	7690	7.651	-1.27
771	7700	7.651	-1.27
772	7710	7.618	-1.303
773	7720	7.618	-1.303
774	7730	7.618	-1.303
775	7740	7.618	-1.303
776	7750	7.618	-1.303
777	7760	7.618	-1.303
778	7770	7.618	-1.303
779	7780	7.618	-1.303
780	7790	7.618	-1.303
781	7800	7.618	-1.303
782	7810	7.618	-1.303
783	7820	7.585	-1.336
784	7830	7.585	-1.336
785	7840	7.585	-1.336
786	7850	7.585	-1.336
787	7860	7.585	-1.336
788	7870	7.585	-1.336
789	7880	7.585	-1.336
790	7890	7.585	-1.336
791	7900	7.585	-1.336
792	7910	7.585	-1.336
793	7920	7.585	-1.336
794	7930	7.585	-1.336
795	7940	7.551	-1.37
796	7950	7.551	-1.37
797	7960	7.551	-1.37
798	7970	7.551	-1.37
799	7980	7.551	-1.37
800	7990	7.551	-1.37
801	8000	7.551	-1.37
802	8010	7.551	-1.37
803	8020	7.551	-1.37
804	8030	7.551	-1.37
805	8040	7.551	-1.37
806	8050	7.551	-1.37
807	8060	7.551	-1.37
808	8070	7.551	-1.37
809	8080	7.551	-1.37
810	8090	7.551	-1.37
811	8100	7.551	-1.37
812	8110	7.551	-1.37
813	8120	7.551	-1.37

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	7.551	-1.37
815	8140	7.551	-1.37
816	8150	7.551	-1.37
817	8160	7.551	-1.37
818	8170	7.551	-1.37
819	8180	7.551	-1.37
820	8190	7.551	-1.37
821	8200	7.551	-1.37
822	8210	7.551	-1.37
823	8220	7.585	-1.336
824	8230	7.585	-1.336
825	8240	7.585	-1.336
826	8250	7.585	-1.336
827	8260	7.585	-1.336
828	8270	7.585	-1.336
829	8280	7.585	-1.336
830	8290	7.585	-1.336
831	8300	7.551	-1.37
832	8310	7.585	-1.336
833	8320	7.585	-1.336
834	8330	7.585	-1.336
835	8340	7.585	-1.336
836	8350	7.585	-1.336
837	8360	7.551	-1.37
838	8370	7.585	-1.336
839	8380	7.585	-1.336
840	8390	7.585	-1.336
841	8400	7.551	-1.37
842	8410	7.585	-1.336
843	8420	7.585	-1.336
844	8430	7.585	-1.336
845	8440	7.585	-1.336
846	8450	7.585	-1.336
847	8460	7.551	-1.37
848	8470	7.551	-1.37
849	8480	7.551	-1.37
850	8490	7.551	-1.37
851	8500	7.551	-1.37
852	8510	7.551	-1.37
853	8520	7.585	-1.336
854	8530	7.585	-1.336
855	8540	7.551	-1.37
856	8550	7.585	-1.336
857	8560	7.585	-1.336
858	8570	7.585	-1.336
859	8580	7.585	-1.336
860	8590	7.585	-1.336
861	8600	7.585	-1.336
862	8610	7.585	-1.336
863	8620	7.551	-1.37
864	8630	7.585	-1.336
865	8640	7.585	-1.336
866	8650	7.551	-1.37
867	8660	7.585	-1.336
868	8670	7.585	-1.336
869	8680	7.551	-1.37
870	8690	7.551	-1.37
871	8700	7.585	-1.336
872	8710	7.585	-1.336
873	8720	7.551	-1.37
874	8730	7.585	-1.336
875	8740	7.551	-1.37
876	8750	7.551	-1.37

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	7.551	-1.37
878	8770	7.551	-1.37
879	8780	7.551	-1.37
880	8790	7.551	-1.37
881	8800	7.551	-1.37
882	8810	7.551	-1.37
883	8820	7.551	-1.37
884	8830	7.551	-1.37
885	8840	7.551	-1.37
886	8850	7.551	-1.37
887	8860	7.551	-1.37
888	8870	7.551	-1.37
889	8880	7.551	-1.37
890	8890	7.551	-1.37
891	8900	7.551	-1.37
892	8910	7.551	-1.37
893	8920	7.551	-1.37
894	8930	7.551	-1.37
895	8940	7.551	-1.37
896	8950	7.518	-1.403
897	8960	7.518	-1.403
898	8970	7.551	-1.37
899	8980	7.551	-1.37
900	8990	7.551	-1.37
901	9000	7.551	-1.37
902	9010	7.551	-1.37
903	9020	7.551	-1.37
904	9030	7.551	-1.37
905	9040	7.551	-1.37
906	9050	7.551	-1.37
907	9060	7.551	-1.37
908	9070	7.551	-1.37
909	9080	7.551	-1.37
910	9090	7.551	-1.37
911	9100	7.551	-1.37
912	9110	7.551	-1.37
913	9120	7.551	-1.37
914	9130	7.551	-1.37
915	9140	7.551	-1.37
916	9150	7.551	-1.37
917	9160	7.551	-1.37
918	9170	7.551	-1.37
919	9180	7.551	-1.37
920	9190	7.551	-1.37
921	9200	7.551	-1.37
922	9210	7.551	-1.37
923	9220	7.551	-1.37
924	9230	7.551	-1.37
925	9240	7.551	-1.37
926	9250	7.551	-1.37
927	9260	7.551	-1.37
928	9270	7.551	-1.37
929	9280	7.551	-1.37
930	9290	7.551	-1.37
931	9300	7.551	-1.37
932	9310	7.551	-1.37
933	9320	7.551	-1.37
934	9330	7.551	-1.37
935	9340	7.551	-1.37
936	9350	7.551	-1.37
937	9360	7.551	-1.37
938	9370	7.551	-1.37
939	9380	7.551	-1.37

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	7.551	-1.37
941	9400	7.551	-1.37
942	9410	7.551	-1.37
943	9420	7.551	-1.37
944	9430	7.551	-1.37
945	9440	7.551	-1.37
946	9450	7.551	-1.37
947	9460	7.551	-1.37
948	9470	7.551	-1.37
949	9480	7.551	-1.37
950	9490	7.551	-1.37
951	9500	7.551	-1.37
952	9510	7.551	-1.37
953	9520	7.551	-1.37
954	9530	7.585	-1.336
955	9540	7.551	-1.37
956	9550	7.585	-1.336
957	9560	7.585	-1.336
958	9570	7.585	-1.336
959	9580	7.585	-1.336
960	9590	7.585	-1.336
961	9600	7.585	-1.336
962	9610	7.585	-1.336
963	9620	7.585	-1.336
964	9630	7.585	-1.336
965	9640	7.585	-1.336
966	9650	7.585	-1.336
967	9660	7.618	-1.303
968	9670	7.585	-1.336
969	9680	7.618	-1.303
970	9690	7.585	-1.336
971	9700	7.618	-1.303
972	9710	7.618	-1.303
973	9720	7.618	-1.303
974	9730	7.618	-1.303
975	9740	7.618	-1.303
976	9750	7.618	-1.303
977	9760	7.618	-1.303
978	9770	7.618	-1.303
979	9780	7.618	-1.303
980	9790	7.618	-1.303
981	9800	7.618	-1.303
982	9810	7.618	-1.303
983	9820	7.651	-1.27
984	9830	7.618	-1.303
985	9840	7.618	-1.303
986	9850	7.651	-1.27
987	9860	7.651	-1.27
988	9870	7.651	-1.27
989	9880	7.651	-1.27
990	9890	7.651	-1.27
991	9900	7.651	-1.27
992	9910	7.651	-1.27
993	9920	7.651	-1.27
994	9930	7.651	-1.27
995	9940	7.651	-1.27
996	9950	7.651	-1.27
997	9960	7.618	-1.303
998	9970	7.651	-1.27
999	9980	7.651	-1.27
1000	9990	7.618	-1.303
1001	10000	7.618	-1.303
1002	10010	7.651	-1.27

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	7.651	-1.27
1004	10030	7.651	-1.27
1005	10040	7.651	-1.27
1006	10050	7.618	-1.303
1007	10060	7.618	-1.303
1008	10070	7.618	-1.303
1009	10080	7.618	-1.303
1010	10090	7.618	-1.303
1011	10100	7.618	-1.303
1012	10110	7.618	-1.303
1013	10120	7.618	-1.303
1014	10130	7.618	-1.303
1015	10140	7.651	-1.27
1016	10150	7.651	-1.27
1017	10160	7.651	-1.27
1018	10170	7.651	-1.27
1019	10180	7.651	-1.27
1020	10190	7.651	-1.27
1021	10200	7.651	-1.27
1022	10210	7.651	-1.27
1023	10220	7.651	-1.27
1024	10230	7.685	-1.236
1025	10240	7.685	-1.236
1026	10250	7.685	-1.236
1027	10260	7.685	-1.236
1028	10270	7.685	-1.236
1029	10280	7.685	-1.236
1030	10290	7.718	-1.203
1031	10300	7.718	-1.203
1032	10310	7.718	-1.203
1033	10320	7.718	-1.203
1034	10330	7.718	-1.203
1035	10340	7.752	-1.169
1036	10350	7.752	-1.169
1037	10360	7.752	-1.169
1038	10370	7.752	-1.169
1039	10380	7.752	-1.169
1040	10390	7.785	-1.136
1041	10400	7.785	-1.136
1042	10410	7.785	-1.136
1043	10420	7.785	-1.136
1044	10430	7.818	-1.103
1045	10440	7.818	-1.103
1046	10450	7.818	-1.103
1047	10460	7.818	-1.103
1048	10470	7.818	-1.103
1049	10480	7.818	-1.103
1050	10490	7.852	-1.069
1051	10500	7.852	-1.069
1052	10510	7.852	-1.069
1053	10520	7.852	-1.069
1054	10530	7.852	-1.069
1055	10540	7.885	-1.036
1056	10550	7.885	-1.036
1057	10560	7.885	-1.036
1058	10570	7.885	-1.036
1059	10580	7.885	-1.036
1060	10590	7.919	-1.002
1061	10600	7.919	-1.002
1062	10610	7.919	-1.002
1063	10620	7.919	-1.002
1064	10630	7.919	-1.002
1065	10640	7.919	-1.002

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	7.952	-0.969
1067	10660	7.952	-0.969
1068	10670	7.952	-0.969
1069	10680	7.952	-0.969
1070	10690	7.952	-0.969
1071	10700	7.952	-0.969
1072	10710	7.985	-0.936
1073	10720	7.985	-0.936
1074	10730	7.985	-0.936
1075	10740	7.985	-0.936
1076	10750	8.019	-0.902
1077	10760	8.019	-0.902
1078	10770	8.019	-0.902
1079	10780	8.019	-0.902
1080	10790	8.019	-0.902
1081	10800	8.019	-0.902
1082	10810	8.019	-0.902
1083	10820	8.019	-0.902
1084	10830	8.052	-0.869
1085	10840	8.052	-0.869
1086	10850	8.052	-0.869
1087	10860	8.052	-0.869
1088	10870	8.086	-0.835
1089	10880	8.052	-0.869
1090	10890	8.086	-0.835
1091	10900	8.086	-0.835
1092	10910	8.086	-0.835
1093	10920	8.086	-0.835
1094	10930	8.086	-0.835
1095	10940	8.086	-0.835
1096	10950	8.119	-0.802
1097	10960	8.119	-0.802
1098	10970	8.119	-0.802
1099	10980	8.119	-0.802
1100	10990	8.153	-0.768
1101	11000	8.119	-0.802
1102	11010	8.153	-0.768
1103	11020	8.153	-0.768
1104	11030	8.153	-0.768
1105	11040	8.153	-0.768
1106	11050	8.153	-0.768
1107	11060	8.153	-0.768
1108	11070	8.186	-0.735
1109	11080	8.186	-0.735
1110	11090	8.186	-0.735
1111	11100	8.186	-0.735
1112	11110	8.186	-0.735
1113	11120	8.186	-0.735
1114	11130	8.219	-0.702
1115	11140	8.219	-0.702
1116	11150	8.219	-0.702
1117	11160	8.219	-0.702
1118	11170	8.219	-0.702
1119	11180	8.219	-0.702
1120	11190	8.219	-0.702
1121	11200	8.253	-0.668
1122	11210	8.253	-0.668
1123	11220	8.253	-0.668
1124	11230	8.253	-0.668
1125	11240	8.253	-0.668
1126	11250	8.286	-0.635
1127	11260	8.286	-0.635
1128	11270	8.286	-0.635

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	8.286	-0.635
1130	11290	8.286	-0.635
1131	11300	8.286	-0.635
1132	11310	8.286	-0.635
1133	11320	8.286	-0.635
1134	11330	8.286	-0.635
1135	11340	8.286	-0.635
1136	11350	8.286	-0.635
1137	11360	8.286	-0.635
1138	11370	8.286	-0.635
1139	11380	8.32	-0.601
1140	11390	8.32	-0.601
1141	11400	8.32	-0.601
1142	11410	8.32	-0.601
1143	11420	8.32	-0.601
1144	11430	8.32	-0.601
1145	11440	8.32	-0.601
1146	11450	8.32	-0.601
1147	11460	8.32	-0.601
1148	11470	8.32	-0.601
1149	11480	8.32	-0.601
1150	11490	8.32	-0.601
1151	11500	8.32	-0.601
1152	11510	8.32	-0.601
1153	11520	8.32	-0.601
1154	11530	8.32	-0.601
1155	11540	8.32	-0.601
1156	11550	8.32	-0.601
1157	11560	8.32	-0.601
1158	11570	8.32	-0.601
1159	11580	8.353	-0.568
1160	11590	8.32	-0.601
1161	11600	8.32	-0.601
1162	11610	8.32	-0.601
1163	11620	8.353	-0.568
1164	11630	8.32	-0.601
1165	11640	8.32	-0.601
1166	11650	8.353	-0.568
1167	11660	8.32	-0.601
1168	11670	8.353	-0.568
1169	11680	8.353	-0.568
1170	11690	8.353	-0.568
1171	11700	8.353	-0.568
1172	11710	8.353	-0.568
1173	11720	8.353	-0.568
1174	11730	8.353	-0.568
1175	11740	8.353	-0.568
1176	11750	8.353	-0.568
1177	11760	8.353	-0.568
1178	11770	8.353	-0.568
1179	11780	8.353	-0.568
1180	11790	8.353	-0.568
1181	11800	8.353	-0.568
1182	11810	8.353	-0.568
1183	11820	8.353	-0.568
1184	11830	8.353	-0.568
1185	11840	8.353	-0.568
1186	11850	8.353	-0.568
1187	11860	8.353	-0.568
1188	11870	8.353	-0.568
1189	11880	8.386	-0.535
1190	11890	8.353	-0.568
1191	11900	8.386	-0.535

Friesen Drillers Ltd.
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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	8.386	-0.535
1193	11920	8.386	-0.535
1194	11930	8.386	-0.535
1195	11940	8.386	-0.535
1196	11950	8.386	-0.535
1197	11960	8.386	-0.535
1198	11970	8.386	-0.535
1199	11980	8.386	-0.535
1200	11990	8.386	-0.535
1201	12000	8.386	-0.535
1202	12010	8.386	-0.535
1203	12020	8.386	-0.535
1204	12030	8.386	-0.535
1205	12040	8.386	-0.535
1206	12050	8.386	-0.535
1207	12060	8.42	-0.501
1208	12070	8.42	-0.501
1209	12080	8.42	-0.501
1210	12090	8.42	-0.501
1211	12100	8.42	-0.501
1212	12110	8.42	-0.501
1213	12120	8.42	-0.501
1214	12130	8.42	-0.501
1215	12140	8.42	-0.501
1216	12150	8.42	-0.501
1217	12160	8.42	-0.501
1218	12170	8.42	-0.501
1219	12180	8.42	-0.501
1220	12190	8.42	-0.501
1221	12200	8.42	-0.501
1222	12210	8.42	-0.501
1223	12220	8.42	-0.501
1224	12230	8.42	-0.501
1225	12240	8.42	-0.501
1226	12250	8.42	-0.501
1227	12260	8.42	-0.501
1228	12270	8.42	-0.501
1229	12280	8.42	-0.501
1230	12290	8.42	-0.501
1231	12300	8.42	-0.501
1232	12310	8.42	-0.501
1233	12320	8.42	-0.501
1234	12330	8.42	-0.501
1235	12340	8.42	-0.501
1236	12350	8.42	-0.501
1237	12360	8.42	-0.501
1238	12370	8.42	-0.501
1239	12380	8.42	-0.501
1240	12390	8.42	-0.501
1241	12400	8.42	-0.501
1242	12410	8.42	-0.501
1243	12420	8.42	-0.501
1244	12430	8.42	-0.501
1245	12440	8.42	-0.501
1246	12450	8.42	-0.501
1247	12460	8.42	-0.501
1248	12470	8.42	-0.501
1249	12480	8.453	-0.468
1250	12490	8.453	-0.468
1251	12500	8.453	-0.468
1252	12510	8.453	-0.468
1253	12520	8.453	-0.468
1254	12530	8.453	-0.468

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	8.453	-0.468
1256	12550	8.453	-0.468
1257	12560	8.453	-0.468
1258	12570	8.453	-0.468
1259	12580	8.453	-0.468
1260	12590	8.453	-0.468
1261	12600	8.453	-0.468
1262	12610	8.453	-0.468
1263	12620	8.487	-0.434
1264	12630	8.487	-0.434
1265	12640	8.453	-0.468
1266	12650	8.487	-0.434
1267	12660	8.487	-0.434
1268	12670	8.487	-0.434
1269	12680	8.487	-0.434
1270	12690	8.487	-0.434
1271	12700	8.487	-0.434
1272	12710	8.487	-0.434
1273	12720	8.487	-0.434
1274	12730	8.487	-0.434
1275	12740	8.487	-0.434
1276	12750	8.487	-0.434
1277	12760	8.487	-0.434
1278	12770	8.487	-0.434
1279	12780	8.487	-0.434
1280	12790	8.487	-0.434
1281	12800	8.487	-0.434
1282	12810	8.487	-0.434
1283	12820	8.487	-0.434
1284	12830	8.487	-0.434

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-GB1	Static Water Level [ft]: 5.76	Radial Distance to PW [ft]: 11313

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	5.7567	0.00
2	5	5.7566	-0.0001
3	10	5.757	0.0003
4	15	5.7589	0.0022
5	20	5.7612	0.0045
6	25	5.7627	0.006
7	30	5.9198	0.1631
8	35	5.8331	0.0764
9	40	5.7668	0.0101
10	45	5.768	0.0113
11	50	5.8547	0.098
12	55	5.6967	-0.06
13	60	5.7785	0.0218
14	65	5.8517	0.095
15	70	5.8314	0.0747
16	75	5.7728	0.0161
17	80	5.7796	0.0229
18	85	5.6584	-0.0983
19	90	5.6501	-0.1066
20	95	5.7841	0.0274
21	100	5.7906	0.0339
22	105	5.8489	0.0922
23	110	5.9014	0.1447
24	115	5.795	0.0383
25	120	5.7962	0.0395
26	125	5.7428	-0.0139
27	130	5.8003	0.0436
28	135	5.8007	0.044
29	140	5.84	0.0833
30	145	6.0081	0.2514
31	150	5.807	0.0503
32	155	5.8002	0.0435
33	160	5.9217	0.165
34	165	5.8074	0.0507
35	170	5.8094	0.0527
36	175	5.8286	0.0719
37	180	5.6583	-0.0984
38	185	5.8133	0.0566
39	190	5.806	0.0493
40	195	5.7003	-0.0564
41	200	5.8223	0.0656
42	205	5.8227	0.066
43	210	5.7573	0.0006
44	215	5.8406	0.0839
45	220	5.8274	0.0707
46	225	5.8284	0.0717
47	230	5.8328	0.0761
48	235	6.0032	0.2465
49	240	5.9901	0.2334
50	245	5.8368	0.0801
51	250	5.8376	0.0809
52	255	5.8373	0.0806
53	260	5.6781	-0.0786
54	265	5.843	0.0863
55	270	5.8463	0.0896
56	275	5.8477	0.091
57	280	5.8874	0.1307

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
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	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	5.7223	-0.0344
59	290	5.8527	0.096
60	295	5.854	0.0973
61	300	5.8564	0.0997
62	305	5.8043	0.0476
63	310	5.8647	0.108
64	315	5.8639	0.1072
65	320	5.8642	0.1075
66	325	5.7057	-0.051
67	330	5.8819	0.1252
68	335	5.8681	0.1114
69	340	5.8669	0.1102
70	345	5.8688	0.1121
71	350	5.873	0.1163
72	355	5.8743	0.1176
73	360	5.9329	0.1762
74	365	5.8779	0.1212
75	370	5.8797	0.123
76	375	5.8795	0.1228
77	380	5.8825	0.1258
78	385	5.882	0.1253
79	390	5.885	0.1283
80	395	5.8845	0.1278
81	400	5.9365	0.1798
82	405	5.8857	0.129
83	410	5.887	0.1303
84	415	5.8866	0.1299
85	420	5.888	0.1313
86	425	5.8906	0.1339
87	430	5.8925	0.1358
88	435	5.895	0.1383
89	440	5.8954	0.1387
90	445	5.8975	0.1408
91	450	5.8993	0.1426
92	455	5.8995	0.1428
93	460	5.9018	0.1451
94	465	5.9037	0.147
95	470	6.0865	0.3298
96	475	5.7923	0.0356
97	480	5.9076	0.1509
98	485	5.9078	0.1511
99	490	5.909	0.1523
100	495	5.909	0.1523
101	500	5.91	0.1533
102	505	5.9103	0.1536
103	510	5.9129	0.1562
104	515	5.9133	0.1566
105	520	5.9182	0.1615
106	525	5.9165	0.1598
107	530	5.9196	0.1629
108	535	5.9209	0.1642
109	540	5.9219	0.1652
110	545	5.9233	0.1666
111	550	5.9253	0.1686
112	555	5.9279	0.1712
113	560	5.937	0.1803
114	565	5.929	0.1723
115	570	5.9302	0.1735
116	575	5.9313	0.1746
117	580	5.9333	0.1766
118	585	5.9345	0.1778
119	590	5.9357	0.179
120	595	5.937	0.1803

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Pumping Test - Water Level Data

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	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	5.9377	0.181
122	605	5.9405	0.1838
123	610	5.9423	0.1856
124	615	5.9434	0.1867
125	620	5.9434	0.1867
126	625	5.9467	0.19
127	630	5.9491	0.1924
128	635	5.9515	0.1948
129	640	5.9539	0.1972
130	645	5.9547	0.198
131	650	5.9562	0.1995
132	655	5.9566	0.1999
133	660	5.9582	0.2015
134	665	5.9604	0.2037
135	670	5.964	0.2073
136	675	5.9638	0.2071
137	680	5.9648	0.2081
138	685	5.9661	0.2094
139	690	5.968	0.2113
140	695	5.9699	0.2132
141	700	5.9709	0.2142
142	705	5.9719	0.2152
143	710	5.973	0.2163
144	715	5.9736	0.2169
145	720	5.9756	0.2189
146	725	5.977	0.2203
147	730	5.9775	0.2208
148	735	5.9783	0.2216
149	740	5.9798	0.2231
150	745	5.9828	0.2261
151	750	5.9839	0.2272
152	755	5.9851	0.2284
153	760	5.9855	0.2288
154	765	5.986	0.2293
155	770	5.986	0.2293
156	775	5.9883	0.2316
157	780	5.9891	0.2324
158	785	5.9898	0.2331
159	790	5.9917	0.235
160	795	5.9936	0.2369
161	800	5.9953	0.2386
162	805	5.9975	0.2408
163	810	5.9986	0.2419
164	815	5.9987	0.242
165	820	5.9989	0.2422
166	825	5.9997	0.243
167	830	5.9998	0.2431
168	835	6.0024	0.2457
169	840	6.0027	0.246
170	845	6.004	0.2473
171	850	6.0065	0.2498
172	855	6.0089	0.2522
173	860	5.9921	0.2354
174	865	6.0109	0.2542
175	870	6.0113	0.2546
176	875	6.0118	0.2551
177	880	6.0109	0.2542
178	885	6.0136	0.2569
179	890	6.0133	0.2566
180	895	6.0139	0.2572
181	900	6.0156	0.2589
182	905	6.017	0.2603
183	910	6.0191	0.2624

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	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	6.0207	0.264
185	920	6.0209	0.2642
186	925	6.0212	0.2645
187	930	6.0211	0.2644
188	935	6.0191	0.2624
189	940	6.0208	0.2641
190	945	6.0214	0.2647
191	950	6.0209	0.2642
192	955	6.0214	0.2647
193	960	6.0236	0.2669
194	965	6.0239	0.2672
195	970	6.0235	0.2668
196	975	6.0239	0.2672
197	980	6.0247	0.268
198	985	6.0265	0.2698
199	990	6.0268	0.2701
200	995	6.0268	0.2701
201	1000	6.0292	0.2725
202	1005	6.0305	0.2738
203	1010	6.0314	0.2747
204	1015	6.0303	0.2736
205	1020	6.0286	0.2719
206	1025	6.0257	0.269
207	1030	6.0196	0.2629
208	1035	6.1633	0.4066
209	1040	6.0259	0.2692
210	1045	6.0236	0.2669
211	1050	6.0237	0.267
212	1055	6.025	0.2683
213	1060	6.0245	0.2678
214	1065	6.0248	0.2681
215	1070	6.0239	0.2672
216	1075	6.0262	0.2695
217	1080	6.0258	0.2691
218	1085	6.0266	0.2699
219	1090	6.0257	0.269
220	1095	6.0224	0.2657
221	1100	6.0206	0.2639
222	1105	6.0206	0.2639
223	1110	6.0205	0.2638
224	1115	6.022	0.2653
225	1120	6.0242	0.2675
226	1125	6.0259	0.2692
227	1130	6.0255	0.2688
228	1135	6.0262	0.2695
229	1140	6.0276	0.2709
230	1145	6.028	0.2713
231	1150	6.0279	0.2712
232	1155	6.027	0.2703
233	1160	6.0288	0.2721
234	1165	6.0296	0.2729
235	1170	6.0311	0.2744
236	1175	6.0331	0.2764
237	1180	6.0343	0.2776
238	1185	6.0342	0.2775
239	1190	6.0324	0.2757
240	1195	6.031	0.2743
241	1200	6.0329	0.2762
242	1205	6.0327	0.276
243	1210	6.029	0.2723
244	1215	6.0295	0.2728
245	1220	6.0289	0.2722
246	1225	6.0276	0.2709

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	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	6.028	0.2713
248	1235	6.027	0.2703
249	1240	6.0298	0.2731
250	1245	6.0279	0.2712
251	1250	6.0282	0.2715
252	1255	6.0285	0.2718
253	1260	6.0296	0.2729
254	1265	6.0299	0.2732
255	1270	6.0298	0.2731
256	1275	6.0288	0.2721
257	1280	6.0297	0.273
258	1285	6.0301	0.2734
259	1290	6.0305	0.2738
260	1295	6.0275	0.2708
261	1300	6.029	0.2723
262	1305	6.0268	0.2701
263	1310	6.0296	0.2729
264	1315	6.0303	0.2736
265	1320	6.0323	0.2756
266	1325	6.0323	0.2756
267	1330	6.0311	0.2744
268	1335	6.0326	0.2759
269	1340	6.034	0.2773
270	1345	6.0343	0.2776
271	1350	6.035	0.2783
272	1355	6.0357	0.279
273	1360	6.0378	0.2811
274	1365	6.0381	0.2814
275	1370	6.0345	0.2778
276	1375	6.0361	0.2794
277	1380	6.0361	0.2794
278	1385	6.0362	0.2795
279	1390	6.0358	0.2791
280	1395	6.0357	0.279
281	1400	6.0357	0.279
282	1405	6.0353	0.2786
283	1410	6.034	0.2773
284	1415	6.0348	0.2781
285	1420	6.0354	0.2787
286	1425	6.0335	0.2768
287	1430	6.0333	0.2766
288	1435	6.0336	0.2769
289	1440	6.0352	0.2785
290	1445	6.0326	0.2759
291	1450	6.0332	0.2765
292	1455	6.034	0.2773
293	1460	6.0332	0.2765
294	1465	6.0368	0.2801
295	1470	6.0406	0.2839
296	1475	6.0414	0.2847
297	1480	6.0403	0.2836
298	1485	6.0404	0.2837
299	1490	6.0415	0.2848
300	1495	6.0426	0.2859
301	1500	6.0428	0.2861
302	1505	6.0435	0.2868
303	1510	6.0457	0.289
304	1515	6.0462	0.2895
305	1520	6.0466	0.2899
306	1525	6.0469	0.2902
307	1530	6.0473	0.2906
308	1535	6.0492	0.2925
309	1540	6.0519	0.2952

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	6.0513	0.2946
311	1550	6.0496	0.2929
312	1555	6.0527	0.296
313	1560	6.0518	0.2951
314	1565	6.0501	0.2934
315	1570	6.0497	0.293
316	1575	6.0488	0.2921
317	1580	6.0507	0.294
318	1585	6.0544	0.2977
319	1590	6.0531	0.2964
320	1595	6.0578	0.3011
321	1600	6.0564	0.2997
322	1605	5.9038	0.1471
323	1610	6.061	0.3043
324	1615	6.0614	0.3047
325	1620	6.0623	0.3056
326	1625	6.0631	0.3064
327	1630	6.0662	0.3095
328	1635	6.0647	0.308
329	1640	6.0676	0.3109
330	1645	6.0671	0.3104
331	1650	6.0676	0.3109
332	1655	6.0645	0.3078
333	1660	6.0667	0.31
334	1665	6.0683	0.3116
335	1670	6.0678	0.3111
336	1675	6.0664	0.3097
337	1680	6.07	0.3133
338	1685	6.0709	0.3142
339	1690	6.0707	0.314
340	1695	6.0719	0.3152
341	1700	6.0707	0.314
342	1705	6.2686	0.5119
343	1710	6.1576	0.4009
344	1715	6.071	0.3143
345	1720	6.0731	0.3164
346	1725	6.0726	0.3159
347	1730	6.074	0.3173
348	1735	6.0794	0.3227
349	1740	6.0791	0.3224
350	1745	6.0824	0.3257
351	1750	6.0809	0.3242
352	1755	6.0816	0.3249
353	1760	6.0786	0.3219
354	1765	6.0846	0.3279
355	1770	6.0867	0.33
356	1775	6.0816	0.3249
357	1780	6.0798	0.3231
358	1785	6.0826	0.3259
359	1790	6.0872	0.3305
360	1795	6.0877	0.331
361	1800	6.0876	0.3309
362	1805	6.0842	0.3275
363	1810	6.0845	0.3278
364	1815	6.0812	0.3245
365	1820	6.0612	0.3045
366	1825	6.0855	0.3288
367	1830	6.0847	0.328
368	1835	6.0864	0.3297
369	1840	6.09	0.3333
370	1845	6.0858	0.3291
371	1850	6.0875	0.3308
372	1855	6.0895	0.3328

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	6.0895	0.3328
374	1865	6.09	0.3333
375	1870	6.0872	0.3305
376	1875	6.0744	0.3177
377	1880	6.0805	0.3238
378	1885	6.088	0.3313
379	1890	6.0896	0.3329
380	1895	6.0912	0.3345
381	1900	6.09	0.3333
382	1905	6.0864	0.3297
383	1910	6.0877	0.331
384	1915	6.0889	0.3322
385	1920	6.0878	0.3311
386	1925	6.0886	0.3319
387	1930	6.0904	0.3337
388	1935	6.0898	0.3331
389	1940	6.0864	0.3297
390	1945	6.0875	0.3308
391	1950	6.0897	0.333
392	1955	6.0899	0.3332
393	1960	6.0913	0.3346
394	1965	6.0903	0.3336
395	1970	6.0902	0.3335
396	1975	6.0897	0.333
397	1980	6.09	0.3333
398	1985	6.0903	0.3336
399	1990	6.0896	0.3329
400	1995	6.09	0.3333
401	2000	6.0937	0.337
402	2005	6.0911	0.3344
403	2010	6.0944	0.3377
404	2015	6.0927	0.336
405	2020	6.0908	0.3341
406	2025	6.0944	0.3377
407	2030	6.0932	0.3365
408	2035	6.0923	0.3356
409	2040	6.0914	0.3347
410	2045	6.0924	0.3357
411	2050	6.0946	0.3379
412	2055	6.0942	0.3375
413	2060	6.0942	0.3375
414	2065	6.0949	0.3382
415	2070	6.0951	0.3384
416	2075	6.0962	0.3395
417	2080	6.097	0.3403
418	2085	6.0955	0.3388
419	2090	6.0964	0.3397
420	2095	6.0966	0.3399
421	2100	6.0969	0.3402
422	2105	6.0926	0.3359
423	2110	6.0939	0.3372
424	2115	6.0935	0.3368
425	2120	6.0942	0.3375
426	2125	6.0936	0.3369
427	2130	6.0935	0.3368
428	2135	6.096	0.3393
429	2140	6.0955	0.3388
430	2145	6.0961	0.3394
431	2150	6.0958	0.3391
432	2155	6.0935	0.3368
433	2160	6.0961	0.3394
434	2165	6.0958	0.3391
435	2170	6.0953	0.3386

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	6.0958	0.3391
437	2180	6.0953	0.3386
438	2185	6.0945	0.3378
439	2190	6.0959	0.3392
440	2195	6.0974	0.3407
441	2200	6.0983	0.3416
442	2205	6.1014	0.3447
443	2210	6.102	0.3453
444	2215	6.1017	0.345
445	2220	6.104	0.3473
446	2225	6.105	0.3483
447	2230	6.1049	0.3482
448	2235	6.1025	0.3458
449	2240	6.101	0.3443
450	2245	6.1003	0.3436
451	2250	6.1032	0.3465
452	2255	6.1054	0.3487
453	2260	6.1072	0.3505
454	2265	6.1102	0.3535
455	2270	6.1093	0.3526
456	2275	6.1103	0.3536
457	2280	6.1091	0.3524
458	2285	6.1098	0.3531
459	2290	6.1103	0.3536
460	2295	6.1105	0.3538
461	2300	6.1125	0.3558
462	2305	6.113	0.3563
463	2310	6.1101	0.3534
464	2315	6.1101	0.3534
465	2320	6.1111	0.3544
466	2325	6.112	0.3553
467	2330	6.1099	0.3532
468	2335	6.1123	0.3556
469	2340	6.1131	0.3564
470	2345	6.1152	0.3585
471	2350	6.114	0.3573
472	2355	6.114	0.3573
473	2360	6.1173	0.3606
474	2365	6.1156	0.3589
475	2370	6.1137	0.357
476	2375	6.1147	0.358
477	2380	6.1141	0.3574
478	2385	6.1119	0.3552
479	2390	6.1094	0.3527
480	2395	6.1117	0.355
481	2400	6.1138	0.3571
482	2405	6.1099	0.3532
483	2410	6.113	0.3563
484	2415	6.1124	0.3557
485	2420	6.1141	0.3574
486	2425	6.112	0.3553
487	2430	6.1123	0.3556
488	2435	6.1137	0.357
489	2440	6.1134	0.3567
490	2445	6.1164	0.3597
491	2450	6.2696	0.5129
492	2455	6.1841	0.4274
493	2460	6.1206	0.3639
494	2465	6.1215	0.3648
495	2470	6.1235	0.3668
496	2475	6.1211	0.3644
497	2480	6.1178	0.3611
498	2485	6.12	0.3633

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	6.119	0.3623
500	2495	6.1202	0.3635
501	2500	6.124	0.3673
502	2505	6.1246	0.3679
503	2510	6.1266	0.3699
504	2515	6.1269	0.3702
505	2520	6.1254	0.3687
506	2525	6.1277	0.371
507	2530	6.1269	0.3702
508	2535	6.1288	0.3721
509	2540	6.1299	0.3732
510	2545	6.1328	0.3761
511	2550	6.1337	0.377
512	2555	6.1338	0.3771
513	2560	6.1347	0.378
514	2565	6.1347	0.378
515	2570	6.1361	0.3794
516	2575	6.1368	0.3801
517	2580	6.137	0.3803
518	2585	6.1451	0.3884
519	2590	6.137	0.3803
520	2595	6.1341	0.3774
521	2600	6.1365	0.3798
522	2605	6.1362	0.3795
523	2610	6.1367	0.38
524	2615	6.1379	0.3812
525	2620	6.1391	0.3824
526	2625	6.1394	0.3827
527	2630	6.1418	0.3851
528	2635	6.1416	0.3849
529	2640	6.1413	0.3846
530	2645	6.1403	0.3836
531	2650	6.1404	0.3837
532	2655	6.1393	0.3826
533	2660	6.1407	0.384
534	2665	6.1419	0.3852
535	2670	6.1427	0.386
536	2675	6.1441	0.3874
537	2680	6.142	0.3853
538	2685	6.1437	0.387
539	2690	6.1453	0.3886
540	2695	6.1453	0.3886
541	2700	6.1467	0.39
542	2705	6.1477	0.391
543	2710	6.1487	0.392
544	2715	6.1477	0.391
545	2720	6.1463	0.3896
546	2725	6.1453	0.3886
547	2730	6.1473	0.3906
548	2735	6.1476	0.3909
549	2740	6.1497	0.393
550	2745	6.1502	0.3935
551	2750	6.149	0.3923
552	2755	6.1469	0.3902
553	2760	6.1479	0.3912
554	2765	6.1483	0.3916
555	2770	6.1471	0.3904
556	2775	6.1481	0.3914
557	2780	6.1525	0.3958
558	2785	6.1538	0.3971
559	2790	6.1531	0.3964
560	2795	6.1526	0.3959
561	2800	6.1526	0.3959

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	6.1523	0.3956
563	2810	6.1554	0.3987
564	2815	6.1584	0.4017
565	2820	6.1586	0.4019
566	2825	6.1602	0.4035
567	2830	6.1584	0.4017
568	2835	6.1579	0.4012
569	2840	6.1547	0.398
570	2845	6.1544	0.3977
571	2850	6.156	0.3993
572	2855	6.1561	0.3994
573	2860	6.1597	0.403
574	2865	6.1625	0.4058
575	2870	6.1607	0.404
576	2875	6.1626	0.4059
577	2880	6.1646	0.4079
578	2885	6.1658	0.4091
579	2890	6.1676	0.4109
580	2895	6.1661	0.4094
581	2900	6.1669	0.4102
582	2905	6.1693	0.4126
583	2910	6.3452	0.5885
584	2915	6.3071	0.5504
585	2920	6.1707	0.414
586	2925	6.1689	0.4122
587	2930	6.167	0.4103
588	2935	6.1694	0.4127
589	2940	6.1701	0.4134
590	2945	6.1729	0.4162
591	2950	6.1734	0.4167
592	2955	6.174	0.4173
593	2960	6.1751	0.4184
594	2965	6.1757	0.419
595	2970	6.1731	0.4164
596	2975	6.1734	0.4167
597	2980	6.1756	0.4189
598	2985	6.1767	0.42
599	2990	6.1776	0.4209
600	2995	6.1788	0.4221
601	3000	6.178	0.4213
602	3005	6.1787	0.422
603	3010	6.1817	0.425
604	3015	6.1807	0.424
605	3020	6.1775	0.4208
606	3025	6.1802	0.4235
607	3030	6.1827	0.426
608	3035	6.1828	0.4261
609	3040	6.1843	0.4276
610	3045	6.1841	0.4274
611	3050	6.1843	0.4276
612	3055	6.1857	0.429
613	3060	6.1851	0.4284
614	3065	6.1838	0.4271
615	3070	6.1819	0.4252
616	3075	6.1822	0.4255
617	3080	6.1842	0.4275
618	3085	6.1857	0.429
619	3090	6.1841	0.4274
620	3095	6.1844	0.4277
621	3100	6.1852	0.4285
622	3105	6.1855	0.4288
623	3110	6.1884	0.4317
624	3115	6.1878	0.4311

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	6.1918	0.4351
626	3125	6.1957	0.439
627	3130	6.1958	0.4391
628	3135	6.2006	0.4439
629	3140	6.2029	0.4462
630	3145	6.2054	0.4487
631	3150	6.2039	0.4472
632	3155	6.2078	0.4511
633	3160	6.2095	0.4528
634	3165	6.2122	0.4555
635	3170	6.2162	0.4595
636	3175	6.2173	0.4606
637	3180	6.2881	0.5314
638	3185	6.216	0.4593
639	3190	6.2123	0.4556
640	3195	6.2148	0.4581
641	3200	6.218	0.4613
642	3205	6.2209	0.4642
643	3210	6.2183	0.4616
644	3215	6.2189	0.4622
645	3220	6.2187	0.462
646	3225	6.2251	0.4684
647	3230	6.2277	0.471
648	3235	6.2302	0.4735
649	3240	6.2323	0.4756
650	3245	6.2309	0.4742
651	3250	6.2328	0.4761
652	3255	6.2343	0.4776
653	3260	6.2333	0.4766
654	3265	6.2303	0.4736
655	3270	6.2314	0.4747
656	3275	6.2326	0.4759
657	3280	6.2397	0.483
658	3285	6.2399	0.4832
659	3290	6.241	0.4843
660	3295	6.2404	0.4837
661	3300	6.2409	0.4842
662	3305	6.2375	0.4808
663	3310	6.2371	0.4804
664	3315	6.2338	0.4771
665	3320	6.2403	0.4836
666	3325	6.2346	0.4779
667	3330	6.2374	0.4807
668	3335	6.24	0.4833
669	3340	6.2431	0.4864
670	3345	6.253	0.4963
671	3350	6.2531	0.4964
672	3355	6.2468	0.4901
673	3360	6.2449	0.4882
674	3365	6.2437	0.487
675	3370	6.2406	0.4839
676	3375	6.2389	0.4822
677	3380	6.2384	0.4817
678	3385	6.2393	0.4826
679	3390	6.2414	0.4847
680	3395	6.2417	0.485
681	3400	6.2396	0.4829
682	3405	6.2404	0.4837
683	3410	6.245	0.4883
684	3415	6.2498	0.4931
685	3420	6.2509	0.4942
686	3425	6.2506	0.4939
687	3430	6.2516	0.4949

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	6.255	0.4983
689	3440	6.2552	0.4985
690	3445	6.2548	0.4981
691	3450	6.256	0.4993
692	3455	6.2574	0.5007
693	3460	6.2593	0.5026
694	3465	6.2587	0.502
695	3470	6.2575	0.5008
696	3475	6.2787	0.522
697	3480	6.2589	0.5022
698	3485	6.2574	0.5007
699	3490	6.2556	0.4989
700	3495	6.259	0.5023
701	3500	6.2611	0.5044
702	3505	6.2614	0.5047
703	3510	6.2621	0.5054
704	3515	6.2619	0.5052
705	3520	6.2648	0.5081
706	3525	6.2644	0.5077
707	3530	6.2642	0.5075
708	3535	6.2643	0.5076
709	3540	6.2638	0.5071
710	3545	6.2634	0.5067
711	3550	6.2599	0.5032
712	3555	6.2615	0.5048
713	3560	6.2621	0.5054
714	3565	6.2655	0.5088
715	3570	6.2638	0.5071
716	3575	6.2623	0.5056
717	3580	6.2613	0.5046
718	3585	6.2611	0.5044
719	3590	6.2585	0.5018
720	3595	6.2577	0.501
721	3600	6.2566	0.4999
722	3605	6.2561	0.4994
723	3610	6.2564	0.4997
724	3615	6.2553	0.4986
725	3620	6.2558	0.4991
726	3625	6.258	0.5013
727	3630	6.2575	0.5008
728	3635	6.2612	0.5045
729	3640	6.2598	0.5031
730	3645	6.258	0.5013
731	3650	6.2574	0.5007
732	3655	6.2602	0.5035
733	3660	6.2626	0.5059
734	3665	6.2609	0.5042
735	3670	6.261	0.5043
736	3675	6.2611	0.5044
737	3680	6.2624	0.5057
738	3685	6.2627	0.506
739	3690	6.26	0.5033
740	3695	6.2629	0.5062
741	3700	6.2651	0.5084
742	3705	6.2653	0.5086
743	3710	6.2651	0.5084
744	3715	6.267	0.5103
745	3720	6.2666	0.5099
746	3725	6.2662	0.5095
747	3730	6.2659	0.5092
748	3735	6.2673	0.5106
749	3740	6.2705	0.5138
750	3745	6.2711	0.5144

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	6.2785	0.5218
752	3755	6.2754	0.5187
753	3760	6.2762	0.5195
754	3765	6.2766	0.5199
755	3770	6.2748	0.5181
756	3775	6.2725	0.5158
757	3780	6.2723	0.5156
758	3785	6.2703	0.5136
759	3790	6.2753	0.5186
760	3795	6.2758	0.5191
761	3800	6.2833	0.5266
762	3805	6.2728	0.5161
763	3810	6.271	0.5143
764	3815	6.2727	0.516
765	3820	6.2714	0.5147
766	3825	6.2719	0.5152
767	3830	6.2734	0.5167
768	3835	6.2727	0.516
769	3840	6.2739	0.5172
770	3845	6.2758	0.5191
771	3850	6.274	0.5173
772	3855	6.2747	0.518
773	3860	6.277	0.5203
774	3865	6.2789	0.5222
775	3870	6.2789	0.5222
776	3875	6.2837	0.527
777	3880	6.2851	0.5284
778	3885	6.2946	0.5379
779	3890	6.287	0.5303
780	3895	6.2855	0.5288
781	3900	6.2859	0.5292
782	3905	6.2845	0.5278
783	3910	6.2828	0.5261
784	3915	6.2837	0.527
785	3920	6.2866	0.5299
786	3925	6.287	0.5303
787	3930	6.2879	0.5312
788	3935	6.2881	0.5314
789	3940	6.2872	0.5305
790	3945	6.289	0.5323
791	3950	6.2882	0.5315
792	3955	6.2866	0.5299
793	3960	6.2875	0.5308
794	3965	6.2889	0.5322
795	3970	6.291	0.5343
796	3975	6.2914	0.5347
797	3980	6.2941	0.5374
798	3985	6.2953	0.5386
799	3990	6.2981	0.5414
800	3995	6.3014	0.5447
801	4000	6.304	0.5473
802	4005	6.3058	0.5491
803	4010	6.3082	0.5515
804	4015	6.3081	0.5514
805	4020	6.3091	0.5524
806	4025	6.3117	0.555
807	4030	6.3127	0.556
808	4035	6.3141	0.5574
809	4040	6.3143	0.5576
810	4045	6.3158	0.5591
811	4050	6.3166	0.5599
812	4055	6.3202	0.5635
813	4060	6.3192	0.5625

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	6.3224	0.5657
815	4070	6.3254	0.5687
816	4075	6.3257	0.569
817	4080	6.3264	0.5697
818	4085	6.3257	0.569
819	4090	6.3265	0.5698
820	4095	6.3261	0.5694
821	4100	6.3247	0.568
822	4105	6.3258	0.5691
823	4110	6.3251	0.5684
824	4115	6.3267	0.57
825	4120	6.3281	0.5714
826	4125	6.328	0.5713
827	4130	6.3275	0.5708
828	4135	6.3287	0.572
829	4140	6.3136	0.5569
830	4145	6.3298	0.5731
831	4150	6.33	0.5733
832	4155	6.3277	0.571
833	4160	6.326	0.5693
834	4165	6.3278	0.5711
835	4170	6.3285	0.5718
836	4175	6.3286	0.5719
837	4180	6.3304	0.5737
838	4185	6.3306	0.5739
839	4190	6.3302	0.5735
840	4195	6.331	0.5743
841	4200	6.3319	0.5752
842	4205	6.3317	0.575
843	4210	6.3315	0.5748
844	4215	6.3306	0.5739
845	4220	6.3302	0.5735
846	4225	6.4879	0.7312
847	4230	6.3292	0.5725
848	4235	6.3289	0.5722
849	4240	6.3285	0.5718
850	4245	6.3273	0.5706
851	4250	6.3284	0.5717
852	4255	6.3291	0.5724
853	4260	6.3286	0.5719
854	4265	6.3284	0.5717
855	4270	6.3263	0.5696
856	4275	6.3262	0.5695
857	4280	6.3258	0.5691
858	4285	6.3247	0.568
859	4290	6.323	0.5663
860	4295	6.3238	0.5671
861	4300	6.3241	0.5674
862	4305	6.3239	0.5672
863	4310	6.3228	0.5661
864	4315	6.3216	0.5649
865	4320	6.3193	0.5626
866	4325	6.3184	0.5617
867	4330	6.3209	0.5642
868	4335	6.3193	0.5626
869	4340	6.3197	0.563
870	4345	6.3173	0.5606
871	4350	6.3168	0.5601
872	4355	6.3166	0.5599
873	4360	6.3194	0.5627
874	4365	6.3192	0.5625
875	4370	6.3185	0.5618
876	4375	6.3196	0.5629

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	6.3184	0.5617
878	4385	6.3171	0.5604
879	4390	6.3189	0.5622
880	4395	6.3203	0.5636
881	4400	6.3223	0.5656
882	4405	6.3237	0.567
883	4410	6.323	0.5663
884	4415	6.3245	0.5678
885	4420	6.3229	0.5662
886	4425	6.3235	0.5668
887	4430	6.3238	0.5671
888	4435	6.3219	0.5652
889	4440	6.3215	0.5648
890	4445	6.3232	0.5665
891	4450	6.3238	0.5671
892	4455	6.3227	0.566
893	4460	6.3239	0.5672
894	4465	6.3238	0.5671
895	4470	6.3231	0.5664
896	4475	6.3216	0.5649
897	4480	6.3221	0.5654
898	4485	6.323	0.5663
899	4490	6.3237	0.567
900	4495	6.322	0.5653
901	4500	6.3223	0.5656
902	4505	6.3212	0.5645
903	4510	6.3227	0.566
904	4515	6.3244	0.5677
905	4520	6.3239	0.5672
906	4525	6.3251	0.5684
907	4530	6.3247	0.568
908	4535	6.3244	0.5677
909	4540	6.3256	0.5689
910	4545	6.3264	0.5697
911	4550	6.3283	0.5716
912	4555	6.3303	0.5736
913	4560	6.3286	0.5719
914	4565	6.3272	0.5705
915	4570	6.3295	0.5728
916	4575	6.3321	0.5754
917	4580	6.3326	0.5759
918	4585	6.3315	0.5748
919	4590	6.3316	0.5749
920	4595	6.3316	0.5749
921	4600	6.3328	0.5761
922	4605	6.3311	0.5744
923	4610	6.3337	0.577
924	4615	6.3349	0.5782
925	4620	6.3355	0.5788
926	4625	6.3344	0.5777
927	4630	6.3337	0.577
928	4635	6.3354	0.5787
929	4640	6.3364	0.5797
930	4645	6.3385	0.5818
931	4650	6.3391	0.5824
932	4655	6.3398	0.5831
933	4660	6.3409	0.5842
934	4665	6.3427	0.586
935	4670	6.3439	0.5872
936	4675	6.3451	0.5884
937	4680	6.3451	0.5884
938	4685	6.3455	0.5888
939	4690	6.3469	0.5902

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	6.3484	0.5917
941	4700	6.3479	0.5912
942	4705	6.3459	0.5892
943	4710	6.347	0.5903
944	4715	6.3467	0.59
945	4720	6.3493	0.5926
946	4725	6.3522	0.5955
947	4730	6.3502	0.5935
948	4735	6.3521	0.5954
949	4740	6.3513	0.5946
950	4745	6.3516	0.5949
951	4750	6.3548	0.5981
952	4755	6.3538	0.5971
953	4760	6.354	0.5973
954	4765	6.3542	0.5975
955	4770	6.3546	0.5979
956	4775	6.3562	0.5995
957	4780	6.3561	0.5994
958	4785	6.358	0.6013
959	4790	6.3578	0.6011
960	4795	6.3582	0.6015
961	4800	6.3586	0.6019
962	4805	6.3578	0.6011
963	4810	6.3592	0.6025
964	4815	6.3586	0.6019
965	4820	6.3804	0.6237
966	4825	6.3601	0.6034
967	4830	6.3601	0.6034
968	4835	6.3596	0.6029
969	4840	6.3592	0.6025
970	4845	6.3573	0.6006
971	4850	6.3583	0.6016
972	4855	6.3606	0.6039
973	4860	6.3607	0.604
974	4865	6.3588	0.6021
975	4870	6.3593	0.6026
976	4875	6.358	0.6013
977	4880	6.3585	0.6018
978	4885	6.3594	0.6027
979	4890	6.3616	0.6049
980	4895	6.3116	0.5549
981	4900	6.3607	0.604
982	4905	6.3618	0.6051
983	4910	6.3592	0.6025
984	4915	6.3617	0.605
985	4920	6.3599	0.6032
986	4925	6.361	0.6043
987	4930	6.3621	0.6054
988	4935	6.3617	0.605
989	4940	6.3617	0.605
990	4945	6.3634	0.6067
991	4950	6.3627	0.606
992	4955	6.3636	0.6069
993	4960	6.3653	0.6086
994	4965	6.365	0.6083
995	4970	6.3639	0.6072
996	4975	6.3659	0.6092
997	4980	6.3651	0.6084
998	4985	6.3655	0.6088
999	4990	6.3656	0.6089
1000	4995	6.3655	0.6088
1001	5000	6.3638	0.6071
1002	5005	6.3623	0.6056

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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	6.363	0.6063
1004	5015	6.361	0.6043
1005	5020	6.3614	0.6047
1006	5025	6.363	0.6063
1007	5030	6.3624	0.6057
1008	5035	6.3608	0.6041
1009	5040	6.3614	0.6047
1010	5045	6.3592	0.6025
1011	5050	6.359	0.6023
1012	5055	6.3584	0.6017
1013	5060	6.3582	0.6015
1014	5065	6.3575	0.6008
1015	5070	6.3584	0.6017
1016	5075	6.359	0.6023
1017	5080	6.3614	0.6047
1018	5085	6.3616	0.6049
1019	5090	6.3607	0.604
1020	5095	6.3597	0.603
1021	5100	6.3609	0.6042
1022	5105	6.3605	0.6038
1023	5110	6.3606	0.6039
1024	5115	6.3614	0.6047
1025	5120	6.3594	0.6027
1026	5125	6.3603	0.6036
1027	5130	6.3583	0.6016
1028	5135	6.3598	0.6031
1029	5140	6.3594	0.6027
1030	5145	6.3604	0.6037
1031	5150	6.3637	0.607
1032	5155	6.3605	0.6038
1033	5160	6.3635	0.6068
1034	5165	6.3635	0.6068
1035	5170	6.3634	0.6067
1036	5175	6.3649	0.6082
1037	5180	6.3649	0.6082
1038	5185	6.3653	0.6086
1039	5190	6.3654	0.6087
1040	5195	6.3666	0.6099
1041	5200	6.3655	0.6088
1042	5205	6.3669	0.6102
1043	5210	6.3666	0.6099
1044	5215	6.3663	0.6096
1045	5220	6.3669	0.6102
1046	5225	6.3676	0.6109
1047	5230	6.3689	0.6122
1048	5235	6.3689	0.6122
1049	5240	6.3714	0.6147
1050	5245	6.3708	0.6141
1051	5250	6.3724	0.6157
1052	5255	6.3715	0.6148
1053	5260	6.3727	0.616
1054	5265	6.3731	0.6164
1055	5270	6.3721	0.6154
1056	5275	6.3737	0.617
1057	5280	6.3746	0.6179
1058	5285	6.3771	0.6204
1059	5290	6.3776	0.6209
1060	5295	6.3771	0.6204
1061	5300	6.3792	0.6225
1062	5305	6.3811	0.6244
1063	5310	6.3798	0.6231
1064	5315	6.3796	0.6229
1065	5320	6.3814	0.6247

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	6.3827	0.626
1067	5330	6.3835	0.6268
1068	5335	6.3857	0.629
1069	5340	6.3855	0.6288
1070	5345	6.3853	0.6286
1071	5350	6.3879	0.6312
1072	5355	6.3627	0.606
1073	5360	6.3878	0.6311
1074	5365	6.3873	0.6306
1075	5370	6.3875	0.6308
1076	5375	6.3879	0.6312
1077	5380	6.3881	0.6314
1078	5385	6.3908	0.6341
1079	5390	6.3918	0.6351
1080	5395	6.3927	0.636
1081	5400	6.3929	0.6362
1082	5405	6.3947	0.638
1083	5410	6.3978	0.6411
1084	5415	6.3994	0.6427
1085	5420	6.4005	0.6438
1086	5425	6.4016	0.6449
1087	5430	6.401	0.6443
1088	5435	6.4013	0.6446
1089	5440	6.4023	0.6456
1090	5445	6.4035	0.6468
1091	5450	6.4065	0.6498
1092	5455	6.4095	0.6528
1093	5460	6.4099	0.6532
1094	5465	6.4103	0.6536
1095	5470	6.4137	0.657
1096	5475	6.4172	0.6605
1097	5480	6.4185	0.6618
1098	5485	6.4212	0.6645
1099	5490	6.4216	0.6649
1100	5495	6.4228	0.6661
1101	5500	6.4238	0.6671
1102	5505	6.4246	0.6679
1103	5510	6.4233	0.6666
1104	5515	6.4236	0.6669
1105	5520	6.4234	0.6667
1106	5525	6.4261	0.6694
1107	5530	6.4259	0.6692
1108	5535	6.4289	0.6722
1109	5540	6.4328	0.6761
1110	5545	6.4329	0.6762
1111	5550	6.4326	0.6759
1112	5555	6.4333	0.6766
1113	5560	6.4337	0.677
1114	5565	6.4352	0.6785
1115	5570	6.4347	0.678
1116	5575	6.4371	0.6804
1117	5580	6.4374	0.6807
1118	5585	6.4396	0.6829
1119	5590	6.4403	0.6836
1120	5595	6.4425	0.6858
1121	5600	6.4438	0.6871
1122	5605	6.4456	0.6889
1123	5610	6.4446	0.6879
1124	5615	6.445	0.6883
1125	5620	6.4468	0.6901
1126	5625	6.4493	0.6926
1127	5630	6.4485	0.6918
1128	5635	6.4516	0.6949

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	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	6.4519	0.6952
1130	5645	6.4533	0.6966
1131	5650	6.4544	0.6977
1132	5655	6.4549	0.6982
1133	5660	6.4551	0.6984
1134	5665	6.4537	0.697
1135	5670	6.4547	0.698
1136	5675	6.4541	0.6974
1137	5680	6.4568	0.7001
1138	5685	6.4551	0.6984
1139	5690	6.4565	0.6998
1140	5695	6.4557	0.699
1141	5700	6.4579	0.7012
1142	5705	6.6409	0.8842
1143	5710	6.3583	0.6016
1144	5715	6.4595	0.7028
1145	5720	6.4603	0.7036
1146	5725	6.4598	0.7031
1147	5730	6.4629	0.7062
1148	5735	6.462	0.7053
1149	5740	6.4607	0.704
1150	5745	6.4625	0.7058
1151	5750	6.4673	0.7106
1152	5755	6.4697	0.713
1153	5760	6.614	0.8573
1154	5765	6.5519	0.7952
1155	5770	6.4634	0.7067
1156	5775	6.4644	0.7077
1157	5780	6.4624	0.7057
1158	5785	6.4649	0.7082
1159	5790	6.4691	0.7124
1160	5795	6.4691	0.7124
1161	5800	6.4653	0.7086
1162	5805	6.4664	0.7097
1163	5810	6.3253	0.5686
1164	5815	6.4687	0.712
1165	5820	6.4668	0.7101
1166	5825	6.4698	0.7131
1167	5830	6.4724	0.7157
1168	5835	6.4734	0.7167
1169	5840	6.4723	0.7156
1170	5845	6.4747	0.718
1171	5850	6.415	0.6583
1172	5855	6.6352	0.8785
1173	5860	6.4778	0.7211
1174	5865	6.4786	0.7219
1175	5870	6.4791	0.7224
1176	5875	6.5076	0.7509
1177	5880	6.5384	0.7817
1178	5885	6.4812	0.7245
1179	5890	6.4793	0.7226
1180	5895	6.4782	0.7215
1181	5900	6.3977	0.641
1182	5905	6.483	0.7263
1183	5910	6.4846	0.7279
1184	5915	6.4846	0.7279
1185	5920	6.5761	0.8194
1186	5925	6.5293	0.7726
1187	5930	6.4911	0.7344
1188	5935	6.4921	0.7354
1189	5940	6.4932	0.7365
1190	5945	6.3775	0.6208
1191	5950	6.4907	0.734

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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	6.4924	0.7357
1193	5960	6.4947	0.738
1194	5965	6.44	0.6833
1195	5970	6.4857	0.729
1196	5975	6.494	0.7373
1197	5980	6.4967	0.74
1198	5985	6.4978	0.7411
1199	5990	6.5013	0.7446
1200	5995	6.4554	0.6987
1201	6000	6.498	0.7413
1202	6005	6.5008	0.7441
1203	6010	6.4985	0.7418
1204	6015	6.5008	0.7441
1205	6020	6.5003	0.7436
1206	6025	6.5022	0.7455
1207	6030	6.5038	0.7471
1208	6035	6.6495	0.8928
1209	6040	6.4855	0.7288
1210	6045	6.5089	0.7522
1211	6050	6.5082	0.7515
1212	6055	6.5071	0.7504
1213	6060	6.5082	0.7515
1214	6065	6.5091	0.7524
1215	6070	6.5083	0.7516
1216	6075	6.5068	0.7501
1217	6080	6.5072	0.7505
1218	6085	6.5086	0.7519
1219	6090	6.3799	0.6232
1220	6095	6.3748	0.6181
1221	6100	6.512	0.7553
1222	6105	6.5153	0.7586
1223	6110	6.517	0.7603
1224	6115	6.5196	0.7629
1225	6120	6.5184	0.7617
1226	6125	6.5168	0.7601
1227	6130	6.521	0.7643
1228	6135	6.5234	0.7667
1229	6140	6.5236	0.7669
1230	6145	6.5691	0.8124
1231	6150	6.5993	0.8426
1232	6155	6.5302	0.7735
1233	6160	6.5344	0.7777
1234	6165	6.537	0.7803
1235	6170	6.5373	0.7806
1236	6175	6.536	0.7793
1237	6180	6.5373	0.7806
1238	6185	6.5384	0.7817
1239	6190	6.5405	0.7838
1240	6195	6.5449	0.7882
1241	6200	6.5309	0.7742
1242	6205	6.4123	0.6556
1243	6210	6.547	0.7903
1244	6215	6.5488	0.7921
1245	6220	6.5508	0.7941
1246	6225	6.5532	0.7965
1247	6230	6.5555	0.7988
1248	6235	6.5434	0.7867
1249	6240	6.5579	0.8012
1250	6245	6.5606	0.8039
1251	6250	6.5592	0.8025
1252	6255	6.5606	0.8039
1253	6260	6.563	0.8063
1254	6265	6.5647	0.808

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	6.5662	0.8095
1256	6275	6.5678	0.8111
1257	6280	6.5689	0.8122
1258	6285	6.5726	0.8159
1259	6290	6.5753	0.8186
1260	6295	6.5761	0.8194
1261	6300	6.5786	0.8219
1262	6305	6.5798	0.8231
1263	6310	6.5772	0.8205
1264	6315	6.5762	0.8195
1265	6320	6.5774	0.8207
1266	6325	6.5763	0.8196
1267	6330	6.5752	0.8185
1268	6335	6.5798	0.8231
1269	6340	6.5814	0.8247
1270	6345	6.5865	0.8298
1271	6350	6.5871	0.8304
1272	6355	6.588	0.8313
1273	6360	6.5877	0.831
1274	6365	6.5865	0.8298
1275	6370	6.5863	0.8296
1276	6375	6.5854	0.8287
1277	6380	6.5856	0.8289
1278	6385	6.5873	0.8306
1279	6390	6.5886	0.8319
1280	6395	6.5906	0.8339
1281	6400	6.5903	0.8336
1282	6405	6.5902	0.8335
1283	6410	6.5901	0.8334
1284	6415	6.5902	0.8335
1285	6420	6.5893	0.8326
1286	6425	6.5906	0.8339
1287	6430	6.593	0.8363
1288	6435	6.5924	0.8357
1289	6440	6.5946	0.8379
1290	6445	6.5949	0.8382
1291	6450	6.5974	0.8407
1292	6455	6.5959	0.8392
1293	6460	6.5964	0.8397
1294	6465	6.5957	0.839
1295	6470	6.5932	0.8365
1296	6475	6.5932	0.8365
1297	6480	6.5954	0.8387
1298	6485	6.5941	0.8374
1299	6490	6.594	0.8373
1300	6495	6.5918	0.8351
1301	6500	6.5923	0.8356
1302	6505	6.5935	0.8368
1303	6510	6.5915	0.8348
1304	6515	6.5903	0.8336
1305	6520	6.5907	0.834
1306	6525	6.5901	0.8334
1307	6530	6.5907	0.834
1308	6535	6.5904	0.8337
1309	6540	6.5905	0.8338
1310	6545	6.5906	0.8339
1311	6550	6.5935	0.8368
1312	6555	6.5931	0.8364
1313	6560	6.5929	0.8362
1314	6565	6.5923	0.8356
1315	6570	6.5919	0.8352
1316	6575	6.5928	0.8361
1317	6580	6.5925	0.8358

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	6.5922	0.8355
1319	6590	6.5945	0.8378
1320	6595	6.596	0.8393
1321	6600	6.5981	0.8414
1322	6605	6.5979	0.8412
1323	6610	6.5967	0.84
1324	6615	6.5973	0.8406
1325	6620	6.5959	0.8392
1326	6625	6.598	0.8413
1327	6630	6.5976	0.8409
1328	6635	6.5999	0.8432
1329	6640	6.5997	0.843
1330	6645	6.6076	0.8509
1331	6650	6.6035	0.8468
1332	6655	6.6015	0.8448
1333	6660	6.6018	0.8451
1334	6665	6.6009	0.8442
1335	6670	6.6019	0.8452
1336	6675	6.6019	0.8452
1337	6680	6.605	0.8483
1338	6685	6.6057	0.849
1339	6690	6.6062	0.8495
1340	6695	6.6081	0.8514
1341	6700	6.6078	0.8511
1342	6705	6.6096	0.8529
1343	6710	6.6101	0.8534
1344	6715	6.6102	0.8535
1345	6720	6.6112	0.8545
1346	6725	6.6108	0.8541
1347	6730	6.6132	0.8565
1348	6735	6.6134	0.8567
1349	6740	6.614	0.8573
1350	6745	6.6138	0.8571
1351	6750	6.6146	0.8579
1352	6755	6.6152	0.8585
1353	6760	6.6169	0.8602
1354	6765	6.6174	0.8607
1355	6770	6.6175	0.8608
1356	6775	6.6172	0.8605
1357	6780	6.6177	0.861
1358	6785	6.6203	0.8636
1359	6790	6.6215	0.8648
1360	6795	6.6232	0.8665
1361	6800	6.624	0.8673
1362	6805	6.6248	0.8681
1363	6810	6.6269	0.8702
1364	6815	6.6279	0.8712
1365	6820	6.6287	0.872
1366	6825	6.6319	0.8752
1367	6830	6.6348	0.8781
1368	6835	6.6371	0.8804
1369	6840	6.6385	0.8818
1370	6845	6.6412	0.8845
1371	6850	6.6438	0.8871
1372	6855	6.6433	0.8866
1373	6860	6.6452	0.8885
1374	6865	6.6481	0.8914
1375	6870	6.6486	0.8919
1376	6875	6.6526	0.8959
1377	6880	6.8132	1.0565
1378	6885	6.6567	0.90
1379	6890	6.6599	0.9032
1380	6895	6.6626	0.9059

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	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	6.6678	0.9111
1382	6905	6.6676	0.9109
1383	6910	6.6698	0.9131
1384	6915	6.6725	0.9158
1385	6920	6.6741	0.9174
1386	6925	6.6752	0.9185
1387	6930	6.6783	0.9216
1388	6935	6.6795	0.9228
1389	6940	6.6816	0.9249
1390	6945	6.6848	0.9281
1391	6950	6.6872	0.9305
1392	6955	6.6905	0.9338
1393	6960	6.6912	0.9345
1394	6965	6.6963	0.9396
1395	6970	6.6963	0.9396
1396	6975	6.6975	0.9408
1397	6980	6.7008	0.9441
1398	6985	6.705	0.9483
1399	6990	6.7033	0.9466
1400	6995	6.7085	0.9518
1401	7000	6.7108	0.9541
1402	7005	6.7109	0.9542
1403	7010	6.7136	0.9569
1404	7015	6.7166	0.9599
1405	7020	6.7178	0.9611
1406	7025	6.7207	0.964
1407	7030	6.727	0.9703
1408	7035	6.7308	0.9741
1409	7040	6.7299	0.9732
1410	7045	6.733	0.9763
1411	7050	6.7369	0.9802
1412	7055	6.7368	0.9801
1413	7060	6.736	0.9793
1414	7065	6.7381	0.9814
1415	7070	6.7459	0.9892
1416	7075	6.7429	0.9862
1417	7080	6.7472	0.9905
1418	7085	6.7534	0.9967
1419	7090	6.7519	0.9952
1420	7095	6.752	0.9953
1421	7100	6.7573	1.0006
1422	7105	6.756	0.9993
1423	7110	6.763	1.0063
1424	7115	6.7637	1.007
1425	7120	6.7653	1.0086
1426	7125	6.769	1.0123
1427	7130	6.7677	1.011
1428	7135	6.765	1.0083
1429	7140	6.7637	1.007
1430	7145	6.7643	1.0076
1431	7150	6.7714	1.0147
1432	7155	6.7743	1.0176
1433	7160	6.7703	1.0136
1434	7165	6.6399	0.8832
1435	7170	6.8792	1.1225
1436	7175	6.7791	1.0224
1437	7180	6.6879	0.9312
1438	7185	6.8925	1.1358
1439	7190	6.8141	1.0574
1440	7195	6.7817	1.025
1441	7200	6.6472	0.8905
1442	7205	6.7045	0.9478
1443	7210	6.796	1.0393

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
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	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	6.7931	1.0364
1445	7220	6.7527	0.996
1446	7225	6.6699	0.9132
1447	7230	6.7982	1.0415
1448	7235	6.7971	1.0404
1449	7240	6.8482	1.0915
1450	7245	6.7851	1.0284
1451	7250	6.8034	1.0467
1452	7255	6.7999	1.0432
1453	7260	6.9177	1.161
1454	7265	6.9697	1.213
1455	7270	6.8027	1.046
1456	7275	6.8083	1.0516
1457	7280	6.859	1.1023
1458	7285	6.9319	1.1752
1459	7290	6.8028	1.0461
1460	7295	6.8045	1.0478
1461	7300	6.8735	1.1168
1462	7305	6.8096	1.0529
1463	7310	6.8083	1.0516
1464	7315	6.749	0.9923
1465	7320	6.6723	0.9156
1466	7325	6.7303	0.9736
1467	7330	6.7526	0.9959
1468	7335	6.9552	1.1985
1469	7340	6.8267	1.07
1470	7345	6.8246	1.0679
1471	7350	6.7224	0.9657
1472	7355	6.8247	1.068
1473	7360	6.8202	1.0635
1474	7365	6.752	0.9953
1475	7370	6.801	1.0443
1476	7375	6.8313	1.0746
1477	7380	6.8267	1.07
1478	7385	6.6932	0.9365
1479	7390	6.8282	1.0715
1480	7395	6.8307	1.074
1481	7400	6.9081	1.1514
1482	7405	6.6823	0.9256
1483	7410	6.8339	1.0772
1484	7415	6.8302	1.0735
1485	7420	6.9942	1.2375
1486	7425	6.7034	0.9467
1487	7430	6.8393	1.0826
1488	7435	6.8398	1.0831
1489	7440	6.8429	1.0862
1490	7445	6.8469	1.0902
1491	7450	6.8458	1.0891
1492	7455	6.8039	1.0472
1493	7460	6.8378	1.0811
1494	7465	6.8478	1.0911
1495	7470	6.8563	1.0996
1496	7475	6.854	1.0973
1497	7480	6.7626	1.0059
1498	7485	6.8559	1.0992
1499	7490	6.8395	1.0828
1500	7495	6.8596	1.1029
1501	7500	6.8612	1.1045
1502	7505	6.863	1.1063
1503	7510	6.8757	1.119
1504	7515	6.7305	0.9738
1505	7520	6.8677	1.111
1506	7525	6.8704	1.1137

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Pumping Test - Water Level Data

Project: OBS-853

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	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	6.8712	1.1145
1508	7535	6.8716	1.1149
1509	7540	6.8753	1.1186
1510	7545	6.8756	1.1189
1511	7550	6.8759	1.1192
1512	7555	6.8806	1.1239
1513	7560	6.8812	1.1245
1514	7565	6.8512	1.0945
1515	7570	6.8741	1.1174
1516	7575	6.8784	1.1217
1517	7580	6.8834	1.1267
1518	7585	6.8832	1.1265
1519	7590	6.8833	1.1266
1520	7595	6.8854	1.1287
1521	7600	6.8884	1.1317
1522	7605	6.8917	1.135
1523	7610	6.8954	1.1387
1524	7615	6.8983	1.1416
1525	7620	6.8415	1.0848
1526	7625	6.9009	1.1442
1527	7630	6.9046	1.1479
1528	7635	6.9013	1.1446
1529	7640	6.9074	1.1507
1530	7645	6.9044	1.1477
1531	7650	6.9066	1.1499
1532	7655	6.9065	1.1498
1533	7660	6.9081	1.1514
1534	7665	6.9116	1.1549
1535	7670	6.9128	1.1561
1536	7675	7.0075	1.2508
1537	7680	6.9131	1.1564
1538	7685	6.9148	1.1581
1539	7690	6.9153	1.1586
1540	7695	6.915	1.1583
1541	7700	6.9177	1.161
1542	7705	6.9228	1.1661
1543	7710	6.922	1.1653
1544	7715	6.9213	1.1646
1545	7720	6.9255	1.1688
1546	7725	6.9264	1.1697
1547	7730	6.93	1.1733
1548	7735	6.9327	1.176
1549	7740	6.935	1.1783
1550	7745	6.9349	1.1782
1551	7750	6.9342	1.1775
1552	7755	6.8029	1.0462
1553	7760	6.9412	1.1845
1554	7765	6.9446	1.1879
1555	7770	6.9452	1.1885
1556	7775	6.9487	1.192
1557	7780	6.9489	1.1922
1558	7785	6.9515	1.1948
1559	7790	6.9533	1.1966
1560	7795	6.9541	1.1974
1561	7800	6.9544	1.1977
1562	7805	6.9573	1.2006
1563	7810	6.9538	1.1971
1564	7815	6.9572	1.2005
1565	7820	6.9657	1.209
1566	7825	6.9661	1.2094
1567	7830	6.9661	1.2094
1568	7835	6.9708	1.2141
1569	7840	6.9711	1.2144

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	6.9711	1.2144
1571	7850	6.9719	1.2152
1572	7855	6.9693	1.2126
1573	7860	6.9686	1.2119
1574	7865	6.9718	1.2151
1575	7870	6.9732	1.2165
1576	7875	6.9697	1.213
1577	7880	6.9709	1.2142
1578	7885	6.9725	1.2158
1579	7890	6.9745	1.2178
1580	7895	6.9739	1.2172
1581	7900	6.9757	1.219
1582	7905	6.9781	1.2214
1583	7910	6.9778	1.2211
1584	7915	6.9771	1.2204
1585	7920	6.9764	1.2197
1586	7925	6.9774	1.2207
1587	7930	6.977	1.2203
1588	7935	6.9755	1.2188
1589	7940	6.9771	1.2204
1590	7945	6.9782	1.2215
1591	7950	6.9794	1.2227
1592	7955	6.9755	1.2188
1593	7960	6.9773	1.2206
1594	7965	6.977	1.2203
1595	7970	6.9745	1.2178
1596	7975	6.9757	1.219
1597	7980	6.9733	1.2166
1598	7985	6.9738	1.2171
1599	7990	6.9725	1.2158
1600	7995	6.974	1.2173
1601	8000	6.9703	1.2136
1602	8005	6.9763	1.2196
1603	8010	6.9771	1.2204
1604	8015	6.978	1.2213
1605	8020	6.9749	1.2182
1606	8025	6.974	1.2173
1607	8030	6.9717	1.215
1608	8035	6.9743	1.2176
1609	8040	6.9735	1.2168
1610	8045	6.9734	1.2167
1611	8050	6.9717	1.215
1612	8055	6.9696	1.2129
1613	8060	6.9692	1.2125
1614	8065	6.9706	1.2139
1615	8070	6.9683	1.2116
1616	8075	6.9647	1.208
1617	8080	6.9609	1.2042
1618	8085	6.9656	1.2089
1619	8090	6.9838	1.2271
1620	8095	6.9875	1.2308
1621	8100	6.9728	1.2161
1622	8105	6.9756	1.2189
1623	8110	6.9745	1.2178
1624	8115	6.9734	1.2167
1625	8120	6.974	1.2173
1626	8125	6.9799	1.2232
1627	8130	6.9729	1.2162
1628	8135	6.9689	1.2122
1629	8140	6.9638	1.2071
1630	8145	6.9572	1.2005
1631	8150	6.9425	1.1858
1632	8155	6.9488	1.1921

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

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	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	6.9403	1.1836
1634	8165	6.9432	1.1865
1635	8170	6.9418	1.1851
1636	8175	6.9532	1.1965
1637	8180	6.9549	1.1982
1638	8185	6.9536	1.1969
1639	8190	6.9578	1.2011
1640	8195	6.9523	1.1956
1641	8200	6.9497	1.193
1642	8205	6.9505	1.1938
1643	8210	6.9363	1.1796
1644	8215	6.9366	1.1799
1645	8220	6.9291	1.1724
1646	8225	6.9246	1.1679
1647	8230	6.91	1.1533
1648	8235	6.9164	1.1597
1649	8240	6.9163	1.1596
1650	8245	6.9218	1.1651
1651	8250	6.9283	1.1716
1652	8255	6.9295	1.1728
1653	8260	6.9355	1.1788
1654	8265	6.9348	1.1781
1655	8270	6.9477	1.191
1656	8275	6.946	1.1893
1657	8280	6.9386	1.1819
1658	8285	6.9426	1.1859
1659	8290	6.9433	1.1866
1660	8295	6.9478	1.1911
1661	8300	6.9545	1.1978
1662	8305	6.9631	1.2064
1663	8310	6.9569	1.2002
1664	8315	6.9409	1.1842
1665	8320	6.931	1.1743
1666	8325	6.9353	1.1786
1667	8330	6.9374	1.1807
1668	8335	6.947	1.1903
1669	8340	6.9464	1.1897
1670	8345	6.9492	1.1925
1671	8350	6.9534	1.1967
1672	8355	6.9558	1.1991
1673	8360	6.9677	1.211
1674	8365	6.9738	1.2171
1675	8370	6.9684	1.2117
1676	8375	6.9639	1.2072
1677	8380	6.9518	1.1951
1678	8385	6.9652	1.2085
1679	8390	6.9652	1.2085
1680	8395	6.9676	1.2109
1681	8400	6.9577	1.201
1682	8405	6.9579	1.2012
1683	8410	6.945	1.1883
1684	8415	6.9497	1.193
1685	8420	6.9601	1.2034
1686	8425	6.9696	1.2129
1687	8430	6.9672	1.2105
1688	8435	6.9659	1.2092
1689	8440	6.9641	1.2074
1690	8445	6.9647	1.208
1691	8450	6.964	1.2073
1692	8455	6.9747	1.218
1693	8460	6.973	1.2163
1694	8465	6.9722	1.2155
1695	8470	6.9806	1.2239

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	6.9824	1.2257
1697	8480	6.9791	1.2224
1698	8485	6.9801	1.2234
1699	8490	6.9811	1.2244
1700	8495	6.9902	1.2335
1701	8500	6.9783	1.2216
1702	8505	6.9798	1.2231
1703	8510	6.9803	1.2236
1704	8515	6.9786	1.2219
1705	8520	6.9789	1.2222
1706	8525	6.9857	1.229
1707	8530	6.979	1.2223
1708	8535	6.9781	1.2214
1709	8540	6.9804	1.2237
1710	8545	6.9816	1.2249
1711	8550	6.9776	1.2209
1712	8555	6.9791	1.2224
1713	8560	6.9782	1.2215
1714	8565	6.9749	1.2182
1715	8570	6.9787	1.222
1716	8575	6.9782	1.2215
1717	8580	6.9783	1.2216
1718	8585	6.9775	1.2208
1719	8590	6.9779	1.2212
1720	8595	6.9767	1.22
1721	8600	6.9782	1.2215
1722	8605	6.9798	1.2231
1723	8610	6.9782	1.2215
1724	8615	7.0325	1.2758
1725	8620	6.978	1.2213
1726	8625	6.9759	1.2192
1727	8630	6.9767	1.22
1728	8635	6.9788	1.2221
1729	8640	6.977	1.2203
1730	8645	6.976	1.2193
1731	8650	6.9751	1.2184
1732	8655	6.9758	1.2191
1733	8660	6.9771	1.2204
1734	8665	6.9765	1.2198
1735	8670	6.9706	1.2139
1736	8675	6.9775	1.2208
1737	8680	6.9765	1.2198
1738	8685	6.9742	1.2175
1739	8690	6.9744	1.2177
1740	8695	6.9735	1.2168
1741	8700	6.9735	1.2168
1742	8705	6.9736	1.2169
1743	8710	6.9745	1.2178
1744	8715	6.8475	1.0908
1745	8720	6.9763	1.2196
1746	8725	6.9759	1.2192
1747	8730	6.9742	1.2175
1748	8735	6.9731	1.2164
1749	8740	7.0666	1.3099
1750	8745	6.9781	1.2214
1751	8750	6.9699	1.2132
1752	8755	6.9717	1.215
1753	8760	6.9729	1.2162
1754	8765	6.8471	1.0904
1755	8770	6.9732	1.2165
1756	8775	6.9723	1.2156
1757	8780	6.972	1.2153
1758	8785	6.9783	1.2216

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	6.9716	1.2149
1760	8795	6.9727	1.216
1761	8800	6.9727	1.216
1762	8805	6.8537	1.097
1763	8810	6.9825	1.2258
1764	8815	6.973	1.2163
1765	8820	6.9736	1.2169
1766	8825	6.9716	1.2149
1767	8830	6.8195	1.0628
1768	8835	6.9715	1.2148
1769	8840	6.9714	1.2147
1770	8845	6.972	1.2153
1771	8850	6.9727	1.216
1772	8855	6.972	1.2153
1773	8860	7.0312	1.2745
1774	8865	6.9737	1.217
1775	8870	6.9721	1.2154
1776	8875	6.974	1.2173
1777	8880	6.9727	1.216
1778	8885	6.9737	1.217
1779	8890	6.9734	1.2167
1780	8895	6.9748	1.2181
1781	8900	6.9749	1.2182
1782	8905	6.9737	1.217
1783	8910	6.9743	1.2176
1784	8915	6.9693	1.2126
1785	8920	6.9748	1.2181
1786	8925	6.9765	1.2198
1787	8930	6.9749	1.2182
1788	8935	6.9745	1.2178
1789	8940	6.9741	1.2174
1790	8945	6.9735	1.2168
1791	8950	6.9751	1.2184
1792	8955	6.9753	1.2186
1793	8960	6.9761	1.2194
1794	8965	6.9779	1.2212
1795	8970	6.8453	1.0886
1796	8975	6.9807	1.224
1797	8980	6.9775	1.2208
1798	8985	6.9778	1.2211
1799	8990	6.9779	1.2212
1800	8995	6.9777	1.221
1801	9000	6.9774	1.2207
1802	9005	6.9779	1.2212
1803	9010	6.9801	1.2234
1804	9015	6.9815	1.2248
1805	9020	6.9795	1.2228
1806	9025	6.9799	1.2232
1807	9030	6.9801	1.2234
1808	9035	6.9822	1.2255
1809	9040	6.9814	1.2247
1810	9045	6.9812	1.2245
1811	9050	6.9798	1.2231
1812	9055	6.9795	1.2228
1813	9060	6.9793	1.2226
1814	9065	6.9801	1.2234
1815	9070	6.9801	1.2234
1816	9075	6.9803	1.2236
1817	9080	6.981	1.2243
1818	9085	6.9806	1.2239
1819	9090	6.9817	1.225
1820	9095	6.982	1.2253
1821	9100	6.982	1.2253

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	6.9827	1.226
1823	9110	6.9839	1.2272
1824	9115	6.9833	1.2266
1825	9120	6.9833	1.2266
1826	9125	6.986	1.2293
1827	9130	6.9873	1.2306
1828	9135	6.9865	1.2298
1829	9140	6.9867	1.23
1830	9145	6.9852	1.2285
1831	9150	6.9869	1.2302
1832	9155	6.9879	1.2312
1833	9160	6.9879	1.2312
1834	9165	7.1759	1.4192
1835	9170	6.9934	1.2367
1836	9175	6.9939	1.2372
1837	9180	6.994	1.2373
1838	9185	6.995	1.2383
1839	9190	6.9968	1.2401
1840	9195	6.9946	1.2379
1841	9200	6.9968	1.2401
1842	9205	6.9962	1.2395
1843	9210	6.9968	1.2401
1844	9215	6.9964	1.2397
1845	9220	6.9979	1.2412
1846	9225	6.9971	1.2404
1847	9230	6.9976	1.2409
1848	9235	6.9986	1.2419
1849	9240	6.9994	1.2427
1850	9245	7.0015	1.2448
1851	9250	7.0014	1.2447
1852	9255	7.0046	1.2479
1853	9260	7.0037	1.247
1854	9265	7.0033	1.2466
1855	9270	7.0013	1.2446
1856	9275	7.0021	1.2454
1857	9280	7.0018	1.2451
1858	9285	7.0031	1.2464
1859	9290	7.0064	1.2497
1860	9295	7.0069	1.2502
1861	9300	7.009	1.2523
1862	9305	7.0095	1.2528
1863	9310	7.009	1.2523
1864	9315	7.009	1.2523
1865	9320	7.0078	1.2511
1866	9325	7.0088	1.2521
1867	9330	7.008	1.2513
1868	9335	7.0092	1.2525
1869	9340	7.0094	1.2527
1870	9345	7.0082	1.2515
1871	9350	7.0094	1.2527
1872	9355	7.0087	1.252
1873	9360	7.0087	1.252
1874	9365	7.0094	1.2527
1875	9370	7.0099	1.2532
1876	9375	7.0105	1.2538
1877	9380	7.0092	1.2525
1878	9385	7.0078	1.2511
1879	9390	7.0064	1.2497
1880	9395	7.0069	1.2502
1881	9400	7.0055	1.2488
1882	9405	7.0045	1.2478
1883	9410	7.0035	1.2468
1884	9415	6.9998	1.2431

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	6.997	1.2403
1886	9425	6.9995	1.2428
1887	9430	6.9968	1.2401
1888	9435	6.9935	1.2368
1889	9440	6.9921	1.2354
1890	9445	6.9926	1.2359
1891	9450	6.9931	1.2364
1892	9455	6.9913	1.2346
1893	9460	6.9907	1.234
1894	9465	6.99	1.2333
1895	9470	6.9895	1.2328
1896	9475	6.9897	1.233
1897	9480	6.9888	1.2321
1898	9485	6.9884	1.2317
1899	9490	6.9852	1.2285
1900	9495	6.9851	1.2284
1901	9500	6.9839	1.2272
1902	9505	6.9817	1.225
1903	9510	6.9803	1.2236
1904	9515	6.9784	1.2217
1905	9520	6.9775	1.2208
1906	9525	6.9747	1.218
1907	9530	6.9719	1.2152
1908	9535	6.9704	1.2137
1909	9540	6.9673	1.2106
1910	9545	6.9652	1.2085
1911	9550	6.96	1.2033
1912	9555	6.9577	1.201
1913	9560	6.9586	1.2019
1914	9565	6.9574	1.2007
1915	9570	6.9557	1.199
1916	9575	6.9526	1.1959
1917	9580	6.9507	1.194
1918	9585	6.9488	1.1921
1919	9590	6.9452	1.1885
1920	9595	6.9424	1.1857
1921	9600	6.9385	1.1818
1922	9605	6.9372	1.1805
1923	9610	6.9389	1.1822
1924	9615	6.9392	1.1825
1925	9620	6.9397	1.183
1926	9625	6.9362	1.1795
1927	9630	6.9347	1.178
1928	9635	6.9349	1.1782
1929	9640	6.9368	1.1801
1930	9645	6.9292	1.1725
1931	9650	6.9285	1.1718
1932	9655	6.9275	1.1708
1933	9660	6.9256	1.1689
1934	9665	6.9237	1.167
1935	9670	6.9217	1.165
1936	9675	6.92	1.1633
1937	9680	6.9211	1.1644
1938	9685	6.9194	1.1627
1939	9690	6.9193	1.1626
1940	9695	6.9197	1.163
1941	9700	6.9201	1.1634
1942	9705	6.9201	1.1634
1943	9710	6.9189	1.1622
1944	9715	6.9186	1.1619
1945	9720	6.9176	1.1609
1946	9725	6.917	1.1603
1947	9730	6.9149	1.1582

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	6.9163	1.1596
1949	9740	6.9159	1.1592
1950	9745	6.9157	1.159
1951	9750	6.9147	1.158
1952	9755	6.9142	1.1575
1953	9760	6.9144	1.1577
1954	9765	6.9152	1.1585
1955	9770	6.915	1.1583
1956	9775	6.9148	1.1581
1957	9780	6.9132	1.1565
1958	9785	6.9125	1.1558
1959	9790	6.9107	1.154
1960	9795	6.9111	1.1544
1961	9800	6.9108	1.1541
1962	9805	6.913	1.1563
1963	9810	6.911	1.1543
1964	9815	6.9141	1.1574
1965	9820	6.9122	1.1555
1966	9825	6.9135	1.1568
1967	9830	6.9129	1.1562
1968	9835	6.9147	1.158
1969	9840	6.9133	1.1566
1970	9845	6.9133	1.1566
1971	9850	6.9112	1.1545
1972	9855	6.9128	1.1561
1973	9860	6.9115	1.1548
1974	9865	6.9115	1.1548
1975	9870	6.9103	1.1536
1976	9875	6.9119	1.1552
1977	9880	6.9153	1.1586
1978	9885	6.915	1.1583
1979	9890	6.916	1.1593
1980	9895	6.9153	1.1586
1981	9900	6.9167	1.16
1982	9905	6.9195	1.1628
1983	9910	6.9213	1.1646
1984	9915	6.923	1.1663
1985	9920	6.9248	1.1681
1986	9925	6.9239	1.1672
1987	9930	6.924	1.1673
1988	9935	6.9231	1.1664
1989	9940	6.927	1.1703
1990	9945	6.9282	1.1715
1991	9950	6.9282	1.1715
1992	9955	6.9291	1.1724
1993	9960	6.9315	1.1748
1994	9965	6.9323	1.1756
1995	9970	6.9321	1.1754
1996	9975	6.9326	1.1759
1997	9980	6.933	1.1763
1998	9985	6.9335	1.1768
1999	9990	6.9352	1.1785
2000	9995	6.9363	1.1796
2001	10000	6.9373	1.1806
2002	10005	6.9386	1.1819
2003	10010	6.9379	1.1812
2004	10015	6.9386	1.1819
2005	10020	6.9415	1.1848
2006	10025	6.942	1.1853
2007	10030	6.944	1.1873
2008	10035	6.9446	1.1879
2009	10040	6.9455	1.1888
2010	10045	6.9469	1.1902

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	6.9441	1.1874
2012	10055	6.9441	1.1874
2013	10060	6.9474	1.1907
2014	10065	6.9462	1.1895
2015	10070	6.9453	1.1886
2016	10075	6.9409	1.1842
2017	10080	6.9434	1.1867
2018	10085	6.9426	1.1859
2019	10090	6.9445	1.1878
2020	10095	6.9442	1.1875
2021	10100	6.9439	1.1872
2022	10105	6.9421	1.1854
2023	10110	6.9415	1.1848
2024	10115	6.9397	1.183
2025	10120	6.9387	1.182
2026	10125	6.9376	1.1809
2027	10130	6.9372	1.1805
2028	10135	6.9334	1.1767
2029	10140	6.932	1.1753
2030	10145	6.9268	1.1701
2031	10150	6.9249	1.1682
2032	10155	6.916	1.1593
2033	10160	6.9153	1.1586
2034	10165	6.9127	1.156
2035	10170	6.9079	1.1512
2036	10175	6.9016	1.1449
2037	10180	6.9015	1.1448
2038	10185	6.8998	1.1431
2039	10190	6.8949	1.1382
2040	10195	6.8914	1.1347
2041	10200	6.8884	1.1317
2042	10205	6.8859	1.1292
2043	10210	6.8792	1.1225
2044	10215	6.8747	1.118
2045	10220	6.8743	1.1176
2046	10225	6.87	1.1133
2047	10230	6.8641	1.1074
2048	10235	6.8578	1.1011
2049	10240	6.8543	1.0976
2050	10245	6.8495	1.0928
2051	10250	6.849	1.0923
2052	10255	6.8413	1.0846
2053	10260	6.8381	1.0814
2054	10265	6.8326	1.0759
2055	10270	6.828	1.0713
2056	10275	6.8252	1.0685
2057	10280	6.8226	1.0659
2058	10285	6.8161	1.0594
2059	10290	6.8136	1.0569
2060	10295	6.8122	1.0555
2061	10300	6.8057	1.049
2062	10305	6.8016	1.0449
2063	10310	6.7955	1.0388
2064	10315	6.7915	1.0348
2065	10320	6.7877	1.031
2066	10325	6.7819	1.0252
2067	10330	6.7811	1.0244
2068	10335	6.7746	1.0179
2069	10340	6.7714	1.0147
2070	10345	6.7681	1.0114
2071	10350	6.7626	1.0059
2072	10355	6.7598	1.0031
2073	10360	6.756	0.9993

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	6.7528	0.9961
2075	10370	6.7488	0.9921
2076	10375	6.7478	0.9911
2077	10380	6.743	0.9863
2078	10385	6.739	0.9823
2079	10390	6.7349	0.9782
2080	10395	6.7312	0.9745
2081	10400	6.7285	0.9718
2082	10405	6.7237	0.967
2083	10410	6.7194	0.9627
2084	10415	6.7159	0.9592
2085	10420	6.7149	0.9582
2086	10425	6.7121	0.9554
2087	10430	6.7073	0.9506
2088	10435	6.7056	0.9489
2089	10440	6.7025	0.9458
2090	10445	6.6978	0.9411
2091	10450	6.6942	0.9375
2092	10455	6.6916	0.9349
2093	10460	6.6902	0.9335
2094	10465	6.6873	0.9306
2095	10470	6.6842	0.9275
2096	10475	6.6806	0.9239
2097	10480	6.6794	0.9227
2098	10485	6.6773	0.9206
2099	10490	6.6743	0.9176
2100	10495	6.672	0.9153
2101	10500	6.6707	0.914
2102	10505	6.6672	0.9105
2103	10510	6.6621	0.9054
2104	10515	6.6593	0.9026
2105	10520	6.6569	0.9002
2106	10525	6.6549	0.8982
2107	10530	6.6528	0.8961
2108	10535	6.6621	0.9054
2109	10540	6.6521	0.8954
2110	10545	6.6492	0.8925
2111	10550	6.6462	0.8895
2112	10555	6.645	0.8883
2113	10560	6.6426	0.8859
2114	10565	6.6393	0.8826
2115	10570	6.6368	0.8801
2116	10575	6.6361	0.8794
2117	10580	6.6345	0.8778
2118	10585	6.6312	0.8745
2119	10590	6.6292	0.8725
2120	10595	6.627	0.8703
2121	10600	6.6253	0.8686
2122	10605	6.6234	0.8667
2123	10610	6.6221	0.8654
2124	10615	6.6214	0.8647
2125	10620	6.6201	0.8634
2126	10625	6.6176	0.8609
2127	10630	6.6159	0.8592
2128	10635	6.6141	0.8574
2129	10640	6.6122	0.8555
2130	10645	6.6127	0.856
2131	10650	6.6104	0.8537
2132	10655	6.6092	0.8525
2133	10660	6.6062	0.8495
2134	10665	6.6071	0.8504
2135	10670	6.605	0.8483
2136	10675	6.6021	0.8454

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	6.6014	0.8447
2138	10685	6.5995	0.8428
2139	10690	6.5964	0.8397
2140	10695	6.595	0.8383
2141	10700	6.5903	0.8336
2142	10705	6.585	0.8283
2143	10710	6.5793	0.8226
2144	10715	6.5788	0.8221
2145	10720	6.5766	0.8199
2146	10725	6.5748	0.8181
2147	10730	6.5729	0.8162
2148	10735	6.569	0.8123
2149	10740	6.5682	0.8115
2150	10745	6.5674	0.8107
2151	10750	6.5631	0.8064
2152	10755	6.5615	0.8048
2153	10760	6.5603	0.8036
2154	10765	6.5581	0.8014
2155	10770	6.5563	0.7996
2156	10775	6.5535	0.7968
2157	10780	6.5503	0.7936
2158	10785	6.5473	0.7906
2159	10790	6.5471	0.7904
2160	10795	6.546	0.7893
2161	10800	6.5456	0.7889
2162	10805	6.5413	0.7846
2163	10810	6.5385	0.7818
2164	10815	6.5356	0.7789
2165	10820	6.5339	0.7772
2166	10825	6.5307	0.774
2167	10830	6.529	0.7723
2168	10835	6.5257	0.769
2169	10840	6.5231	0.7664
2170	10845	6.5214	0.7647
2171	10850	6.5183	0.7616
2172	10855	6.5155	0.7588
2173	10860	6.5127	0.756
2174	10865	6.5123	0.7556
2175	10870	6.509	0.7523
2176	10875	6.5071	0.7504
2177	10880	6.5036	0.7469
2178	10885	6.5021	0.7454
2179	10890	6.4998	0.7431
2180	10895	6.4962	0.7395
2181	10900	6.4961	0.7394
2182	10905	6.4958	0.7391
2183	10910	6.4921	0.7354
2184	10915	6.4892	0.7325
2185	10920	6.4881	0.7314
2186	10925	6.4838	0.7271
2187	10930	6.4826	0.7259
2188	10935	6.4805	0.7238
2189	10940	6.4785	0.7218
2190	10945	6.475	0.7183
2191	10950	6.4736	0.7169
2192	10955	6.4706	0.7139
2193	10960	6.4669	0.7102
2194	10965	6.4655	0.7088
2195	10970	6.4655	0.7088
2196	10975	6.4617	0.705
2197	10980	6.4591	0.7024
2198	10985	6.4569	0.7002
2199	10990	6.4549	0.6982

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	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	6.4481	0.6914
2201	11000	6.4488	0.6921
2202	11005	6.4452	0.6885
2203	11010	6.4434	0.6867
2204	11015	6.4378	0.6811
2205	11020	6.4359	0.6792
2206	11025	6.433	0.6763
2207	11030	6.4318	0.6751
2208	11035	6.4287	0.672
2209	11040	6.4262	0.6695
2210	11045	6.4247	0.668
2211	11050	6.422	0.6653
2212	11055	6.4194	0.6627
2213	11060	6.4159	0.6592
2214	11065	6.4135	0.6568
2215	11070	6.4111	0.6544
2216	11075	6.4076	0.6509
2217	11080	6.4309	0.6742
2218	11085	6.4822	0.7255
2219	11090	6.5274	0.7707
2220	11095	6.549	0.7923
2221	11100	6.2595	0.5028
2222	11105	6.2706	0.5139
2223	11110	6.5038	0.7471
2224	11115	6.3088	0.5521
2225	11120	6.4466	0.6899
2226	11125	6.2756	0.5189
2227	11130	6.408	0.6513
2228	11135	6.383	0.6263
2229	11140	6.2344	0.4777
2230	11145	6.2557	0.499
2231	11150	6.3198	0.5631
2232	11155	6.3766	0.6199
2233	11160	6.3411	0.5844
2234	11165	6.4812	0.7245
2235	11170	6.3728	0.6161
2236	11175	6.3673	0.6106
2237	11180	6.3653	0.6086
2238	11185	6.241	0.4843
2239	11190	6.5187	0.762
2240	11195	6.3611	0.6044
2241	11200	6.5645	0.8078
2242	11205	6.3777	0.621
2243	11210	6.2186	0.4619
2244	11215	6.3547	0.598
2245	11220	6.3522	0.5955
2246	11225	6.4924	0.7357
2247	11230	6.3728	0.6161
2248	11235	6.3511	0.5944
2249	11240	6.347	0.5903
2250	11245	6.3474	0.5907
2251	11250	6.4752	0.7185
2252	11255	6.3433	0.5866
2253	11260	6.3411	0.5844
2254	11265	6.3402	0.5835
2255	11270	6.2782	0.5215
2256	11275	6.4796	0.7229
2257	11280	6.3397	0.583
2258	11285	6.3408	0.5841
2259	11290	6.3386	0.5819
2260	11295	6.3383	0.5816
2261	11300	6.3384	0.5817
2262	11305	6.3375	0.5808

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	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	6.3367	0.58
2264	11315	6.1838	0.4271
2265	11320	6.3372	0.5805
2266	11325	6.3365	0.5798
2267	11330	6.3354	0.5787
2268	11335	6.3352	0.5785
2269	11340	6.3356	0.5789
2270	11345	6.3348	0.5781
2271	11350	6.3342	0.5775
2272	11355	6.335	0.5783
2273	11360	6.3322	0.5755
2274	11365	6.3344	0.5777
2275	11370	6.3357	0.579
2276	11375	6.3349	0.5782
2277	11380	6.3352	0.5785
2278	11385	6.3347	0.578
2279	11390	6.3361	0.5794
2280	11395	6.3354	0.5787
2281	11400	6.3352	0.5785
2282	11405	6.3339	0.5772
2283	11410	6.3342	0.5775
2284	11415	6.3339	0.5772
2285	11420	6.3309	0.5742
2286	11425	6.3323	0.5756
2287	11430	6.3353	0.5786
2288	11435	6.3365	0.5798
2289	11440	6.3376	0.5809
2290	11445	6.3378	0.5811
2291	11450	6.3388	0.5821
2292	11455	6.3388	0.5821
2293	11460	6.3389	0.5822
2294	11465	6.3389	0.5822
2295	11470	6.3165	0.5598
2296	11475	6.339	0.5823
2297	11480	6.3391	0.5824
2298	11485	6.3384	0.5817
2299	11490	6.3384	0.5817
2300	11495	6.3388	0.5821
2301	11500	6.3384	0.5817
2302	11505	6.3377	0.581
2303	11510	6.3371	0.5804
2304	11515	6.3354	0.5787
2305	11520	6.3352	0.5785
2306	11525	6.3352	0.5785
2307	11530	6.3338	0.5771
2308	11535	6.334	0.5773
2309	11540	6.3348	0.5781
2310	11545	6.3345	0.5778
2311	11550	6.3354	0.5787
2312	11555	6.3373	0.5806
2313	11560	6.3365	0.5798
2314	11565	6.3342	0.5775
2315	11570	6.3354	0.5787
2316	11575	6.3364	0.5797
2317	11580	6.3375	0.5808
2318	11585	6.3357	0.579
2319	11590	6.3348	0.5781
2320	11595	6.3363	0.5796
2321	11600	6.3578	0.6011
2322	11605	6.3374	0.5807
2323	11610	6.3357	0.579
2324	11615	6.3351	0.5784
2325	11620	6.3342	0.5775

	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	6.3348	0.5781
2327	11630	6.3351	0.5784
2328	11635	6.3343	0.5776
2329	11640	6.334	0.5773
2330	11645	6.3331	0.5764
2331	11650	6.3319	0.5752
2332	11655	6.3315	0.5748
2333	11660	6.3287	0.572
2334	11665	6.33	0.5733
2335	11670	6.3302	0.5735
2336	11675	6.3296	0.5729
2337	11680	6.3289	0.5722
2338	11685	6.3266	0.5699
2339	11690	6.3264	0.5697
2340	11695	6.3238	0.5671
2341	11700	6.2741	0.5174
2342	11705	6.3241	0.5674
2343	11710	6.3237	0.567
2344	11715	6.3214	0.5647
2345	11720	6.3201	0.5634
2346	11725	6.3211	0.5644
2347	11730	6.3201	0.5634
2348	11735	6.319	0.5623
2349	11740	6.3175	0.5608
2350	11745	6.3159	0.5592
2351	11750	6.3161	0.5594
2352	11755	6.3169	0.5602
2353	11760	6.3153	0.5586
2354	11765	6.3144	0.5577
2355	11770	6.3122	0.5555
2356	11775	6.3132	0.5565
2357	11780	6.3122	0.5555
2358	11785	6.3109	0.5542
2359	11790	6.3101	0.5534
2360	11795	6.3103	0.5536
2361	11800	6.3093	0.5526
2362	11805	6.3109	0.5542
2363	11810	6.3096	0.5529
2364	11815	6.3093	0.5526
2365	11820	6.3089	0.5522
2366	11825	6.3114	0.5547
2367	11830	6.3046	0.5479
2368	11835	6.3055	0.5488
2369	11840	6.3042	0.5475
2370	11845	6.3042	0.5475
2371	11850	6.304	0.5473
2372	11855	6.3031	0.5464
2373	11860	6.3018	0.5451
2374	11865	6.3008	0.5441
2375	11870	6.2993	0.5426
2376	11875	6.2978	0.5411
2377	11880	6.298	0.5413
2378	11885	6.2984	0.5417
2379	11890	6.2977	0.541
2380	11895	6.2981	0.5414
2381	11900	6.3515	0.5948
2382	11905	6.2969	0.5402
2383	11910	6.2972	0.5405
2384	11915	6.297	0.5403
2385	11920	6.2968	0.5401
2386	11925	6.2957	0.539
2387	11930	6.296	0.5393
2388	11935	6.295	0.5383

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	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	6.2975	0.5408
2390	11945	6.2957	0.539
2391	11950	6.296	0.5393
2392	11955	6.297	0.5403
2393	11960	6.295	0.5383
2394	11965	6.2963	0.5396
2395	11970	6.2953	0.5386
2396	11975	6.2947	0.538
2397	11980	6.294	0.5373
2398	11985	6.2942	0.5375
2399	11990	6.2946	0.5379
2400	11995	6.2957	0.539
2401	12000	6.2947	0.538
2402	12005	6.2946	0.5379
2403	12010	6.2939	0.5372
2404	12015	6.2955	0.5388
2405	12020	6.2952	0.5385
2406	12025	6.2963	0.5396
2407	12030	6.2965	0.5398
2408	12035	6.2975	0.5408
2409	12040	6.2967	0.54
2410	12045	6.2978	0.5411
2411	12050	6.2981	0.5414
2412	12055	6.2994	0.5427
2413	12060	6.2955	0.5388
2414	12065	6.298	0.5413
2415	12070	6.297	0.5403
2416	12075	6.298	0.5413
2417	12080	6.3001	0.5434
2418	12085	6.2981	0.5414
2419	12090	6.2973	0.5406
2420	12095	6.2979	0.5412
2421	12100	6.2972	0.5405
2422	12105	6.2971	0.5404
2423	12110	6.2966	0.5399
2424	12115	6.297	0.5403
2425	12120	6.2976	0.5409
2426	12125	6.2988	0.5421
2427	12130	6.2988	0.5421
2428	12135	6.2986	0.5419
2429	12140	6.2982	0.5415
2430	12145	6.2986	0.5419
2431	12150	6.296	0.5393
2432	12155	6.2981	0.5414
2433	12160	6.2972	0.5405
2434	12165	6.2953	0.5386
2435	12170	6.2978	0.5411
2436	12175	6.298	0.5413
2437	12180	6.2993	0.5426
2438	12185	6.299	0.5423
2439	12190	6.3003	0.5436
2440	12195	6.2995	0.5428
2441	12200	6.301	0.5443
2442	12205	6.3019	0.5452
2443	12210	6.301	0.5443
2444	12215	6.304	0.5473
2445	12220	6.3027	0.546
2446	12225	6.3045	0.5478
2447	12230	6.305	0.5483
2448	12235	6.3039	0.5472
2449	12240	6.3041	0.5474
2450	12245	6.3029	0.5462
2451	12250	6.3022	0.5455

	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	6.303	0.5463
2453	12260	6.3037	0.547
2454	12265	6.302	0.5453
2455	12270	6.3013	0.5446
2456	12275	6.3024	0.5457
2457	12280	6.3004	0.5437
2458	12285	6.303	0.5463
2459	12290	6.3024	0.5457
2460	12295	6.3016	0.5449
2461	12300	6.3021	0.5454
2462	12305	6.3045	0.5478
2463	12310	6.2997	0.543
2464	12315	6.2988	0.5421
2465	12320	6.2988	0.5421
2466	12325	6.2986	0.5419
2467	12330	6.2985	0.5418
2468	12335	6.2983	0.5416
2469	12340	6.2968	0.5401
2470	12345	6.2958	0.5391
2471	12350	6.296	0.5393
2472	12355	6.2944	0.5377
2473	12360	6.2948	0.5381
2474	12365	6.2938	0.5371
2475	12370	6.2918	0.5351
2476	12375	6.2909	0.5342
2477	12380	6.2903	0.5336
2478	12385	6.2923	0.5356
2479	12390	6.2922	0.5355
2480	12395	6.2946	0.5379
2481	12400	6.2911	0.5344
2482	12405	6.2908	0.5341
2483	12410	6.2916	0.5349
2484	12415	6.2922	0.5355
2485	12420	6.2929	0.5362
2486	12425	6.29	0.5333
2487	12430	6.2891	0.5324
2488	12435	6.2886	0.5319
2489	12440	6.2885	0.5318
2490	12445	6.2879	0.5312
2491	12450	6.2866	0.5299
2492	12455	6.2868	0.5301
2493	12460	6.2854	0.5287
2494	12465	6.2852	0.5285
2495	12470	6.2846	0.5279
2496	12475	6.2831	0.5264
2497	12480	6.2812	0.5245
2498	12485	6.2798	0.5231
2499	12490	6.2798	0.5231
2500	12495	6.277	0.5203
2501	12500	6.2764	0.5197
2502	12505	6.275	0.5183
2503	12510	6.2736	0.5169
2504	12515	6.2726	0.5159
2505	12520	6.2725	0.5158
2506	12525	6.2703	0.5136
2507	12530	6.2693	0.5126
2508	12535	6.1811	0.4244
2509	12540	6.3516	0.5949
2510	12545	6.1478	0.3911
2511	12550	6.1328	0.3761
2512	12555	6.262	0.5053
2513	12560	6.2577	0.501
2514	12565	6.1263	0.3696

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	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	6.2627	0.506
2516	12575	6.2534	0.4967
2517	12580	6.2539	0.4972
2518	12585	6.1656	0.4089
2519	12590	6.2518	0.4951
2520	12595	6.2511	0.4944
2521	12600	6.2496	0.4929
2522	12605	6.0987	0.342
2523	12610	6.1146	0.3579
2524	12615	6.2487	0.492
2525	12620	6.2483	0.4916
2526	12625	6.2485	0.4918
2527	12630	6.3792	0.6225
2528	12635	6.4111	0.6544
2529	12640	6.2464	0.4897
2530	12645	6.2464	0.4897
2531	12650	6.2466	0.4899
2532	12655	6.2448	0.4881
2533	12660	6.379	0.6223
2534	12665	6.0926	0.3359
2535	12670	6.2422	0.4855
2536	12675	6.241	0.4843
2537	12680	6.2402	0.4835
2538	12685	6.2404	0.4837
2539	12690	6.4041	0.6474
2540	12695	6.2528	0.4961
2541	12700	6.2403	0.4836
2542	12705	6.2397	0.483
2543	12710	6.24	0.4833
2544	12715	6.2412	0.4845
2545	12720	6.1848	0.4281
2546	12725	6.2396	0.4829
2547	12730	6.2395	0.4828
2548	12735	6.2396	0.4829
2549	12740	6.2365	0.4798
2550	12745	6.2356	0.4789
2551	12750	6.2365	0.4798
2552	12755	6.2283	0.4716
2553	12760	6.2358	0.4791
2554	12765	6.2346	0.4779
2555	12770	6.2356	0.4789
2556	12775	6.2356	0.4789
2557	12780	6.2365	0.4798
2558	12785	6.2372	0.4805
2559	12790	6.2377	0.481
2560	12795	6.2392	0.4825
2561	12800	6.2407	0.484
2562	12805	6.2403	0.4836
2563	12810	6.3105	0.5538
2564	12815	6.2414	0.4847
2565	12820	6.2438	0.4871
2566	12825	6.2458	0.4891
2567	12830	6.2462	0.4895
2568	12835	6.2459	0.4892
2569	12840	6.2481	0.4914
2570	12845	6.248	0.4913
2571	12850	6.2569	0.5002
2572	12855	6.2495	0.4928
2573	12860	6.2514	0.4947
2574	12865	6.2214	0.4647
2575	12870	6.2523	0.4956
2576	12875	6.2523	0.4956
2577	12880	6.2517	0.495

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2578	12885	6.2549	0.4982
2579	12890	6.254	0.4973
2580	12895	6.257	0.5003
2581	12900	6.2575	0.5008
2582	12905	6.2594	0.5027
2583	12910	6.2608	0.5041
2584	12915	6.2611	0.5044
2585	12920	6.2623	0.5056
2586	12925	6.2631	0.5064
2587	12930	6.26	0.5033
2588	12935	6.2607	0.504
2589	12940	6.2611	0.5044
2590	12945	6.2593	0.5026
2591	12950	6.262	0.5053
2592	12955	6.2628	0.5061
2593	12960	6.2617	0.505
2594	12965	6.2627	0.506
2595	12970	6.262	0.5053
2596	12975	6.2613	0.5046
2597	12980	6.2611	0.5044
2598	12985	6.49	0.7333

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	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-34	Static Water Level [ft]: 13.03	Radial Distance to PW [ft]: 11450

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	13.0257	0.00
2	10	13.0279	0.0022
3	20	13.0271	0.0014
4	30	13.0261	0.0004
5	40	13.0245	-0.0012
6	50	13.0228	-0.0029
7	60	13.0195	-0.0062
8	70	13.0133	-0.0124
9	80	13.0085	-0.0172
10	90	13.004	-0.0217
11	100	13.0046	-0.0211
12	110	13.004	-0.0217
13	120	13.0001	-0.0256
14	130	12.9955	-0.0302
15	140	12.9898	-0.0359
16	150	12.983	-0.0427
17	160	12.9771	-0.0486
18	170	12.9703	-0.0554
19	180	12.9673	-0.0584
20	190	12.964	-0.0617
21	200	12.96	-0.0657
22	210	12.9576	-0.0681
23	220	12.952	-0.0737
24	230	12.95	-0.0757
25	240	12.9454	-0.0803
26	250	12.9391	-0.0866
27	260	12.9346	-0.0911
28	270	12.9309	-0.0948
29	280	12.9287	-0.097
30	290	12.9259	-0.0998
31	300	12.9255	-0.1002
32	310	12.9224	-0.1033
33	320	12.9144	-0.1113
34	330	12.9119	-0.1138
35	340	12.9075	-0.1182
36	350	12.9044	-0.1213
37	360	12.9034	-0.1223
38	370	12.9003	-0.1254
39	380	12.8953	-0.1304
40	390	12.8953	-0.1304
41	400	12.894	-0.1317
42	410	12.8883	-0.1374
43	420	12.8837	-0.142
44	430	12.8787	-0.147
45	440	12.875	-0.1507
46	450	12.8746	-0.1511
47	460	12.8719	-0.1538
48	470	12.8677	-0.158
49	480	12.864	-0.1617
50	490	12.8614	-0.1643
51	500	12.8574	-0.1683
52	510	12.8556	-0.1701
53	520	12.8541	-0.1716
54	530	12.8522	-0.1735
55	540	12.852	-0.1737
56	550	12.8503	-0.1754
57	560	12.8485	-0.1772

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	12.8455	-0.1802
59	580	12.8425	-0.1832
60	590	12.842	-0.1837
61	600	12.8399	-0.1858
62	610	12.838	-0.1877
63	620	12.836	-0.1897
64	630	12.8356	-0.1901
65	640	12.8386	-0.1871
66	650	12.8364	-0.1893
67	660	12.8337	-0.192
68	670	12.8342	-0.1915
69	680	12.8331	-0.1926
70	690	12.8325	-0.1932
71	700	12.831	-0.1947
72	710	12.8314	-0.1943
73	720	12.8288	-0.1969
74	730	12.8277	-0.198
75	740	12.8268	-0.1989
76	750	12.8273	-0.1984
77	760	12.8248	-0.2009
78	770	12.8216	-0.2041
79	780	12.8202	-0.2055
80	790	12.8193	-0.2064
81	800	12.8189	-0.2068
82	810	12.8185	-0.2072
83	820	12.8186	-0.2071
84	830	12.8174	-0.2083
85	840	12.8177	-0.208
86	850	12.8166	-0.2091
87	860	12.8157	-0.21
88	870	12.815	-0.2107
89	880	12.8127	-0.213
90	890	12.8118	-0.2139
91	900	12.8109	-0.2148
92	910	12.811	-0.2147
93	920	12.8084	-0.2173
94	930	12.8082	-0.2175
95	940	12.8036	-0.2221
96	950	12.8012	-0.2245
97	960	12.8018	-0.2239
98	970	12.7995	-0.2262
99	980	12.7959	-0.2298
100	990	12.7945	-0.2312
101	1000	12.7954	-0.2303
102	1010	12.7943	-0.2314
103	1020	12.7897	-0.236
104	1030	12.7841	-0.2416
105	1040	12.7813	-0.2444
106	1050	12.7785	-0.2472
107	1060	12.7754	-0.2503
108	1070	12.7707	-0.255
109	1080	12.7711	-0.2546
110	1090	12.7715	-0.2542
111	1100	12.764	-0.2617
112	1110	12.7587	-0.267
113	1120	12.7545	-0.2712
114	1130	12.7561	-0.2696
115	1140	12.754	-0.2717
116	1150	12.7554	-0.2703
117	1160	12.7545	-0.2712
118	1170	12.7512	-0.2745
119	1180	12.7514	-0.2743
120	1190	12.7494	-0.2763

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	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	12.7485	-0.2772
122	1210	12.7472	-0.2785
123	1220	12.7399	-0.2858
124	1230	12.736	-0.2897
125	1240	12.734	-0.2917
126	1250	12.7309	-0.2948
127	1260	12.7292	-0.2965
128	1270	12.7262	-0.2995
129	1280	12.7248	-0.3009
130	1290	12.7209	-0.3048
131	1300	12.7207	-0.305
132	1310	12.7151	-0.3106
133	1320	12.7164	-0.3093
134	1330	12.714	-0.3117
135	1340	12.7131	-0.3126
136	1350	12.7113	-0.3144
137	1360	12.7106	-0.3151
138	1370	12.7075	-0.3182
139	1380	12.7056	-0.3201
140	1390	12.7028	-0.3229
141	1400	12.7007	-0.325
142	1410	12.6963	-0.3294
143	1420	12.6963	-0.3294
144	1430	12.6963	-0.3294
145	1440	12.6978	-0.3279
146	1450	12.6961	-0.3296
147	1460	12.6967	-0.329
148	1470	12.7004	-0.3253
149	1480	12.7004	-0.3253
150	1490	12.6962	-0.3295
151	1500	12.6941	-0.3316
152	1510	12.6937	-0.332
153	1520	12.6924	-0.3333
154	1530	12.6898	-0.3359
155	1540	12.6903	-0.3354
156	1550	12.6889	-0.3368
157	1560	12.6879	-0.3378
158	1570	12.6842	-0.3415
159	1580	12.6819	-0.3438
160	1590	12.6833	-0.3424
161	1600	12.6843	-0.3414
162	1610	12.6849	-0.3408
163	1620	12.6838	-0.3419
164	1630	12.6888	-0.3369
165	1640	12.6874	-0.3383
166	1650	12.6893	-0.3364
167	1660	12.687	-0.3387
168	1670	12.6853	-0.3404
169	1680	12.6833	-0.3424
170	1690	12.6838	-0.3419
171	1700	12.6823	-0.3434
172	1710	12.6771	-0.3486
173	1720	12.6782	-0.3475
174	1730	12.6765	-0.3492
175	1740	12.6798	-0.3459
176	1750	12.6823	-0.3434
177	1760	12.6779	-0.3478
178	1770	12.6815	-0.3442
179	1780	12.6783	-0.3474
180	1790	12.6884	-0.3373
181	1800	12.6925	-0.3332
182	1810	12.6888	-0.3369
183	1820	12.6871	-0.3386

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	12.6898	-0.3359
185	1840	12.689	-0.3367
186	1850	12.6874	-0.3383
187	1860	12.6856	-0.3401
188	1870	12.6826	-0.3431
189	1880	12.6814	-0.3443
190	1890	12.6791	-0.3466
191	1900	12.6751	-0.3506
192	1910	12.6741	-0.3516
193	1920	12.6723	-0.3534
194	1930	12.6729	-0.3528
195	1940	12.6697	-0.356
196	1950	12.6679	-0.3578
197	1960	12.6657	-0.36
198	1970	12.6642	-0.3615
199	1980	12.6646	-0.3611
200	1990	12.6608	-0.3649
201	2000	12.661	-0.3647
202	2010	12.6616	-0.3641
203	2020	12.6582	-0.3675
204	2030	12.6579	-0.3678
205	2040	12.6564	-0.3693
206	2050	12.654	-0.3717
207	2060	12.6552	-0.3705
208	2070	12.6553	-0.3704
209	2080	12.6544	-0.3713
210	2090	12.6546	-0.3711
211	2100	12.6523	-0.3734
212	2110	12.6484	-0.3773
213	2120	12.6477	-0.378
214	2130	12.646	-0.3797
215	2140	12.6474	-0.3783
216	2150	12.6437	-0.382
217	2160	12.6442	-0.3815
218	2170	12.642	-0.3837
219	2180	12.6435	-0.3822
220	2190	12.6399	-0.3858
221	2200	12.6412	-0.3845
222	2210	12.6425	-0.3832
223	2220	12.6432	-0.3825
224	2230	12.6432	-0.3825
225	2240	12.641	-0.3847
226	2250	12.639	-0.3867
227	2260	12.6399	-0.3858
228	2270	12.6412	-0.3845
229	2280	12.6418	-0.3839
230	2290	12.6404	-0.3853
231	2300	12.6428	-0.3829
232	2310	12.6427	-0.383
233	2320	12.6413	-0.3844
234	2330	12.6396	-0.3861
235	2340	12.6396	-0.3861
236	2350	12.6402	-0.3855
237	2360	12.6413	-0.3844
238	2370	12.639	-0.3867
239	2380	12.6378	-0.3879
240	2390	12.6327	-0.393
241	2400	12.6348	-0.3909
242	2410	12.6334	-0.3923
243	2420	12.6312	-0.3945
244	2430	12.6327	-0.393
245	2440	12.6305	-0.3952
246	2450	12.6328	-0.3929

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	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	12.6351	-0.3906
248	2470	12.6367	-0.389
249	2480	12.6363	-0.3894
250	2490	12.6345	-0.3912
251	2500	12.6349	-0.3908
252	2510	12.6371	-0.3886
253	2520	12.6357	-0.39
254	2530	12.6367	-0.389
255	2540	12.638	-0.3877
256	2550	12.6427	-0.383
257	2560	12.6428	-0.3829
258	2570	12.6406	-0.3851
259	2580	12.6432	-0.3825
260	2590	12.6413	-0.3844
261	2600	12.64	-0.3857
262	2610	12.639	-0.3867
263	2620	12.6423	-0.3834
264	2630	12.6406	-0.3851
265	2640	12.6407	-0.385
266	2650	12.6387	-0.387
267	2660	12.6384	-0.3873
268	2670	12.6399	-0.3858
269	2680	12.6403	-0.3854
270	2690	12.6416	-0.3841
271	2700	12.6424	-0.3833
272	2710	12.6421	-0.3836
273	2720	12.6405	-0.3852
274	2730	12.639	-0.3867
275	2740	12.6401	-0.3856
276	2750	12.637	-0.3887
277	2760	12.6382	-0.3875
278	2770	12.6381	-0.3876
279	2780	12.67	-0.3557
280	2790	12.6699	-0.3558
281	2800	12.668	-0.3577
282	2810	12.6691	-0.3566
283	2820	12.6714	-0.3543
284	2830	12.6713	-0.3544
285	2840	12.6677	-0.358
286	2850	12.6661	-0.3596
287	2860	12.6666	-0.3591
288	2870	12.6683	-0.3574
289	2880	12.6691	-0.3566
290	2890	12.6663	-0.3594
291	2900	12.6673	-0.3584
292	2910	12.67	-0.3557
293	2920	12.6678	-0.3579
294	2930	12.665	-0.3607
295	2940	12.6664	-0.3593
296	2950	12.6679	-0.3578
297	2960	12.6694	-0.3563
298	2970	12.6691	-0.3566
299	2980	12.6711	-0.3546
300	2990	12.6735	-0.3522
301	3000	12.673	-0.3527
302	3010	12.6723	-0.3534
303	3020	12.6712	-0.3545
304	3030	12.6716	-0.3541
305	3040	12.6735	-0.3522
306	3050	12.6725	-0.3532
307	3060	12.6727	-0.353
308	3070	12.6681	-0.3576
309	3080	12.6686	-0.3571

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	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	12.6673	-0.3584
311	3100	12.6674	-0.3583
312	3110	12.6683	-0.3574
313	3120	12.6717	-0.354
314	3130	12.673	-0.3527
315	3140	12.6805	-0.3452
316	3150	12.6828	-0.3429
317	3160	12.6896	-0.3361
318	3170	12.6987	-0.327
319	3180	12.6965	-0.3292
320	3190	12.6971	-0.3286
321	3200	12.7023	-0.3234
322	3210	12.7051	-0.3206
323	3220	12.7059	-0.3198
324	3230	12.7084	-0.3173
325	3240	12.7136	-0.3121
326	3250	12.7155	-0.3102
327	3260	12.7179	-0.3078
328	3270	12.7166	-0.3091
329	3280	12.7181	-0.3076
330	3290	12.7217	-0.304
331	3300	12.7187	-0.307
332	3310	12.7154	-0.3103
333	3320	12.7122	-0.3135
334	3330	12.716	-0.3097
335	3340	12.7177	-0.308
336	3350	12.7228	-0.3029
337	3360	12.7205	-0.3052
338	3370	12.7189	-0.3068
339	3380	12.7176	-0.3081
340	3390	12.7182	-0.3075
341	3400	12.7157	-0.31
342	3410	12.7211	-0.3046
343	3420	12.7255	-0.3002
344	3430	12.7248	-0.3009
345	3440	12.7284	-0.2973
346	3450	12.7291	-0.2966
347	3460	12.7295	-0.2962
348	3470	12.7311	-0.2946
349	3480	12.7308	-0.2949
350	3490	12.7299	-0.2958
351	3500	12.73	-0.2957
352	3510	12.731	-0.2947
353	3520	12.7333	-0.2924
354	3530	12.732	-0.2937
355	3540	12.7311	-0.2946
356	3550	12.7309	-0.2948
357	3560	12.7281	-0.2976
358	3570	12.7293	-0.2964
359	3580	12.7284	-0.2973
360	3590	12.7259	-0.2998
361	3600	12.7217	-0.304
362	3610	12.7222	-0.3035
363	3620	12.7217	-0.304
364	3630	12.7207	-0.305
365	3640	12.7212	-0.3045
366	3650	12.7207	-0.305
367	3660	12.7214	-0.3043
368	3670	12.7216	-0.3041
369	3680	12.7213	-0.3044
370	3690	12.7216	-0.3041
371	3700	12.7213	-0.3044
372	3710	12.723	-0.3027

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	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	12.7243	-0.3014
374	3730	12.7215	-0.3042
375	3740	12.7248	-0.3009
376	3750	12.7282	-0.2975
377	3760	12.7326	-0.2931
378	3770	12.7333	-0.2924
379	3780	12.7266	-0.2991
380	3790	12.7258	-0.2999
381	3800	12.7283	-0.2974
382	3810	12.7268	-0.2989
383	3820	12.7253	-0.3004
384	3830	12.7252	-0.3005
385	3840	12.725	-0.3007
386	3850	12.7262	-0.2995
387	3860	12.7286	-0.2971
388	3870	12.7309	-0.2948
389	3880	12.738	-0.2877
390	3890	12.7378	-0.2879
391	3900	12.7369	-0.2888
392	3910	12.7359	-0.2898
393	3920	12.7379	-0.2878
394	3930	12.7391	-0.2866
395	3940	12.7372	-0.2885
396	3950	12.7369	-0.2888
397	3960	12.7357	-0.29
398	3970	12.738	-0.2877
399	3980	12.739	-0.2867
400	3990	12.7444	-0.2813
401	4000	12.7485	-0.2772
402	4010	12.7531	-0.2726
403	4020	12.7554	-0.2703
404	4030	12.758	-0.2677
405	4040	12.7605	-0.2652
406	4050	12.7644	-0.2613
407	4060	12.7673	-0.2584
408	4070	12.7717	-0.254
409	4080	12.7712	-0.2545
410	4090	12.7724	-0.2533
411	4100	12.7721	-0.2536
412	4110	12.7706	-0.2551
413	4120	12.7729	-0.2528
414	4130	12.7726	-0.2531
415	4140	12.7743	-0.2514
416	4150	12.7735	-0.2522
417	4160	12.7724	-0.2533
418	4170	12.7723	-0.2534
419	4180	12.7744	-0.2513
420	4190	12.773	-0.2527
421	4200	12.7757	-0.25
422	4210	12.7736	-0.2521
423	4220	12.7726	-0.2531
424	4230	12.7728	-0.2529
425	4240	12.7695	-0.2562
426	4250	12.7694	-0.2563
427	4260	12.7673	-0.2584
428	4270	12.7656	-0.2601
429	4280	12.7642	-0.2615
430	4290	12.7606	-0.2651
431	4300	12.7586	-0.2671
432	4310	12.7588	-0.2669
433	4320	12.7549	-0.2708
434	4330	12.7537	-0.272
435	4340	12.753	-0.2727

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	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	12.7491	-0.2766
437	4360	12.7491	-0.2766
438	4370	12.7479	-0.2778
439	4380	12.7463	-0.2794
440	4390	12.7471	-0.2786
441	4400	12.7477	-0.278
442	4410	12.7479	-0.2778
443	4420	12.7458	-0.2799
444	4430	12.7467	-0.279
445	4440	12.745	-0.2807
446	4450	12.7448	-0.2809
447	4460	12.7445	-0.2812
448	4470	12.7415	-0.2842
449	4480	12.7423	-0.2834
450	4490	12.7413	-0.2844
451	4500	12.7399	-0.2858
452	4510	12.7396	-0.2861
453	4520	12.7412	-0.2845
454	4530	12.7413	-0.2844
455	4540	12.7409	-0.2848
456	4550	12.743	-0.2827
457	4560	12.7425	-0.2832
458	4570	12.743	-0.2827
459	4580	12.7424	-0.2833
460	4590	12.7438	-0.2819
461	4600	12.7439	-0.2818
462	4610	12.7445	-0.2812
463	4620	12.7468	-0.2789
464	4630	12.7512	-0.2745
465	4640	12.7545	-0.2712
466	4650	12.7536	-0.2721
467	4660	12.7553	-0.2704
468	4670	12.7556	-0.2701
469	4680	12.7589	-0.2668
470	4690	12.7585	-0.2672
471	4700	12.7599	-0.2658
472	4710	12.7592	-0.2665
473	4720	12.761	-0.2647
474	4730	12.7622	-0.2635
475	4740	12.7621	-0.2636
476	4750	12.7644	-0.2613
477	4760	12.764	-0.2617
478	4770	12.7666	-0.2591
479	4780	12.7683	-0.2574
480	4790	12.7688	-0.2569
481	4800	12.7697	-0.256
482	4810	12.7674	-0.2583
483	4820	12.7698	-0.2559
484	4830	12.7683	-0.2574
485	4840	12.7674	-0.2583
486	4850	12.7664	-0.2593
487	4860	12.7677	-0.258
488	4870	12.7661	-0.2596
489	4880	12.7664	-0.2593
490	4890	12.7679	-0.2578
491	4900	12.768	-0.2577
492	4910	12.7676	-0.2581
493	4920	12.767	-0.2587
494	4930	12.7681	-0.2576
495	4940	12.7674	-0.2583
496	4950	12.7673	-0.2584
497	4960	12.7676	-0.2581
498	4970	12.7679	-0.2578

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	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	12.7678	-0.2579
500	4990	12.7688	-0.2569
501	5000	12.7667	-0.259
502	5010	12.7644	-0.2613
503	5020	12.7644	-0.2613
504	5030	12.7627	-0.263
505	5040	12.7596	-0.2661
506	5050	12.7571	-0.2686
507	5060	12.7557	-0.27
508	5070	12.7572	-0.2685
509	5080	12.7566	-0.2691
510	5090	12.7552	-0.2705
511	5100	12.7548	-0.2709
512	5110	12.7551	-0.2706
513	5120	12.7529	-0.2728
514	5130	12.7519	-0.2738
515	5140	12.7518	-0.2739
516	5150	12.7523	-0.2734
517	5160	12.7535	-0.2722
518	5170	12.7538	-0.2719
519	5180	12.7539	-0.2718
520	5190	12.7527	-0.273
521	5200	12.7527	-0.273
522	5210	12.7531	-0.2726
523	5220	12.7549	-0.2708
524	5230	12.7549	-0.2708
525	5240	12.7567	-0.269
526	5250	12.757	-0.2687
527	5260	12.7575	-0.2682
528	5270	12.7566	-0.2691
529	5280	12.7586	-0.2671
530	5290	12.7609	-0.2648
531	5300	12.7625	-0.2632
532	5310	12.7638	-0.2619
533	5320	12.764	-0.2617
534	5330	12.7659	-0.2598
535	5340	12.7671	-0.2586
536	5350	12.7691	-0.2566
537	5360	12.7679	-0.2578
538	5370	12.7705	-0.2552
539	5380	12.7705	-0.2552
540	5390	12.7713	-0.2544
541	5400	12.7749	-0.2508
542	5410	12.7796	-0.2461
543	5420	12.7825	-0.2432
544	5430	12.7833	-0.2424
545	5440	12.7839	-0.2418
546	5450	12.7886	-0.2371
547	5460	12.792	-0.2337
548	5470	12.7984	-0.2273
549	5480	12.8033	-0.2224
550	5490	12.8039	-0.2218
551	5500	12.8062	-0.2195
552	5510	12.807	-0.2187
553	5520	12.8089	-0.2168
554	5530	12.8109	-0.2148
555	5540	12.8182	-0.2075
556	5550	12.8191	-0.2066
557	5560	12.8215	-0.2042
558	5570	12.8206	-0.2051
559	5580	12.8232	-0.2025
560	5590	12.8268	-0.1989
561	5600	12.8293	-0.1964

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	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	12.8347	-0.191
563	5620	12.8373	-0.1884
564	5630	12.8418	-0.1839
565	5640	12.847	-0.1787
566	5650	12.8525	-0.1732
567	5660	12.853	-0.1727
568	5670	12.8516	-0.1741
569	5680	12.8548	-0.1709
570	5690	12.8522	-0.1735
571	5700	12.8539	-0.1718
572	5710	12.853	-0.1727
573	5720	12.8552	-0.1705
574	5730	12.8557	-0.17
575	5740	12.8548	-0.1709
576	5750	12.8575	-0.1682
577	5760	12.8558	-0.1699
578	5770	12.8544	-0.1713
579	5780	12.8546	-0.1711
580	5790	12.8566	-0.1691
581	5800	12.8549	-0.1708
582	5810	12.8557	-0.17
583	5820	12.8599	-0.1658
584	5830	12.8656	-0.1601
585	5840	12.8662	-0.1595
586	5850	12.8702	-0.1555
587	5860	12.8687	-0.157
588	5870	12.8769	-0.1488
589	5880	12.874	-0.1517
590	5890	12.8712	-0.1545
591	5900	12.8731	-0.1526
592	5910	12.8794	-0.1463
593	5920	12.8802	-0.1455
594	5930	12.8809	-0.1448
595	5940	12.8815	-0.1442
596	5950	12.8796	-0.1461
597	5960	12.8892	-0.1365
598	5970	12.8904	-0.1353
599	5980	12.8916	-0.1341
600	5990	12.8927	-0.133
601	6000	12.8917	-0.134
602	6010	12.8899	-0.1358
603	6020	12.8903	-0.1354
604	6030	12.8915	-0.1342
605	6040	12.8926	-0.1331
606	6050	12.8923	-0.1334
607	6060	12.8911	-0.1346
608	6070	12.8887	-0.137
609	6080	12.888	-0.1377
610	6090	12.8881	-0.1376
611	6100	12.8918	-0.1339
612	6110	12.8943	-0.1314
613	6120	12.8957	-0.13
614	6130	12.9021	-0.1236
615	6140	12.9058	-0.1199
616	6150	12.9114	-0.1143
617	6160	12.9145	-0.1112
618	6170	12.9158	-0.1099
619	6180	12.9168	-0.1089
620	6190	12.9237	-0.102
621	6200	12.9267	-0.099
622	6210	12.9284	-0.0973
623	6220	12.9321	-0.0936
624	6230	12.935	-0.0907

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	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	12.9386	-0.0871
626	6250	12.9399	-0.0858
627	6260	12.9452	-0.0805
628	6270	12.9457	-0.08
629	6280	12.951	-0.0747
630	6290	12.9555	-0.0702
631	6300	12.9568	-0.0689
632	6310	12.9544	-0.0713
633	6320	12.9551	-0.0706
634	6330	12.9569	-0.0688
635	6340	12.9628	-0.0629
636	6350	12.9656	-0.0601
637	6360	12.9649	-0.0608
638	6370	12.9655	-0.0602
639	6380	12.9653	-0.0604
640	6390	12.966	-0.0597
641	6400	12.9654	-0.0603
642	6410	12.9687	-0.057
643	6420	12.9687	-0.057
644	6430	12.9706	-0.0551
645	6440	12.9731	-0.0526
646	6450	12.9737	-0.052
647	6460	12.9712	-0.0545
648	6470	12.9683	-0.0574
649	6480	12.9684	-0.0573
650	6490	12.9668	-0.0589
651	6500	12.9655	-0.0602
652	6510	12.9635	-0.0622
653	6520	12.9617	-0.064
654	6530	12.9629	-0.0628
655	6540	12.9701	-0.0556
656	6550	12.972	-0.0537
657	6560	12.9706	-0.0551
658	6570	12.9689	-0.0568
659	6580	12.9677	-0.058
660	6590	12.9682	-0.0575
661	6600	12.9708	-0.0549
662	6610	12.9692	-0.0565
663	6620	12.9686	-0.0571
664	6630	12.9716	-0.0541
665	6640	12.9751	-0.0506
666	6650	12.9771	-0.0486
667	6660	12.9758	-0.0499
668	6670	12.9758	-0.0499
669	6680	12.9765	-0.0492
670	6690	12.9763	-0.0494
671	6700	12.9789	-0.0468
672	6710	12.9782	-0.0475
673	6720	12.9808	-0.0449
674	6730	12.9795	-0.0462
675	6740	12.9813	-0.0444
676	6750	12.9829	-0.0428
677	6760	12.9804	-0.0453
678	6770	12.9818	-0.0439
679	6780	12.984	-0.0417
680	6790	12.9866	-0.0391
681	6800	12.9893	-0.0364
682	6810	12.9924	-0.0333
683	6820	12.9952	-0.0305
684	6830	12.9993	-0.0264
685	6840	13.0018	-0.0239
686	6850	13.0066	-0.0191
687	6860	13.0093	-0.0164

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	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	13.0132	-0.0125
689	6880	13.0199	-0.0058
690	6890	13.0229	-0.0028
691	6900	13.0288	0.0031
692	6910	13.0331	0.0074
693	6920	13.0394	0.0137
694	6930	13.0457	0.02
695	6940	13.0491	0.0234
696	6950	13.0552	0.0295
697	6960	13.0594	0.0337
698	6970	13.0656	0.0399
699	6980	13.0695	0.0438
700	6990	13.0743	0.0486
701	7000	13.0818	0.0561
702	7010	13.0836	0.0579
703	7020	13.0885	0.0628
704	7030	13.0981	0.0724
705	7040	13.1034	0.0777
706	7050	13.1121	0.0864
707	7060	13.1176	0.0919
708	7070	13.1211	0.0954
709	7080	13.1257	0.10
710	7090	13.1283	0.1026
711	7100	13.1308	0.1051
712	7110	13.1353	0.1096
713	7120	13.1385	0.1128
714	7130	13.1393	0.1136
715	7140	13.1435	0.1178
716	7150	13.1468	0.1211
717	7160	13.1476	0.1219
718	7170	13.1515	0.1258
719	7180	13.1515	0.1258
720	7190	13.1562	0.1305
721	7200	13.1587	0.133
722	7210	13.1632	0.1375
723	7220	13.1651	0.1394
724	7230	13.1706	0.1449
725	7240	13.1693	0.1436
726	7250	13.168	0.1423
727	7260	13.171	0.1453
728	7270	13.176	0.1503
729	7280	13.1767	0.151
730	7290	13.181	0.1553
731	7300	13.1813	0.1556
732	7310	13.1832	0.1575
733	7320	13.1867	0.161
734	7330	13.1868	0.1611
735	7340	13.1896	0.1639
736	7350	13.1961	0.1704
737	7360	13.1995	0.1738
738	7370	13.1977	0.172
739	7380	13.2003	0.1746
740	7390	13.201	0.1753
741	7400	13.2046	0.1789
742	7410	13.2043	0.1786
743	7420	13.2085	0.1828
744	7430	13.2098	0.1841
745	7440	13.2102	0.1845
746	7450	13.2131	0.1874
747	7460	13.2123	0.1866
748	7470	13.2153	0.1896
749	7480	13.2175	0.1918
750	7490	13.2192	0.1935

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	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	13.2225	0.1968
752	7510	13.2259	0.2002
753	7520	13.2276	0.2019
754	7530	13.231	0.2053
755	7540	13.2337	0.208
756	7550	13.239	0.2133
757	7560	13.2435	0.2178
758	7570	13.2431	0.2174
759	7580	13.2444	0.2187
760	7590	13.2498	0.2241
761	7600	13.2538	0.2281
762	7610	13.259	0.2333
763	7620	13.2618	0.2361
764	7630	13.2652	0.2395
765	7640	13.2677	0.242
766	7650	13.2702	0.2445
767	7660	13.2744	0.2487
768	7670	13.2783	0.2526
769	7680	13.2816	0.2559
770	7690	13.2841	0.2584
771	7700	13.2884	0.2627
772	7710	13.2906	0.2649
773	7720	13.2959	0.2702
774	7730	13.2992	0.2735
775	7740	13.3055	0.2798
776	7750	13.3098	0.2841
777	7760	13.3125	0.2868
778	7770	13.3186	0.2929
779	7780	13.3218	0.2961
780	7790	13.327	0.3013
781	7800	13.3293	0.3036
782	7810	13.333	0.3073
783	7820	13.3378	0.3121
784	7830	13.3424	0.3167
785	7840	13.3446	0.3189
786	7850	13.347	0.3213
787	7860	13.346	0.3203
788	7870	13.3478	0.3221
789	7880	13.3479	0.3222
790	7890	13.3478	0.3221
791	7900	13.352	0.3263
792	7910	13.3504	0.3247
793	7920	13.3536	0.3279
794	7930	13.3525	0.3268
795	7940	13.3544	0.3287
796	7950	13.355	0.3293
797	7960	13.3514	0.3257
798	7970	13.3516	0.3259
799	7980	13.3491	0.3234
800	7990	13.3469	0.3212
801	8000	13.3429	0.3172
802	8010	13.3476	0.3219
803	8020	13.3456	0.3199
804	8030	13.3415	0.3158
805	8040	13.343	0.3173
806	8050	13.3389	0.3132
807	8060	13.3372	0.3115
808	8070	13.3378	0.3121
809	8080	13.3279	0.3022
810	8090	13.3449	0.3192
811	8100	13.3386	0.3129
812	8110	13.3432	0.3175
813	8120	13.3383	0.3126

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	13.3329	0.3072
815	8140	13.3271	0.3014
816	8150	13.3161	0.2904
817	8160	13.301	0.2753
818	8170	13.3046	0.2789
819	8180	13.3079	0.2822
820	8190	13.3177	0.292
821	8200	13.3094	0.2837
822	8210	13.2979	0.2722
823	8220	13.2904	0.2647
824	8230	13.2759	0.2502
825	8240	13.2686	0.2429
826	8250	13.2778	0.2521
827	8260	13.2848	0.2591
828	8270	13.2901	0.2644
829	8280	13.2931	0.2674
830	8290	13.2953	0.2696
831	8300	13.3067	0.281
832	8310	13.3023	0.2766
833	8320	13.2889	0.2632
834	8330	13.2917	0.266
835	8340	13.2993	0.2736
836	8350	13.3086	0.2829
837	8360	13.3174	0.2917
838	8370	13.3151	0.2894
839	8380	13.3087	0.283
840	8390	13.3091	0.2834
841	8400	13.3182	0.2925
842	8410	13.3101	0.2844
843	8420	13.3113	0.2856
844	8430	13.3181	0.2924
845	8440	13.3189	0.2932
846	8450	13.3171	0.2914
847	8460	13.3287	0.303
848	8470	13.3321	0.3064
849	8480	13.3354	0.3097
850	8490	13.3381	0.3124
851	8500	13.3413	0.3156
852	8510	13.3454	0.3197
853	8520	13.3524	0.3267
854	8530	13.3534	0.3277
855	8540	13.3557	0.33
856	8550	13.3547	0.329
857	8560	13.3552	0.3295
858	8570	13.3538	0.3281
859	8580	13.3518	0.3261
860	8590	13.3509	0.3252
861	8600	13.3485	0.3228
862	8610	13.3508	0.3251
863	8620	13.3477	0.322
864	8630	13.3499	0.3242
865	8640	13.3497	0.324
866	8650	13.3494	0.3237
867	8660	13.3499	0.3242
868	8670	13.3506	0.3249
869	8680	13.348	0.3223
870	8690	13.3466	0.3209
871	8700	13.3461	0.3204
872	8710	13.3439	0.3182
873	8720	13.3471	0.3214
874	8730	13.3426	0.3169
875	8740	13.3388	0.3131
876	8750	13.3375	0.3118

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	13.3361	0.3104
878	8770	13.3358	0.3101
879	8780	13.3351	0.3094
880	8790	13.3342	0.3085
881	8800	13.3335	0.3078
882	8810	13.3339	0.3082
883	8820	13.3339	0.3082
884	8830	13.3304	0.3047
885	8840	13.3301	0.3044
886	8850	13.3303	0.3046
887	8860	13.33	0.3043
888	8870	13.3338	0.3081
889	8880	13.3334	0.3077
890	8890	13.3304	0.3047
891	8900	13.3304	0.3047
892	8910	13.3302	0.3045
893	8920	13.3281	0.3024
894	8930	13.3297	0.304
895	8940	13.3287	0.303
896	8950	13.3275	0.3018
897	8960	13.3296	0.3039
898	8970	13.33	0.3043
899	8980	13.3312	0.3055
900	8990	13.3318	0.3061
901	9000	13.33	0.3043
902	9010	13.3316	0.3059
903	9020	13.3339	0.3082
904	9030	13.3338	0.3081
905	9040	13.3338	0.3081
906	9050	13.3327	0.307
907	9060	13.3333	0.3076
908	9070	13.3337	0.308
909	9080	13.3345	0.3088
910	9090	13.3349	0.3092
911	9100	13.3364	0.3107
912	9110	13.3371	0.3114
913	9120	13.336	0.3103
914	9130	13.3387	0.313
915	9140	13.3407	0.315
916	9150	13.3437	0.318
917	9160	13.3436	0.3179
918	9170	13.3466	0.3209
919	9180	13.3502	0.3245
920	9190	13.3533	0.3276
921	9200	13.3542	0.3285
922	9210	13.3593	0.3336
923	9220	13.3648	0.3391
924	9230	13.3665	0.3408
925	9240	13.3673	0.3416
926	9250	13.3703	0.3446
927	9260	13.3711	0.3454
928	9270	13.3708	0.3451
929	9280	13.3703	0.3446
930	9290	13.3731	0.3474
931	9300	13.3756	0.3499
932	9310	13.3761	0.3504
933	9320	13.3763	0.3506
934	9330	13.3764	0.3507
935	9340	13.3748	0.3491
936	9350	13.3741	0.3484
937	9360	13.3742	0.3485
938	9370	13.3757	0.35
939	9380	13.3741	0.3484

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	13.3718	0.3461
941	9400	13.3707	0.345
942	9410	13.3665	0.3408
943	9420	13.3604	0.3347
944	9430	13.3591	0.3334
945	9440	13.3537	0.328
946	9450	13.3526	0.3269
947	9460	13.3499	0.3242
948	9470	13.3471	0.3214
949	9480	13.3453	0.3196
950	9490	13.3427	0.317
951	9500	13.3393	0.3136
952	9510	13.3353	0.3096
953	9520	13.3294	0.3037
954	9530	13.3227	0.297
955	9540	13.3155	0.2898
956	9550	13.3095	0.2838
957	9560	13.3055	0.2798
958	9570	13.3023	0.2766
959	9580	13.2968	0.2711
960	9590	13.2907	0.265
961	9600	13.2827	0.257
962	9610	13.281	0.2553
963	9620	13.2792	0.2535
964	9630	13.2744	0.2487
965	9640	13.2734	0.2477
966	9650	13.2691	0.2434
967	9660	13.2648	0.2391
968	9670	13.2616	0.2359
969	9680	13.2564	0.2307
970	9690	13.2577	0.232
971	9700	13.2548	0.2291
972	9710	13.2536	0.2279
973	9720	13.2508	0.2251
974	9730	13.246	0.2203
975	9740	13.2457	0.22
976	9750	13.2422	0.2165
977	9760	13.2423	0.2166
978	9770	13.2431	0.2174
979	9780	13.2401	0.2144
980	9790	13.2408	0.2151
981	9800	13.2409	0.2152
982	9810	13.2394	0.2137
983	9820	13.2388	0.2131
984	9830	13.2398	0.2141
985	9840	13.2409	0.2152
986	9850	13.2379	0.2122
987	9860	13.2386	0.2129
988	9870	13.2364	0.2107
989	9880	13.2386	0.2129
990	9890	13.2389	0.2132
991	9900	13.2416	0.2159
992	9910	13.2439	0.2182
993	9920	13.248	0.2223
994	9930	13.248	0.2223
995	9940	13.2491	0.2234
996	9950	13.252	0.2263
997	9960	13.255	0.2293
998	9970	13.2543	0.2286
999	9980	13.2546	0.2289
1000	9990	13.2571	0.2314
1001	10000	13.2592	0.2335
1002	10010	13.2611	0.2354

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	13.2622	0.2365
1004	10030	13.2691	0.2434
1005	10040	13.2656	0.2399
1006	10050	13.265	0.2393
1007	10060	13.2671	0.2414
1008	10070	13.2675	0.2418
1009	10080	13.2651	0.2394
1010	10090	13.2633	0.2376
1011	10100	13.2638	0.2381
1012	10110	13.2649	0.2392
1013	10120	13.26	0.2343
1014	10130	13.2619	0.2362
1015	10140	13.2603	0.2346
1016	10150	13.258	0.2323
1017	10160	13.2563	0.2306
1018	10170	13.2562	0.2305
1019	10180	13.2548	0.2291
1020	10190	13.2569	0.2312
1021	10200	13.2555	0.2298
1022	10210	13.2528	0.2271
1023	10220	13.2533	0.2276
1024	10230	13.2495	0.2238
1025	10240	13.2477	0.222
1026	10250	13.246	0.2203
1027	10260	13.2429	0.2172
1028	10270	13.2398	0.2141
1029	10280	13.2416	0.2159
1030	10290	13.2398	0.2141
1031	10300	13.2395	0.2138
1032	10310	13.2351	0.2094
1033	10320	13.2332	0.2075
1034	10330	13.2303	0.2046
1035	10340	13.2294	0.2037
1036	10350	13.2276	0.2019
1037	10360	13.2262	0.2005
1038	10370	13.2254	0.1997
1039	10380	13.2248	0.1991
1040	10390	13.2225	0.1968
1041	10400	13.2202	0.1945
1042	10410	13.2187	0.193
1043	10420	13.2192	0.1935
1044	10430	13.2178	0.1921
1045	10440	13.216	0.1903
1046	10450	13.215	0.1893
1047	10460	13.2139	0.1882
1048	10470	13.2144	0.1887
1049	10480	13.2198	0.1941
1050	10490	13.2219	0.1962
1051	10500	13.2215	0.1958
1052	10510	13.2196	0.1939
1053	10520	13.2195	0.1938
1054	10530	13.2184	0.1927
1055	10540	13.2206	0.1949
1056	10550	13.2219	0.1962
1057	10560	13.2232	0.1975
1058	10570	13.2233	0.1976
1059	10580	13.2248	0.1991
1060	10590	13.2259	0.2002
1061	10600	13.2254	0.1997
1062	10610	13.2275	0.2018
1063	10620	13.2286	0.2029
1064	10630	13.2307	0.205
1065	10640	13.2319	0.2062

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	13.2356	0.2099
1067	10660	13.2365	0.2108
1068	10670	13.238	0.2123
1069	10680	13.2382	0.2125
1070	10690	13.238	0.2123
1071	10700	13.2296	0.2039
1072	10710	13.2299	0.2042
1073	10720	13.2317	0.206
1074	10730	13.2331	0.2074
1075	10740	13.2314	0.2057
1076	10750	13.2307	0.205
1077	10760	13.2314	0.2057
1078	10770	13.2282	0.2025
1079	10780	13.2302	0.2045
1080	10790	13.2291	0.2034
1081	10800	13.2278	0.2021
1082	10810	13.2272	0.2015
1083	10820	13.2238	0.1981
1084	10830	13.2216	0.1959
1085	10840	13.2201	0.1944
1086	10850	13.2176	0.1919
1087	10860	13.2141	0.1884
1088	10870	13.2135	0.1878
1089	10880	13.2115	0.1858
1090	10890	13.2085	0.1828
1091	10900	13.2064	0.1807
1092	10910	13.2052	0.1795
1093	10920	13.2028	0.1771
1094	10930	13.1997	0.174
1095	10940	13.1981	0.1724
1096	10950	13.1938	0.1681
1097	10960	13.191	0.1653
1098	10970	13.189	0.1633
1099	10980	13.1856	0.1599
1100	10990	13.1821	0.1564
1101	11000	13.1792	0.1535
1102	11010	13.1739	0.1482
1103	11020	13.1691	0.1434
1104	11030	13.1657	0.14
1105	11040	13.163	0.1373
1106	11050	13.1593	0.1336
1107	11060	13.155	0.1293
1108	11070	13.1513	0.1256
1109	11080	13.1487	0.123
1110	11090	13.1446	0.1189
1111	11100	13.1396	0.1139
1112	11110	13.1371	0.1114
1113	11120	13.1344	0.1087
1114	11130	13.1311	0.1054
1115	11140	13.1304	0.1047
1116	11150	13.1281	0.1024
1117	11160	13.1244	0.0987
1118	11170	13.1242	0.0985
1119	11180	13.1203	0.0946
1120	11190	13.1181	0.0924
1121	11200	13.1189	0.0932
1122	11210	13.1153	0.0896
1123	11220	13.1141	0.0884
1124	11230	13.1151	0.0894
1125	11240	13.1131	0.0874
1126	11250	13.112	0.0863
1127	11260	13.1106	0.0849
1128	11270	13.1102	0.0845

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	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	13.1117	0.086
1130	11290	13.1129	0.0872
1131	11300	13.1153	0.0896
1132	11310	13.1148	0.0891
1133	11320	13.1161	0.0904
1134	11330	13.1183	0.0926
1135	11340	13.1202	0.0945
1136	11350	13.122	0.0963
1137	11360	13.1232	0.0975
1138	11370	13.1276	0.1019
1139	11380	13.1314	0.1057
1140	11390	13.132	0.1063
1141	11400	13.1347	0.109
1142	11410	13.1344	0.1087
1143	11420	13.1367	0.111
1144	11430	13.1399	0.1142
1145	11440	13.1449	0.1192
1146	11450	13.1524	0.1267
1147	11460	13.1554	0.1297
1148	11470	13.1617	0.136
1149	11480	13.1615	0.1358
1150	11490	13.1646	0.1389
1151	11500	13.1641	0.1384
1152	11510	13.1666	0.1409
1153	11520	13.1671	0.1414
1154	11530	13.1664	0.1407
1155	11540	13.167	0.1413
1156	11550	13.1725	0.1468
1157	11560	13.1733	0.1476
1158	11570	13.1747	0.149
1159	11580	13.1772	0.1515
1160	11590	13.1777	0.152
1161	11600	13.1784	0.1527
1162	11610	13.1794	0.1537
1163	11620	13.1802	0.1545
1164	11630	13.1817	0.156
1165	11640	13.1812	0.1555
1166	11650	13.1808	0.1551
1167	11660	13.1822	0.1565
1168	11670	13.1825	0.1568
1169	11680	13.1811	0.1554
1170	11690	13.1805	0.1548
1171	11700	13.1795	0.1538
1172	11710	13.1795	0.1538
1173	11720	13.1797	0.154
1174	11730	13.1791	0.1534
1175	11740	13.1782	0.1525
1176	11750	13.1757	0.15
1177	11760	13.1742	0.1485
1178	11770	13.1725	0.1468
1179	11780	13.1719	0.1462
1180	11790	13.1694	0.1437
1181	11800	13.1705	0.1448
1182	11810	13.17	0.1443
1183	11820	13.1715	0.1458
1184	11830	13.1713	0.1456
1185	11840	13.1713	0.1456
1186	11850	13.1702	0.1445
1187	11860	13.1705	0.1448
1188	11870	13.1672	0.1415
1189	11880	13.1691	0.1434
1190	11890	13.1693	0.1436
1191	11900	13.1702	0.1445

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	13.1708	0.1451
1193	11920	13.1682	0.1425
1194	11930	13.171	0.1453
1195	11940	13.1716	0.1459
1196	11950	13.1729	0.1472
1197	11960	13.1743	0.1486
1198	11970	13.1742	0.1485
1199	11980	13.173	0.1473
1200	11990	13.1757	0.15
1201	12000	13.1754	0.1497
1202	12010	13.1808	0.1551
1203	12020	13.1846	0.1589
1204	12030	13.1882	0.1625
1205	12040	13.1938	0.1681
1206	12050	13.1965	0.1708
1207	12060	13.1971	0.1714
1208	12070	13.1959	0.1702
1209	12080	13.1984	0.1727
1210	12090	13.1985	0.1728
1211	12100	13.1995	0.1738
1212	12110	13.201	0.1753
1213	12120	13.2026	0.1769
1214	12130	13.2041	0.1784
1215	12140	13.204	0.1783
1216	12150	13.2071	0.1814
1217	12160	13.2067	0.181
1218	12170	13.2106	0.1849
1219	12180	13.2138	0.1881
1220	12190	13.2164	0.1907
1221	12200	13.2158	0.1901
1222	12210	13.219	0.1933
1223	12220	13.2201	0.1944
1224	12230	13.2228	0.1971
1225	12240	13.2252	0.1995
1226	12250	13.2226	0.1969
1227	12260	13.2249	0.1992
1228	12270	13.2254	0.1997
1229	12280	13.2274	0.2017
1230	12290	13.2292	0.2035
1231	12300	13.2379	0.2122
1232	12310	13.2387	0.213
1233	12320	13.237	0.2113
1234	12330	13.2356	0.2099
1235	12340	13.2349	0.2092
1236	12350	13.2332	0.2075
1237	12360	13.233	0.2073
1238	12370	13.2315	0.2058
1239	12380	13.2294	0.2037
1240	12390	13.229	0.2033
1241	12400	13.2357	0.21
1242	12410	13.2371	0.2114
1243	12420	13.2377	0.212
1244	12430	13.2352	0.2095
1245	12440	13.2333	0.2076
1246	12450	13.2311	0.2054
1247	12460	13.2293	0.2036
1248	12470	13.2273	0.2016
1249	12480	13.2249	0.1992
1250	12490	13.2219	0.1962
1251	12500	13.2202	0.1945
1252	12510	13.2167	0.191
1253	12520	13.2127	0.187
1254	12530	13.2099	0.1842

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	13.2061	0.1804
1256	12550	13.2032	0.1775
1257	12560	13.2018	0.1761
1258	12570	13.198	0.1723
1259	12580	13.1941	0.1684
1260	12590	13.1929	0.1672
1261	12600	13.1899	0.1642
1262	12610	13.1881	0.1624
1263	12620	13.1877	0.162
1264	12630	13.187	0.1613
1265	12640	13.1857	0.16
1266	12650	13.1833	0.1576
1267	12660	13.1858	0.1601
1268	12670	13.1875	0.1618
1269	12680	13.1864	0.1607
1270	12690	13.1865	0.1608
1271	12700	13.186	0.1603
1272	12710	13.1877	0.162
1273	12720	13.1862	0.1605
1274	12730	13.1868	0.1611
1275	12740	13.1842	0.1585
1276	12750	13.1801	0.1544
1277	12760	13.1802	0.1545
1278	12770	13.1831	0.1574
1279	12780	13.1853	0.1596
1280	12790	13.1871	0.1614
1281	12800	13.1884	0.1627
1282	12810	13.1903	0.1646
1283	12820	13.1939	0.1682
1284	12830	13.1973	0.1716
1285	12840	13.205	0.1793
1286	12850	13.209	0.1833
1287	12860	13.2121	0.1864
1288	12870	13.2154	0.1897
1289	12880	13.2152	0.1895

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews

Pumping Test: Pumping Test 1

Pumping Well: North Supply Well

Test Conducted by: Ashley Friesen

Test Date: 9/21/2015

Discharge: variable, average rate 795 [U.S. gal/

Observation Well: OBS-ED1

Static Water Level [ft]: 14.37

Radial Distance to PW [ft]: 12744

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	14.3728	0.00
2	5	14.7321	0.3593
3	10	14.3722	-0.0006
4	15	14.3733	0.0005
5	20	14.3768	0.004
6	25	14.3753	0.0025
7	30	14.3804	0.0076
8	35	14.3799	0.0071
9	40	14.3808	0.008
10	45	14.3792	0.0064
11	50	14.3808	0.008
12	55	14.3806	0.0078
13	60	14.3854	0.0126
14	65	14.3817	0.0089
15	70	14.379	0.0062
16	75	14.3799	0.0071
17	80	14.3733	0.0005
18	85	14.3841	0.0113
19	90	14.3794	0.0066
20	95	14.3779	0.0051
21	100	14.8594	0.4866
22	105	14.8816	0.5088
23	110	14.388	0.0152
24	115	14.8888	0.516
25	120	14.8744	0.5016
26	125	14.387	0.0142
27	130	14.3906	0.0178
28	135	14.3914	0.0186
29	140	14.3851	0.0123
30	145	14.392	0.0192
31	150	14.3862	0.0134
32	155	14.3908	0.018
33	160	14.3906	0.0178
34	165	14.3819	0.0091
35	170	14.391	0.0182
36	175	14.3877	0.0149
37	180	14.3851	0.0123
38	185	14.3814	0.0086
39	190	14.3843	0.0115
40	195	14.3858	0.013
41	200	14.3813	0.0085
42	205	14.3892	0.0164
43	210	14.3877	0.0149
44	215	14.3902	0.0174
45	220	14.3821	0.0093
46	225	14.3903	0.0175
47	230	14.3864	0.0136
48	235	14.3864	0.0136
49	240	14.3926	0.0198
50	245	14.3861	0.0133
51	250	14.3862	0.0134
52	255	14.3894	0.0166
53	260	14.3925	0.0197
54	265	14.3888	0.016
55	270	14.3924	0.0196
56	275	14.3926	0.0198
57	280	14.3826	0.0098

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	14.3902	0.0174
59	290	14.3915	0.0187
60	295	14.3907	0.0179
61	300	14.3901	0.0173
62	305	14.3973	0.0245
63	310	14.3986	0.0258
64	315	14.3922	0.0194
65	320	14.3925	0.0197
66	325	14.3935	0.0207
67	330	14.3901	0.0173
68	335	14.397	0.0242
69	340	14.3949	0.0221
70	345	14.3944	0.0216
71	350	14.3952	0.0224
72	355	14.3989	0.0261
73	360	14.3975	0.0247
74	365	14.3993	0.0265
75	370	14.3951	0.0223
76	375	14.6987	0.3259
77	380	14.9264	0.5536
78	385	14.4027	0.0299
79	390	14.3999	0.0271
80	395	14.3992	0.0264
81	400	14.4028	0.03
82	405	14.4031	0.0303
83	410	14.3997	0.0269
84	415	14.3996	0.0268
85	420	14.3962	0.0234
86	425	14.3973	0.0245
87	430	14.4004	0.0276
88	435	14.3967	0.0239
89	440	14.3996	0.0268
90	445	14.4015	0.0287
91	450	14.3989	0.0261
92	455	14.3994	0.0266
93	460	14.397	0.0242
94	465	14.401	0.0282
95	470	14.4013	0.0285
96	475	14.403	0.0302
97	480	14.4012	0.0284
98	485	14.4032	0.0304
99	490	14.3992	0.0264
100	495	14.4009	0.0281
101	500	14.4023	0.0295
102	505	14.4022	0.0294
103	510	14.4026	0.0298
104	515	14.4019	0.0291
105	520	14.3986	0.0258
106	525	14.4039	0.0311
107	530	14.4048	0.032
108	535	14.405	0.0322
109	540	14.4037	0.0309
110	545	14.405	0.0322
111	550	14.4063	0.0335
112	555	14.4063	0.0335
113	560	14.4064	0.0336
114	565	14.4048	0.032
115	570	14.4082	0.0354
116	575	14.4061	0.0333
117	580	14.407	0.0342
118	585	14.4073	0.0345
119	590	14.4068	0.034
120	595	14.4097	0.0369

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	14.4108	0.038
122	605	14.411	0.0382
123	610	14.4104	0.0376
124	615	14.4113	0.0385
125	620	14.4111	0.0383
126	625	14.4119	0.0391
127	630	14.413	0.0402
128	635	14.4151	0.0423
129	640	14.4166	0.0438
130	645	14.4135	0.0407
131	650	14.4175	0.0447
132	655	14.4188	0.046
133	660	14.4171	0.0443
134	665	14.4187	0.0459
135	670	14.4209	0.0481
136	675	14.4177	0.0449
137	680	14.42	0.0472
138	685	14.4192	0.0464
139	690	14.4218	0.049
140	695	14.4235	0.0507
141	700	14.4255	0.0527
142	705	14.4263	0.0535
143	710	14.4257	0.0529
144	715	14.4252	0.0524
145	720	14.4244	0.0516
146	725	14.4264	0.0536
147	730	14.4253	0.0525
148	735	14.4262	0.0534
149	740	14.431	0.0582
150	745	14.4271	0.0543
151	750	14.4281	0.0553
152	755	14.4274	0.0546
153	760	14.4349	0.0621
154	765	14.4305	0.0577
155	770	14.4304	0.0576
156	775	14.4307	0.0579
157	780	14.4311	0.0583
158	785	14.4344	0.0616
159	790	14.4317	0.0589
160	795	14.4338	0.061
161	800	14.437	0.0642
162	805	14.4363	0.0635
163	810	14.4363	0.0635
164	815	14.4379	0.0651
165	820	14.4384	0.0656
166	825	14.4378	0.065
167	830	14.4402	0.0674
168	835	14.4423	0.0695
169	840	14.4431	0.0703
170	845	14.4404	0.0676
171	850	14.4405	0.0677
172	855	14.441	0.0682
173	860	14.4427	0.0699
174	865	14.4453	0.0725
175	870	14.4444	0.0716
176	875	14.4463	0.0735
177	880	14.4457	0.0729
178	885	14.4466	0.0738
179	890	14.4463	0.0735
180	895	14.4475	0.0747
181	900	14.4497	0.0769
182	905	14.4503	0.0775
183	910	14.4451	0.0723

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	14.4533	0.0805
185	920	14.4504	0.0776
186	925	14.4512	0.0784
187	930	14.4504	0.0776
188	935	14.4527	0.0799
189	940	14.4529	0.0801
190	945	14.4502	0.0774
191	950	14.4502	0.0774
192	955	14.451	0.0782
193	960	14.4496	0.0768
194	965	14.4518	0.079
195	970	14.4529	0.0801
196	975	14.4542	0.0814
197	980	14.4546	0.0818
198	985	14.4543	0.0815
199	990	14.4531	0.0803
200	995	14.4556	0.0828
201	1000	14.4598	0.087
202	1005	14.4576	0.0848
203	1010	14.4593	0.0865
204	1015	14.4576	0.0848
205	1020	14.4568	0.084
206	1025	14.4529	0.0801
207	1030	14.453	0.0802
208	1035	14.4563	0.0835
209	1040	14.9375	0.5647
210	1045	14.4569	0.0841
211	1050	14.4568	0.084
212	1055	14.4545	0.0817
213	1060	14.454	0.0812
214	1065	14.4533	0.0805
215	1070	14.4579	0.0851
216	1075	14.4578	0.085
217	1080	14.4523	0.0795
218	1085	14.453	0.0802
219	1090	14.4542	0.0814
220	1095	14.4567	0.0839
221	1100	14.4525	0.0797
222	1105	14.4513	0.0785
223	1110	14.4487	0.0759
224	1115	14.452	0.0792
225	1120	14.4533	0.0805
226	1125	14.4548	0.082
227	1130	14.4551	0.0823
228	1135	14.4549	0.0821
229	1140	14.4543	0.0815
230	1145	14.4559	0.0831
231	1150	14.4543	0.0815
232	1155	14.4523	0.0795
233	1160	14.4563	0.0835
234	1165	14.4544	0.0816
235	1170	14.4561	0.0833
236	1175	14.4567	0.0839
237	1180	14.4556	0.0828
238	1185	14.4578	0.085
239	1190	14.4544	0.0816
240	1195	14.4535	0.0807
241	1200	14.4548	0.082
242	1205	14.4531	0.0803
243	1210	14.4497	0.0769
244	1215	14.4518	0.079
245	1220	14.4516	0.0788
246	1225	14.4492	0.0764

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	14.4483	0.0755
248	1235	14.4491	0.0763
249	1240	14.4533	0.0805
250	1245	14.446	0.0732
251	1250	14.452	0.0792
252	1255	14.4494	0.0766
253	1260	14.4532	0.0804
254	1265	14.4492	0.0764
255	1270	14.4467	0.0739
256	1275	14.4501	0.0773
257	1280	14.4516	0.0788
258	1285	14.4504	0.0776
259	1290	14.4549	0.0821
260	1295	14.4492	0.0764
261	1300	14.4488	0.076
262	1305	14.4469	0.0741
263	1310	14.4496	0.0768
264	1315	14.4496	0.0768
265	1320	14.4524	0.0796
266	1325	14.4479	0.0751
267	1330	14.4538	0.081
268	1335	14.4525	0.0797
269	1340	14.4513	0.0785
270	1345	14.4531	0.0803
271	1350	14.4532	0.0804
272	1355	14.4529	0.0801
273	1360	14.4506	0.0778
274	1365	14.4543	0.0815
275	1370	14.4503	0.0775
276	1375	14.4526	0.0798
277	1380	14.4535	0.0807
278	1385	14.4519	0.0791
279	1390	14.4527	0.0799
280	1395	14.4506	0.0778
281	1400	14.4498	0.077
282	1405	14.4498	0.077
283	1410	14.4517	0.0789
284	1415	14.4492	0.0764
285	1420	14.4522	0.0794
286	1425	14.4506	0.0778
287	1430	14.4539	0.0811
288	1435	14.4498	0.077
289	1440	14.4508	0.078
290	1445	14.4527	0.0799
291	1450	14.4513	0.0785
292	1455	14.4542	0.0814
293	1460	14.4514	0.0786
294	1465	14.4502	0.0774
295	1470	14.4549	0.0821
296	1475	14.4574	0.0846
297	1480	14.4528	0.08
298	1485	14.4529	0.0801
299	1490	14.4568	0.084
300	1495	14.457	0.0842
301	1500	14.4592	0.0864
302	1505	14.4592	0.0864
303	1510	14.4586	0.0858
304	1515	14.4611	0.0883
305	1520	14.4599	0.0871
306	1525	14.4597	0.0869
307	1530	14.4591	0.0863
308	1535	14.4642	0.0914
309	1540	14.8825	0.5097

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	15.0029	0.6301
311	1550	14.4698	0.097
312	1555	14.9638	0.591
313	1560	14.9486	0.5758
314	1565	14.4689	0.0961
315	1570	14.4662	0.0934
316	1575	14.4685	0.0957
317	1580	14.4689	0.0961
318	1585	14.4636	0.0908
319	1590	14.4698	0.097
320	1595	14.4721	0.0993
321	1600	14.4696	0.0968
322	1605	14.4722	0.0994
323	1610	14.4755	0.1027
324	1615	14.4742	0.1014
325	1620	14.475	0.1022
326	1625	14.4753	0.1025
327	1630	14.4781	0.1053
328	1635	14.4767	0.1039
329	1640	14.4782	0.1054
330	1645	14.4768	0.104
331	1650	14.479	0.1062
332	1655	14.4776	0.1048
333	1660	14.4776	0.1048
334	1665	14.4798	0.107
335	1670	14.4804	0.1076
336	1675	14.4789	0.1061
337	1680	14.4806	0.1078
338	1685	14.4821	0.1093
339	1690	14.4802	0.1074
340	1695	14.479	0.1062
341	1700	14.4815	0.1087
342	1705	14.4805	0.1077
343	1710	14.4802	0.1074
344	1715	14.4802	0.1074
345	1720	14.4822	0.1094
346	1725	14.4821	0.1093
347	1730	14.4838	0.111
348	1735	14.4873	0.1145
349	1740	14.4896	0.1168
350	1745	14.4884	0.1156
351	1750	14.4867	0.1139
352	1755	14.4889	0.1161
353	1760	14.4863	0.1135
354	1765	14.4886	0.1158
355	1770	14.4905	0.1177
356	1775	14.4889	0.1161
357	1780	14.4875	0.1147
358	1785	14.4882	0.1154
359	1790	14.4931	0.1203
360	1795	14.4949	0.1221
361	1800	14.4919	0.1191
362	1805	14.5079	0.1351
363	1810	14.4914	0.1186
364	1815	14.49	0.1172
365	1820	14.489	0.1162
366	1825	14.4916	0.1188
367	1830	14.4946	0.1218
368	1835	14.4903	0.1175
369	1840	14.4936	0.1208
370	1845	14.9751	0.6023
371	1850	14.496	0.1232
372	1855	14.493	0.1202

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	14.4986	0.1258
374	1865	14.4905	0.1177
375	1870	14.4903	0.1175
376	1875	14.4922	0.1194
377	1880	14.4928	0.12
378	1885	14.4903	0.1175
379	1890	14.4927	0.1199
380	1895	14.4975	0.1247
381	1900	14.4928	0.12
382	1905	14.4931	0.1203
383	1910	14.4929	0.1201
384	1915	14.4923	0.1195
385	1920	14.4911	0.1183
386	1925	14.4938	0.121
387	1930	14.4889	0.1161
388	1935	14.4893	0.1165
389	1940	14.49	0.1172
390	1945	14.4921	0.1193
391	1950	14.4894	0.1166
392	1955	14.4916	0.1188
393	1960	14.4941	0.1213
394	1965	14.4917	0.1189
395	1970	14.4927	0.1199
396	1975	14.4921	0.1193
397	1980	14.4896	0.1168
398	1985	14.4899	0.1171
399	1990	14.4925	0.1197
400	1995	14.4904	0.1176
401	2000	14.4939	0.1211
402	2005	14.49	0.1172
403	2010	14.4914	0.1186
404	2015	14.4884	0.1156
405	2020	14.4926	0.1198
406	2025	14.4883	0.1155
407	2030	14.4911	0.1183
408	2035	14.49	0.1172
409	2040	14.4907	0.1179
410	2045	14.4931	0.1203
411	2050	14.49	0.1172
412	2055	14.4906	0.1178
413	2060	14.4904	0.1176
414	2065	14.4926	0.1198
415	2070	14.4913	0.1185
416	2075	14.4983	0.1255
417	2080	14.4936	0.1208
418	2085	14.4905	0.1177
419	2090	14.4944	0.1216
420	2095	14.4927	0.1199
421	2100	14.4944	0.1216
422	2105	14.489	0.1162
423	2110	14.4928	0.12
424	2115	14.4907	0.1179
425	2120	14.4927	0.1199
426	2125	14.4898	0.117
427	2130	14.4916	0.1188
428	2135	14.4929	0.1201
429	2140	14.4888	0.116
430	2145	14.4939	0.1211
431	2150	14.4902	0.1174
432	2155	14.4927	0.1199
433	2160	14.49	0.1172
434	2165	14.4945	0.1217
435	2170	14.4909	0.1181

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	14.4902	0.1174
437	2180	14.4913	0.1185
438	2185	14.4915	0.1187
439	2190	14.4899	0.1171
440	2195	14.4909	0.1181
441	2200	14.4951	0.1223
442	2205	14.4999	0.1271
443	2210	14.4949	0.1221
444	2215	14.4952	0.1224
445	2220	14.4996	0.1268
446	2225	14.4976	0.1248
447	2230	14.4971	0.1243
448	2235	14.4966	0.1238
449	2240	14.4951	0.1223
450	2245	14.4945	0.1217
451	2250	14.4907	0.1179
452	2255	14.4996	0.1268
453	2260	14.5017	0.1289
454	2265	14.499	0.1262
455	2270	14.4993	0.1265
456	2275	14.5021	0.1293
457	2280	14.50	0.1272
458	2285	14.502	0.1292
459	2290	14.505	0.1322
460	2295	14.5034	0.1306
461	2300	14.5009	0.1281
462	2305	14.5054	0.1326
463	2310	14.5059	0.1331
464	2315	14.5036	0.1308
465	2320	14.5007	0.1279
466	2325	14.5043	0.1315
467	2330	14.5043	0.1315
468	2335	14.5056	0.1328
469	2340	14.5064	0.1336
470	2345	14.5017	0.1289
471	2350	14.505	0.1322
472	2355	14.5071	0.1343
473	2360	14.506	0.1332
474	2365	14.5091	0.1363
475	2370	14.5024	0.1296
476	2375	14.5091	0.1363
477	2380	14.5035	0.1307
478	2385	14.5052	0.1324
479	2390	14.505	0.1322
480	2395	14.505	0.1322
481	2400	14.5075	0.1347
482	2405	14.5029	0.1301
483	2410	14.5077	0.1349
484	2415	14.5054	0.1326
485	2420	14.5046	0.1318
486	2425	14.5078	0.135
487	2430	14.5089	0.1361
488	2435	14.5066	0.1338
489	2440	14.5087	0.1359
490	2445	14.51	0.1372
491	2450	14.5096	0.1368
492	2455	14.5096	0.1368
493	2460	14.5134	0.1406
494	2465	14.5172	0.1444
495	2470	14.5163	0.1435
496	2475	14.5142	0.1414
497	2480	14.9165	0.5437
498	2485	14.5158	0.143

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	14.5176	0.1448
500	2495	14.5179	0.1451
501	2500	14.521	0.1482
502	2505	14.5198	0.147
503	2510	14.5194	0.1466
504	2515	14.5216	0.1488
505	2520	14.5198	0.147
506	2525	14.5215	0.1487
507	2530	14.5276	0.1548
508	2535	14.5252	0.1524
509	2540	14.5264	0.1536
510	2545	14.5234	0.1506
511	2550	14.5288	0.156
512	2555	14.529	0.1562
513	2560	14.5293	0.1565
514	2565	14.5274	0.1546
515	2570	14.5282	0.1554
516	2575	14.5295	0.1567
517	2580	14.5282	0.1554
518	2585	14.5299	0.1571
519	2590	14.5284	0.1556
520	2595	14.5301	0.1573
521	2600	14.5297	0.1569
522	2605	14.5283	0.1555
523	2610	14.5296	0.1568
524	2615	14.5341	0.1613
525	2620	14.5301	0.1573
526	2625	14.531	0.1582
527	2630	14.531	0.1582
528	2635	14.5275	0.1547
529	2640	14.5355	0.1627
530	2645	14.5336	0.1608
531	2650	14.5298	0.157
532	2655	14.5331	0.1603
533	2660	14.5333	0.1605
534	2665	14.5339	0.1611
535	2670	14.5352	0.1624
536	2675	14.5354	0.1626
537	2680	14.5375	0.1647
538	2685	14.5382	0.1654
539	2690	14.5373	0.1645
540	2695	14.5393	0.1665
541	2700	14.5397	0.1669
542	2705	14.5429	0.1701
543	2710	14.539	0.1662
544	2715	14.5428	0.17
545	2720	14.5423	0.1695
546	2725	14.5438	0.171
547	2730	14.5409	0.1681
548	2735	14.5428	0.17
549	2740	14.5405	0.1677
550	2745	14.5378	0.165
551	2750	14.5385	0.1657
552	2755	14.5412	0.1684
553	2760	14.5409	0.1681
554	2765	14.5399	0.1671
555	2770	14.5379	0.1651
556	2775	14.5433	0.1705
557	2780	14.545	0.1722
558	2785	14.5452	0.1724
559	2790	14.5458	0.173
560	2795	14.5451	0.1723
561	2800	14.5416	0.1688

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	14.5442	0.1714
563	2810	14.5457	0.1729
564	2815	14.5445	0.1717
565	2820	14.5478	0.175
566	2825	14.5521	0.1793
567	2830	14.5462	0.1734
568	2835	14.5449	0.1721
569	2840	14.549	0.1762
570	2845	14.5493	0.1765
571	2850	14.5512	0.1784
572	2855	14.5505	0.1777
573	2860	14.5524	0.1796
574	2865	14.554	0.1812
575	2870	14.5524	0.1796
576	2875	14.5536	0.1808
577	2880	14.5553	0.1825
578	2885	14.5589	0.1861
579	2890	14.5576	0.1848
580	2895	14.555	0.1822
581	2900	14.5586	0.1858
582	2905	14.5605	0.1877
583	2910	14.5596	0.1868
584	2915	14.5614	0.1886
585	2920	14.5645	0.1917
586	2925	14.5598	0.187
587	2930	14.5575	0.1847
588	2935	14.5613	0.1885
589	2940	14.565	0.1922
590	2945	14.5655	0.1927
591	2950	14.5669	0.1941
592	2955	14.5641	0.1913
593	2960	14.5681	0.1953
594	2965	14.5688	0.196
595	2970	14.5669	0.1941
596	2975	14.5641	0.1913
597	2980	14.996	0.6232
598	2985	15.0899	0.7171
599	2990	14.5753	0.2025
600	2995	15.0471	0.6743
601	3000	15.0609	0.6881
602	3005	14.5787	0.2059
603	3010	14.579	0.2062
604	3015	14.5823	0.2095
605	3020	14.576	0.2032
606	3025	14.5774	0.2046
607	3030	14.5829	0.2101
608	3035	14.5866	0.2138
609	3040	14.5838	0.211
610	3045	14.5835	0.2107
611	3050	14.5823	0.2095
612	3055	14.5831	0.2103
613	3060	14.5832	0.2104
614	3065	14.5831	0.2103
615	3070	14.5855	0.2127
616	3075	14.5816	0.2088
617	3080	14.581	0.2082
618	3085	14.5827	0.2099
619	3090	14.5822	0.2094
620	3095	14.5829	0.2101
621	3100	14.5811	0.2083
622	3105	14.58	0.2072
623	3110	14.5843	0.2115
624	3115	14.5821	0.2093

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	14.5854	0.2126
626	3125	14.5887	0.2159
627	3130	14.5879	0.2151
628	3135	14.5926	0.2198
629	3140	14.5941	0.2213
630	3145	14.5972	0.2244
631	3150	14.5979	0.2251
632	3155	14.6001	0.2273
633	3160	14.602	0.2292
634	3165	14.6036	0.2308
635	3170	14.6112	0.2384
636	3175	14.6077	0.2349
637	3180	14.6061	0.2333
638	3185	14.6028	0.23
639	3190	14.603	0.2302
640	3195	14.6051	0.2323
641	3200	14.6076	0.2348
642	3205	14.6114	0.2386
643	3210	14.6118	0.239
644	3215	14.6119	0.2391
645	3220	14.6071	0.2343
646	3225	14.6172	0.2444
647	3230	14.6174	0.2446
648	3235	14.6202	0.2474
649	3240	14.6201	0.2473
650	3245	14.6186	0.2458
651	3250	14.6203	0.2475
652	3255	14.6205	0.2477
653	3260	14.6229	0.2501
654	3265	14.6212	0.2484
655	3270	14.6169	0.2441
656	3275	14.6214	0.2486
657	3280	14.6246	0.2518
658	3285	14.6261	0.2533
659	3290	14.6289	0.2561
660	3295	14.6281	0.2553
661	3300	14.6257	0.2529
662	3305	14.6241	0.2513
663	3310	14.6273	0.2545
664	3315	14.6245	0.2517
665	3320	14.6227	0.2499
666	3325	14.6242	0.2514
667	3330	15.173	0.8002
668	3335	15.1432	0.7704
669	3340	14.632	0.2592
670	3345	14.6418	0.269
671	3350	14.6337	0.2609
672	3355	14.6384	0.2656
673	3360	14.633	0.2602
674	3365	14.6341	0.2613
675	3370	14.6316	0.2588
676	3375	14.6293	0.2565
677	3380	14.631	0.2582
678	3385	14.6307	0.2579
679	3390	14.6344	0.2616
680	3395	14.6317	0.2589
681	3400	14.6297	0.2569
682	3405	14.6351	0.2623
683	3410	14.638	0.2652
684	3415	14.6384	0.2656
685	3420	14.6376	0.2648
686	3425	14.6397	0.2669
687	3430	14.6407	0.2679

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	14.6433	0.2705
689	3440	14.6428	0.27
690	3445	14.6399	0.2671
691	3450	14.6457	0.2729
692	3455	14.6477	0.2749
693	3460	14.6448	0.272
694	3465	14.6443	0.2715
695	3470	14.6448	0.272
696	3475	14.6438	0.271
697	3480	14.6438	0.271
698	3485	14.6419	0.2691
699	3490	14.6461	0.2733
700	3495	14.6474	0.2746
701	3500	14.6477	0.2749
702	3505	14.6474	0.2746
703	3510	14.6467	0.2739
704	3515	14.651	0.2782
705	3520	14.6477	0.2749
706	3525	14.6484	0.2756
707	3530	14.6513	0.2785
708	3535	14.6494	0.2766
709	3540	14.6468	0.274
710	3545	14.6506	0.2778
711	3550	14.6495	0.2767
712	3555	14.6484	0.2756
713	3560	14.6497	0.2769
714	3565	14.6551	0.2823
715	3570	14.6495	0.2767
716	3575	14.6486	0.2758
717	3580	14.6478	0.275
718	3585	14.6468	0.274
719	3590	14.6478	0.275
720	3595	14.6452	0.2724
721	3600	14.644	0.2712
722	3605	14.646	0.2732
723	3610	14.6474	0.2746
724	3615	14.6433	0.2705
725	3620	14.6457	0.2729
726	3625	14.6485	0.2757
727	3630	14.6455	0.2727
728	3635	14.6464	0.2736
729	3640	14.6456	0.2728
730	3645	14.6473	0.2745
731	3650	14.647	0.2742
732	3655	14.6484	0.2756
733	3660	14.6502	0.2774
734	3665	14.6465	0.2737
735	3670	14.6484	0.2756
736	3675	14.6456	0.2728
737	3680	14.6502	0.2774
738	3685	14.6493	0.2765
739	3690	14.6476	0.2748
740	3695	14.6524	0.2796
741	3700	14.653	0.2802
742	3705	14.6516	0.2788
743	3710	14.6529	0.2801
744	3715	14.6536	0.2808
745	3720	14.6527	0.2799
746	3725	14.6518	0.279
747	3730	14.6546	0.2818
748	3735	14.6582	0.2854
749	3740	14.6561	0.2833
750	3745	14.6589	0.2861

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	14.657	0.2842
752	3755	14.6614	0.2886
753	3760	14.6623	0.2895
754	3765	14.6603	0.2875
755	3770	14.6581	0.2853
756	3775	14.658	0.2852
757	3780	14.6584	0.2856
758	3785	14.6594	0.2866
759	3790	14.6595	0.2867
760	3795	14.6602	0.2874
761	3800	14.6618	0.289
762	3805	14.6609	0.2881
763	3810	14.6605	0.2877
764	3815	14.6606	0.2878
765	3820	14.658	0.2852
766	3825	14.6579	0.2851
767	3830	14.6609	0.2881
768	3835	14.6616	0.2888
769	3840	14.6611	0.2883
770	3845	14.6657	0.2929
771	3850	14.6628	0.29
772	3855	14.6625	0.2897
773	3860	14.6673	0.2945
774	3865	14.6665	0.2937
775	3870	14.6651	0.2923
776	3875	14.6697	0.2969
777	3880	14.9169	0.5441
778	3885	14.6756	0.3028
779	3890	14.6723	0.2995
780	3895	14.6725	0.2997
781	3900	14.6754	0.3026
782	3905	14.6771	0.3043
783	3910	14.6771	0.3043
784	3915	14.6761	0.3033
785	3920	14.68	0.3072
786	3925	14.6809	0.3081
787	3930	14.6773	0.3045
788	3935	14.6816	0.3088
789	3940	14.679	0.3062
790	3945	14.6815	0.3087
791	3950	14.6805	0.3077
792	3955	14.6797	0.3069
793	3960	14.6776	0.3048
794	3965	14.6807	0.3079
795	3970	14.6831	0.3103
796	3975	14.6845	0.3117
797	3980	14.6871	0.3143
798	3985	14.6853	0.3125
799	3990	14.6897	0.3169
800	3995	14.6882	0.3154
801	4000	14.6906	0.3178
802	4005	14.6956	0.3228
803	4010	14.6966	0.3238
804	4015	14.6971	0.3243
805	4020	14.6978	0.325
806	4025	14.701	0.3282
807	4030	14.7019	0.3291
808	4035	14.7045	0.3317
809	4040	14.7087	0.3359
810	4045	14.7071	0.3343
811	4050	14.7085	0.3357
812	4055	14.7139	0.3411
813	4060	14.7159	0.3431

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	14.716	0.3432
815	4070	14.7169	0.3441
816	4075	14.7173	0.3445
817	4080	14.7209	0.3481
818	4085	14.7177	0.3449
819	4090	14.7209	0.3481
820	4095	14.7176	0.3448
821	4100	14.7188	0.346
822	4105	14.7204	0.3476
823	4110	14.7212	0.3484
824	4115	14.7214	0.3486
825	4120	14.7216	0.3488
826	4125	14.7203	0.3475
827	4130	14.7227	0.3499
828	4135	14.7231	0.3503
829	4140	14.7265	0.3537
830	4145	14.7257	0.3529
831	4150	14.7247	0.3519
832	4155	14.7243	0.3515
833	4160	14.7214	0.3486
834	4165	14.7249	0.3521
835	4170	14.7259	0.3531
836	4175	14.7264	0.3536
837	4180	14.7261	0.3533
838	4185	14.7273	0.3545
839	4190	14.7285	0.3557
840	4195	14.73	0.3572
841	4200	14.7258	0.353
842	4205	14.7296	0.3568
843	4210	14.7281	0.3553
844	4215	14.7312	0.3584
845	4220	14.7265	0.3537
846	4225	14.7266	0.3538
847	4230	14.7269	0.3541
848	4235	14.7248	0.352
849	4240	14.727	0.3542
850	4245	14.7248	0.352
851	4250	14.7275	0.3547
852	4255	14.7273	0.3545
853	4260	14.7266	0.3538
854	4265	14.7267	0.3539
855	4270	14.7294	0.3566
856	4275	14.7282	0.3554
857	4280	14.7278	0.355
858	4285	14.7279	0.3551
859	4290	14.7248	0.352
860	4295	14.7277	0.3549
861	4300	14.7285	0.3557
862	4305	14.7279	0.3551
863	4310	14.7274	0.3546
864	4315	14.7281	0.3553
865	4320	14.7256	0.3528
866	4325	14.727	0.3542
867	4330	14.7213	0.3485
868	4335	14.7263	0.3535
869	4340	14.7225	0.3497
870	4345	14.7239	0.3511
871	4350	14.7216	0.3488
872	4355	14.7219	0.3491
873	4360	14.7246	0.3518
874	4365	14.7235	0.3507
875	4370	14.7271	0.3543
876	4375	14.727	0.3542

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	14.7296	0.3568
878	4385	14.7291	0.3563
879	4390	14.732	0.3592
880	4395	14.7348	0.362
881	4400	14.7341	0.3613
882	4405	14.7365	0.3637
883	4410	14.7401	0.3673
884	4415	14.7378	0.365
885	4420	15.2693	0.8965
886	4425	15.2094	0.8366
887	4430	14.7487	0.3759
888	4435	15.1958	0.823
889	4440	15.1802	0.8074
890	4445	14.7493	0.3765
891	4450	14.7462	0.3734
892	4455	14.7472	0.3744
893	4460	14.7491	0.3763
894	4465	14.7509	0.3781
895	4470	14.7465	0.3737
896	4475	14.7491	0.3763
897	4480	14.752	0.3792
898	4485	14.7519	0.3791
899	4490	14.7513	0.3785
900	4495	14.7534	0.3806
901	4500	14.749	0.3762
902	4505	14.7507	0.3779
903	4510	14.7521	0.3793
904	4515	14.7529	0.3801
905	4520	14.7517	0.3789
906	4525	14.7508	0.378
907	4530	14.7507	0.3779
908	4535	14.7494	0.3766
909	4540	14.756	0.3832
910	4545	14.7536	0.3808
911	4550	14.757	0.3842
912	4555	14.7565	0.3837
913	4560	14.7563	0.3835
914	4565	14.7551	0.3823
915	4570	14.7585	0.3857
916	4575	14.7606	0.3878
917	4580	14.7555	0.3827
918	4585	14.7583	0.3855
919	4590	14.7591	0.3863
920	4595	14.7594	0.3866
921	4600	14.7577	0.3849
922	4605	14.7589	0.3861
923	4610	14.7583	0.3855
924	4615	14.7616	0.3888
925	4620	14.76	0.3872
926	4625	14.7614	0.3886
927	4630	14.7637	0.3909
928	4635	14.7624	0.3896
929	4640	14.7633	0.3905
930	4645	14.7645	0.3917
931	4650	14.7653	0.3925
932	4655	14.7668	0.394
933	4660	14.7688	0.396
934	4665	14.7701	0.3973
935	4670	14.7703	0.3975
936	4675	14.772	0.3992
937	4680	15.2938	0.921
938	4685	14.7749	0.4021
939	4690	14.7742	0.4014

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	14.7733	0.4005
941	4700	15.1947	0.8219
942	4705	14.7797	0.4069
943	4710	14.7758	0.403
944	4715	14.7762	0.4034
945	4720	14.7811	0.4083
946	4725	14.7816	0.4088
947	4730	14.78	0.4072
948	4735	14.7785	0.4057
949	4740	14.7816	0.4088
950	4745	14.7811	0.4083
951	4750	14.7814	0.4086
952	4755	14.7837	0.4109
953	4760	14.782	0.4092
954	4765	14.7825	0.4097
955	4770	14.7826	0.4098
956	4775	14.7827	0.4099
957	4780	14.7852	0.4124
958	4785	14.7858	0.413
959	4790	14.789	0.4162
960	4795	14.7874	0.4146
961	4800	14.7824	0.4096
962	4805	14.7829	0.4101
963	4810	14.7847	0.4119
964	4815	14.7847	0.4119
965	4820	14.7868	0.414
966	4825	14.7865	0.4137
967	4830	14.785	0.4122
968	4835	14.7873	0.4145
969	4840	14.7861	0.4133
970	4845	14.7833	0.4105
971	4850	14.7874	0.4146
972	4855	14.7866	0.4138
973	4860	14.7885	0.4157
974	4865	14.7842	0.4114
975	4870	14.7871	0.4143
976	4875	14.7864	0.4136
977	4880	14.7902	0.4174
978	4885	14.7874	0.4146
979	4890	14.7911	0.4183
980	4895	14.7888	0.416
981	4900	14.7867	0.4139
982	4905	14.7881	0.4153
983	4910	14.7884	0.4156
984	4915	14.7883	0.4155
985	4920	14.7874	0.4146
986	4925	14.787	0.4142
987	4930	14.7898	0.417
988	4935	14.7889	0.4161
989	4940	14.789	0.4162
990	4945	14.7884	0.4156
991	4950	14.7905	0.4177
992	4955	14.7917	0.4189
993	4960	14.7918	0.419
994	4965	14.7921	0.4193
995	4970	14.7907	0.4179
996	4975	14.7912	0.4184
997	4980	14.7913	0.4185
998	4985	14.7917	0.4189
999	4990	14.7935	0.4207
1000	4995	14.7934	0.4206
1001	5000	14.791	0.4182
1002	5005	14.7925	0.4197

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	14.7904	0.4176
1004	5015	14.7931	0.4203
1005	5020	14.7882	0.4154
1006	5025	14.7882	0.4154
1007	5030	14.7929	0.4201
1008	5035	14.7892	0.4164
1009	5040	14.7883	0.4155
1010	5045	14.7888	0.416
1011	5050	14.7856	0.4128
1012	5055	14.787	0.4142
1013	5060	14.7897	0.4169
1014	5065	14.7859	0.4131
1015	5070	14.7893	0.4165
1016	5075	14.7885	0.4157
1017	5080	14.7901	0.4173
1018	5085	14.7856	0.4128
1019	5090	14.7887	0.4159
1020	5095	14.7866	0.4138
1021	5100	14.79	0.4172
1022	5105	14.79	0.4172
1023	5110	14.7897	0.4169
1024	5115	14.7873	0.4145
1025	5120	14.7871	0.4143
1026	5125	14.7879	0.4151
1027	5130	14.7862	0.4134
1028	5135	14.7898	0.417
1029	5140	14.7907	0.4179
1030	5145	15.2556	0.8828
1031	5150	15.1694	0.7966
1032	5155	14.792	0.4192
1033	5160	14.7936	0.4208
1034	5165	15.2347	0.8619
1035	5170	14.7976	0.4248
1036	5175	14.7966	0.4238
1037	5180	14.802	0.4292
1038	5185	14.7995	0.4267
1039	5190	14.7996	0.4268
1040	5195	14.7976	0.4248
1041	5200	14.7989	0.4261
1042	5205	14.7969	0.4241
1043	5210	14.7982	0.4254
1044	5215	14.7946	0.4218
1045	5220	15.2195	0.8467
1046	5225	15.207	0.8342
1047	5230	14.8002	0.4274
1048	5235	15.2609	0.8881
1049	5240	15.2546	0.8818
1050	5245	14.8043	0.4315
1051	5250	14.806	0.4332
1052	5255	14.8003	0.4275
1053	5260	14.8064	0.4336
1054	5265	14.8032	0.4304
1055	5270	14.8094	0.4366
1056	5275	14.8045	0.4317
1057	5280	14.8081	0.4353
1058	5285	14.8067	0.4339
1059	5290	14.8089	0.4361
1060	5295	14.8062	0.4334
1061	5300	14.8082	0.4354
1062	5305	14.8096	0.4368
1063	5310	14.811	0.4382
1064	5315	14.8111	0.4383
1065	5320	14.8094	0.4366

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	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	14.8122	0.4394
1067	5330	14.8094	0.4366
1068	5335	14.815	0.4422
1069	5340	14.8144	0.4416
1070	5345	14.8133	0.4405
1071	5350	14.8139	0.4411
1072	5355	14.816	0.4432
1073	5360	14.8159	0.4431
1074	5365	14.8168	0.444
1075	5370	14.8173	0.4445
1076	5375	14.8166	0.4438
1077	5380	14.821	0.4482
1078	5385	14.8201	0.4473
1079	5390	14.8205	0.4477
1080	5395	14.8224	0.4496
1081	5400	14.8221	0.4493
1082	5405	14.8233	0.4505
1083	5410	14.8284	0.4556
1084	5415	14.8281	0.4553
1085	5420	14.8272	0.4544
1086	5425	14.8303	0.4575
1087	5430	14.8293	0.4565
1088	5435	14.8301	0.4573
1089	5440	14.8283	0.4555
1090	5445	14.8306	0.4578
1091	5450	14.8326	0.4598
1092	5455	14.836	0.4632
1093	5460	14.8358	0.463
1094	5465	14.8354	0.4626
1095	5470	14.8397	0.4669
1096	5475	14.8402	0.4674
1097	5480	14.8413	0.4685
1098	5485	14.844	0.4712
1099	5490	14.8433	0.4705
1100	5495	14.8465	0.4737
1101	5500	14.8474	0.4746
1102	5505	14.8452	0.4724
1103	5510	14.8468	0.474
1104	5515	14.8468	0.474
1105	5520	14.8472	0.4744
1106	5525	14.8488	0.476
1107	5530	14.8504	0.4776
1108	5535	14.852	0.4792
1109	5540	14.8538	0.481
1110	5545	14.8557	0.4829
1111	5550	14.8563	0.4835
1112	5555	14.8528	0.48
1113	5560	14.8557	0.4829
1114	5565	14.8578	0.485
1115	5570	14.8593	0.4865
1116	5575	14.8604	0.4876
1117	5580	14.8609	0.4881
1118	5585	14.8597	0.4869
1119	5590	14.8626	0.4898
1120	5595	14.8641	0.4913
1121	5600	14.8655	0.4927
1122	5605	14.8709	0.4981
1123	5610	14.8643	0.4915
1124	5615	14.8682	0.4954
1125	5620	14.8653	0.4925
1126	5625	14.8684	0.4956
1127	5630	14.8704	0.4976
1128	5635	14.8672	0.4944

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	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	14.8731	0.5003
1130	5645	14.8726	0.4998
1131	5650	14.8748	0.502
1132	5655	14.875	0.5022
1133	5660	14.8743	0.5015
1134	5665	14.8746	0.5018
1135	5670	14.8787	0.5059
1136	5675	14.8755	0.5027
1137	5680	14.8762	0.5034
1138	5685	14.876	0.5032
1139	5690	14.8789	0.5061
1140	5695	14.8772	0.5044
1141	5700	14.8765	0.5037
1142	5705	14.8789	0.5061
1143	5710	14.8808	0.508
1144	5715	14.8839	0.5111
1145	5720	14.8826	0.5098
1146	5725	14.8825	0.5097
1147	5730	14.8849	0.5121
1148	5735	14.8903	0.5175
1149	5740	14.8829	0.5101
1150	5745	14.8901	0.5173
1151	5750	14.8889	0.5161
1152	5755	14.892	0.5192
1153	5760	14.8955	0.5227
1154	5765	14.8885	0.5157
1155	5770	14.8932	0.5204
1156	5775	14.8959	0.5231
1157	5780	14.8897	0.5169
1158	5785	14.8906	0.5178
1159	5790	14.8929	0.5201
1160	5795	14.8909	0.5181
1161	5800	14.8932	0.5204
1162	5805	14.8924	0.5196
1163	5810	14.8936	0.5208
1164	5815	14.8955	0.5227
1165	5820	14.8946	0.5218
1166	5825	14.898	0.5252
1167	5830	14.902	0.5292
1168	5835	14.8938	0.521
1169	5840	14.8997	0.5269
1170	5845	14.8999	0.5271
1171	5850	14.9084	0.5356
1172	5855	14.9005	0.5277
1173	5860	15.4079	1.0351
1174	5865	15.3689	0.9961
1175	5870	14.9115	0.5387
1176	5875	15.3718	0.999
1177	5880	15.436	1.0632
1178	5885	14.9157	0.5429
1179	5890	14.91	0.5372
1180	5895	14.9135	0.5407
1181	5900	14.9208	0.548
1182	5905	14.9165	0.5437
1183	5910	14.917	0.5442
1184	5915	14.9218	0.549
1185	5920	14.9227	0.5499
1186	5925	14.9239	0.5511
1187	5930	14.9178	0.545
1188	5935	14.9235	0.5507
1189	5940	14.9224	0.5496
1190	5945	14.9178	0.545
1191	5950	14.9258	0.553

Friesen Drillers Ltd. **307 PTH 12 N** **Steinbach, MB R5G 1T8**	**Pumping Test - Water Level Data**	
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	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	14.922	0.5492
1193	5960	14.9258	0.553
1194	5965	14.9276	0.5548
1195	5970	14.9262	0.5534
1196	5975	14.9225	0.5497
1197	5980	14.9299	0.5571
1198	5985	14.9301	0.5573
1199	5990	14.9294	0.5566
1200	5995	14.9311	0.5583
1201	6000	14.9304	0.5576
1202	6005	14.9304	0.5576
1203	6010	14.9323	0.5595
1204	6015	14.9319	0.5591
1205	6020	14.9376	0.5648
1206	6025	14.9315	0.5587
1207	6030	14.9316	0.5588
1208	6035	14.9356	0.5628
1209	6040	14.938	0.5652
1210	6045	14.939	0.5662
1211	6050	14.9421	0.5693
1212	6055	14.9388	0.566
1213	6060	14.9356	0.5628
1214	6065	14.9417	0.5689
1215	6070	14.9374	0.5646
1216	6075	14.9398	0.567
1217	6080	14.9414	0.5686
1218	6085	14.9401	0.5673
1219	6090	14.9396	0.5668
1220	6095	14.9394	0.5666
1221	6100	14.9441	0.5713
1222	6105	14.9446	0.5718
1223	6110	14.9474	0.5746
1224	6115	14.9486	0.5758
1225	6120	14.9481	0.5753
1226	6125	14.9489	0.5761
1227	6130	14.9498	0.577
1228	6135	14.9519	0.5791
1229	6140	14.9539	0.5811
1230	6145	14.9565	0.5837
1231	6150	14.9558	0.583
1232	6155	14.9613	0.5885
1233	6160	14.9618	0.589
1234	6165	14.9639	0.5911
1235	6170	14.9656	0.5928
1236	6175	14.963	0.5902
1237	6180	14.9654	0.5926
1238	6185	14.9642	0.5914
1239	6190	14.9692	0.5964
1240	6195	14.9706	0.5978
1241	6200	14.9714	0.5986
1242	6205	14.9751	0.6023
1243	6210	14.9729	0.6001
1244	6215	14.9757	0.6029
1245	6220	14.9777	0.6049
1246	6225	14.9794	0.6066
1247	6230	14.9804	0.6076
1248	6235	14.9813	0.6085
1249	6240	14.984	0.6112
1250	6245	14.9885	0.6157
1251	6250	14.9854	0.6126
1252	6255	14.9902	0.6174
1253	6260	14.9912	0.6184
1254	6265	14.9894	0.6166

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	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	14.9904	0.6176
1256	6275	14.9948	0.622
1257	6280	14.9954	0.6226
1258	6285	14.998	0.6252
1259	6290	14.9983	0.6255
1260	6295	14.9976	0.6248
1261	6300	15.0011	0.6283
1262	6305	15.0019	0.6291
1263	6310	14.9991	0.6263
1264	6315	15.0006	0.6278
1265	6320	15.0048	0.632
1266	6325	15.0004	0.6276
1267	6330	15.0002	0.6274
1268	6335	15.003	0.6302
1269	6340	15.0045	0.6317
1270	6345	15.0112	0.6384
1271	6350	15.0076	0.6348
1272	6355	15.0109	0.6381
1273	6360	15.0109	0.6381
1274	6365	15.0071	0.6343
1275	6370	15.0116	0.6388
1276	6375	15.0108	0.638
1277	6380	15.0097	0.6369
1278	6385	15.0151	0.6423
1279	6390	15.0119	0.6391
1280	6395	15.0143	0.6415
1281	6400	15.0147	0.6419
1282	6405	15.017	0.6442
1283	6410	15.0141	0.6413
1284	6415	15.0159	0.6431
1285	6420	15.0137	0.6409
1286	6425	15.0169	0.6441
1287	6430	15.0167	0.6439
1288	6435	15.0176	0.6448
1289	6440	15.019	0.6462
1290	6445	15.0145	0.6417
1291	6450	15.0233	0.6505
1292	6455	15.0275	0.6547
1293	6460	15.0219	0.6491
1294	6465	15.0245	0.6517
1295	6470	15.0216	0.6488
1296	6475	15.0231	0.6503
1297	6480	15.0203	0.6475
1298	6485	15.0231	0.6503
1299	6490	15.0207	0.6479
1300	6495	15.0204	0.6476
1301	6500	15.0195	0.6467
1302	6505	15.0179	0.6451
1303	6510	15.0169	0.6441
1304	6515	15.0155	0.6427
1305	6520	15.0203	0.6475
1306	6525	15.0171	0.6443
1307	6530	15.0211	0.6483
1308	6535	15.0217	0.6489
1309	6540	15.0241	0.6513
1310	6545	15.0224	0.6496
1311	6550	15.0226	0.6498
1312	6555	15.0231	0.6503
1313	6560	15.0222	0.6494
1314	6565	15.0211	0.6483
1315	6570	15.026	0.6532
1316	6575	15.026	0.6532
1317	6580	15.0255	0.6527

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	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	15.0198	0.647
1319	6590	15.0302	0.6574
1320	6595	15.0292	0.6564
1321	6600	15.0327	0.6599
1322	6605	15.0218	0.649
1323	6610	15.0284	0.6556
1324	6615	15.0269	0.6541
1325	6620	15.0255	0.6527
1326	6625	15.0284	0.6556
1327	6630	15.0259	0.6531
1328	6635	15.0308	0.658
1329	6640	15.0312	0.6584
1330	6645	15.0289	0.6561
1331	6650	15.0335	0.6607
1332	6655	15.0284	0.6556
1333	6660	15.0328	0.66
1334	6665	15.0312	0.6584
1335	6670	15.031	0.6582
1336	6675	15.037	0.6642
1337	6680	15.0386	0.6658
1338	6685	15.0356	0.6628
1339	6690	15.0389	0.6661
1340	6695	15.0386	0.6658
1341	6700	15.0367	0.6639
1342	6705	15.0415	0.6687
1343	6710	15.0421	0.6693
1344	6715	15.0402	0.6674
1345	6720	15.0403	0.6675
1346	6725	15.0417	0.6689
1347	6730	15.0378	0.665
1348	6735	15.0442	0.6714
1349	6740	15.0423	0.6695
1350	6745	15.046	0.6732
1351	6750	15.043	0.6702
1352	6755	15.0498	0.677
1353	6760	15.0478	0.675
1354	6765	15.051	0.6782
1355	6770	15.0474	0.6746
1356	6775	15.0489	0.6761
1357	6780	15.0511	0.6783
1358	6785	15.051	0.6782
1359	6790	15.0551	0.6823
1360	6795	15.0546	0.6818
1361	6800	15.0569	0.6841
1362	6805	15.0561	0.6833
1363	6810	15.0557	0.6829
1364	6815	15.0605	0.6877
1365	6820	15.0636	0.6908
1366	6825	15.0641	0.6913
1367	6830	15.0662	0.6934
1368	6835	15.0639	0.6911
1369	6840	15.0719	0.6991
1370	6845	15.0715	0.6987
1371	6850	15.0716	0.6988
1372	6855	15.0715	0.6987
1373	6860	15.075	0.7022
1374	6865	15.076	0.7032
1375	6870	15.0765	0.7037
1376	6875	15.0817	0.7089
1377	6880	15.0801	0.7073
1378	6885	15.0853	0.7125
1379	6890	15.0885	0.7157
1380	6895	15.0895	0.7167

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	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	15.0888	0.716
1382	6905	15.0876	0.7148
1383	6910	15.0869	0.7141
1384	6915	15.0869	0.7141
1385	6920	15.0886	0.7158
1386	6925	15.0914	0.7186
1387	6930	15.0946	0.7218
1388	6935	15.0974	0.7246
1389	6940	15.0987	0.7259
1390	6945	15.0984	0.7256
1391	6950	15.1056	0.7328
1392	6955	15.1034	0.7306
1393	6960	15.1153	0.7425
1394	6965	15.1148	0.742
1395	6970	15.1156	0.7428
1396	6975	15.1133	0.7405
1397	6980	15.1156	0.7428
1398	6985	15.1175	0.7447
1399	6990	15.1221	0.7493
1400	6995	15.128	0.7552
1401	7000	15.1275	0.7547
1402	7005	15.1285	0.7557
1403	7010	15.1344	0.7616
1404	7015	15.1298	0.757
1405	7020	15.1364	0.7636
1406	7025	15.139	0.7662
1407	7030	15.1419	0.7691
1408	7035	15.1436	0.7708
1409	7040	15.1422	0.7694
1410	7045	15.1412	0.7684
1411	7050	15.146	0.7732
1412	7055	15.1482	0.7754
1413	7060	15.1549	0.7821
1414	7065	15.1594	0.7866
1415	7070	15.1509	0.7781
1416	7075	15.1592	0.7864
1417	7080	15.1575	0.7847
1418	7085	15.156	0.7832
1419	7090	15.1611	0.7883
1420	7095	15.166	0.7932
1421	7100	15.1634	0.7906
1422	7105	15.1647	0.7919
1423	7110	15.168	0.7952
1424	7115	15.1725	0.7997
1425	7120	15.1751	0.8023
1426	7125	15.1774	0.8046
1427	7130	15.1766	0.8038
1428	7135	15.1759	0.8031
1429	7140	15.1772	0.8044
1430	7145	15.1818	0.809
1431	7150	15.1833	0.8105
1432	7155	15.1773	0.8045
1433	7160	15.1837	0.8109
1434	7165	15.1856	0.8128
1435	7170	15.1864	0.8136
1436	7175	15.1922	0.8194
1437	7180	15.1945	0.8217
1438	7185	15.2002	0.8274
1439	7190	15.1927	0.8199
1440	7195	15.1994	0.8266
1441	7200	15.2019	0.8291
1442	7205	15.2114	0.8386
1443	7210	15.2021	0.8293

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	15.2057	0.8329
1445	7220	15.1999	0.8271
1446	7225	15.2026	0.8298
1447	7230	15.2009	0.8281
1448	7235	15.2092	0.8364
1449	7240	15.2103	0.8375
1450	7245	15.2133	0.8405
1451	7250	15.2133	0.8405
1452	7255	15.2135	0.8407
1453	7260	15.2132	0.8404
1454	7265	15.213	0.8402
1455	7270	15.2135	0.8407
1456	7275	15.2154	0.8426
1457	7280	15.2183	0.8455
1458	7285	15.2205	0.8477
1459	7290	15.2118	0.839
1460	7295	15.2238	0.851
1461	7300	15.7299	1.3571
1462	7305	15.6674	1.2946
1463	7310	15.2407	0.8679
1464	7315	15.6567	1.2839
1465	7320	15.6862	1.3134
1466	7325	15.241	0.8682
1467	7330	15.233	0.8602
1468	7335	15.2386	0.8658
1469	7340	15.2442	0.8714
1470	7345	15.2437	0.8709
1471	7350	15.2428	0.87
1472	7355	15.2545	0.8817
1473	7360	15.2481	0.8753
1474	7365	15.2496	0.8768
1475	7370	15.2441	0.8713
1476	7375	15.2448	0.872
1477	7380	15.2436	0.8708
1478	7385	15.2547	0.8819
1479	7390	15.2512	0.8784
1480	7395	15.2563	0.8835
1481	7400	15.2573	0.8845
1482	7405	15.2566	0.8838
1483	7410	15.2621	0.8893
1484	7415	15.2531	0.8803
1485	7420	15.2517	0.8789
1486	7425	15.2544	0.8816
1487	7430	15.2589	0.8861
1488	7435	15.2626	0.8898
1489	7440	15.2639	0.8911
1490	7445	15.2615	0.8887
1491	7450	15.2677	0.8949
1492	7455	15.2613	0.8885
1493	7460	15.2701	0.8973
1494	7465	15.2666	0.8938
1495	7470	15.2746	0.9018
1496	7475	15.2708	0.898
1497	7480	15.2732	0.9004
1498	7485	15.2749	0.9021
1499	7490	15.2756	0.9028
1500	7495	15.2742	0.9014
1501	7500	15.2766	0.9038
1502	7505	15.2835	0.9107
1503	7510	15.2768	0.904
1504	7515	15.2832	0.9104
1505	7520	15.2836	0.9108
1506	7525	15.2859	0.9131

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	15.2908	0.918
1508	7535	15.2886	0.9158
1509	7540	15.2931	0.9203
1510	7545	15.2943	0.9215
1511	7550	15.2999	0.9271
1512	7555	15.3002	0.9274
1513	7560	15.3019	0.9291
1514	7565	15.3029	0.9301
1515	7570	15.2965	0.9237
1516	7575	15.3004	0.9276
1517	7580	15.3029	0.9301
1518	7585	15.2966	0.9238
1519	7590	15.299	0.9262
1520	7595	15.3076	0.9348
1521	7600	15.3063	0.9335
1522	7605	15.3151	0.9423
1523	7610	15.3149	0.9421
1524	7615	15.3154	0.9426
1525	7620	15.3118	0.939
1526	7625	15.3201	0.9473
1527	7630	15.324	0.9512
1528	7635	15.3186	0.9458
1529	7640	15.3248	0.952
1530	7645	15.3237	0.9509
1531	7650	15.3262	0.9534
1532	7655	15.3296	0.9568
1533	7660	15.3238	0.951
1534	7665	15.3298	0.957
1535	7670	15.3314	0.9586
1536	7675	15.3349	0.9621
1537	7680	15.3348	0.962
1538	7685	15.3346	0.9618
1539	7690	15.3352	0.9624
1540	7695	15.3346	0.9618
1541	7700	15.339	0.9662
1542	7705	15.3399	0.9671
1543	7710	15.3439	0.9711
1544	7715	15.3496	0.9768
1545	7720	15.3435	0.9707
1546	7725	15.3479	0.9751
1547	7730	15.3493	0.9765
1548	7735	15.3517	0.9789
1549	7740	15.3495	0.9767
1550	7745	15.3548	0.982
1551	7750	15.3576	0.9848
1552	7755	15.3582	0.9854
1553	7760	15.3569	0.9841
1554	7765	15.3639	0.9911
1555	7770	15.3598	0.987
1556	7775	15.3698	0.997
1557	7780	15.3648	0.992
1558	7785	15.3665	0.9937
1559	7790	15.376	1.0032
1560	7795	15.3691	0.9963
1561	7800	15.3682	0.9954
1562	7805	15.3775	1.0047
1563	7810	15.3732	1.0004
1564	7815	15.3776	1.0048
1565	7820	15.375	1.0022
1566	7825	15.3754	1.0026
1567	7830	15.3816	1.0088
1568	7835	15.3818	1.009
1569	7840	15.3805	1.0077

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	15.3856	1.0128
1571	7850	15.3844	1.0116
1572	7855	15.3911	1.0183
1573	7860	15.3834	1.0106
1574	7865	15.3866	1.0138
1575	7870	15.3884	1.0156
1576	7875	15.3843	1.0115
1577	7880	15.3912	1.0184
1578	7885	15.3874	1.0146
1579	7890	15.3888	1.016
1580	7895	15.3948	1.022
1581	7900	15.3945	1.0217
1582	7905	15.3935	1.0207
1583	7910	15.3944	1.0216
1584	7915	15.3925	1.0197
1585	7920	15.3928	1.02
1586	7925	15.3972	1.0244
1587	7930	15.396	1.0232
1588	7935	15.3982	1.0254
1589	7940	15.3962	1.0234
1590	7945	15.3975	1.0247
1591	7950	15.3925	1.0197
1592	7955	15.40	1.0272
1593	7960	15.3953	1.0225
1594	7965	15.3989	1.0261
1595	7970	15.3974	1.0246
1596	7975	15.3932	1.0204
1597	7980	15.3958	1.023
1598	7985	15.3959	1.0231
1599	7990	15.3938	1.021
1600	7995	15.3928	1.02
1601	8000	15.3938	1.021
1602	8005	15.3991	1.0263
1603	8010	15.3991	1.0263
1604	8015	15.397	1.0242
1605	8020	15.3937	1.0209
1606	8025	15.3979	1.0251
1607	8030	15.3968	1.024
1608	8035	15.4019	1.0291
1609	8040	15.396	1.0232
1610	8045	15.3986	1.0258
1611	8050	15.3928	1.02
1612	8055	15.3928	1.02
1613	8060	15.3916	1.0188
1614	8065	15.3961	1.0233
1615	8070	15.396	1.0232
1616	8075	15.3906	1.0178
1617	8080	15.3922	1.0194
1618	8085	15.397	1.0242
1619	8090	15.4142	1.0414
1620	8095	15.4025	1.0297
1621	8100	15.4002	1.0274
1622	8105	15.3996	1.0268
1623	8110	15.4033	1.0305
1624	8115	15.3982	1.0254
1625	8120	15.3979	1.0251
1626	8125	15.407	1.0342
1627	8130	15.3955	1.0227
1628	8135	15.3959	1.0231
1629	8140	15.3931	1.0203
1630	8145	15.3817	1.0089
1631	8150	15.381	1.0082
1632	8155	15.3825	1.0097

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	15.3752	1.0024
1634	8165	15.3788	1.006
1635	8170	15.3797	1.0069
1636	8175	15.3856	1.0128
1637	8180	15.3871	1.0143
1638	8185	15.3876	1.0148
1639	8190	15.393	1.0202
1640	8195	15.3804	1.0076
1641	8200	15.3846	1.0118
1642	8205	15.3759	1.0031
1643	8210	15.3747	1.0019
1644	8215	15.3778	1.005
1645	8220	15.3711	0.9983
1646	8225	15.3666	0.9938
1647	8230	15.3552	0.9824
1648	8235	15.3569	0.9841
1649	8240	15.3592	0.9864
1650	8245	15.3637	0.9909
1651	8250	15.3699	0.9971
1652	8255	15.3702	0.9974
1653	8260	15.3682	0.9954
1654	8265	15.3729	1.0001
1655	8270	15.3757	1.0029
1656	8275	15.3791	1.0063
1657	8280	15.373	1.0002
1658	8285	15.3771	1.0043
1659	8290	15.3811	1.0083
1660	8295	15.3814	1.0086
1661	8300	15.3867	1.0139
1662	8305	15.3915	1.0187
1663	8310	15.3845	1.0117
1664	8315	15.3738	1.001
1665	8320	15.3699	0.9971
1666	8325	15.375	1.0022
1667	8330	15.3752	1.0024
1668	8335	15.3833	1.0105
1669	8340	15.3835	1.0107
1670	8345	15.3849	1.0121
1671	8350	15.3892	1.0164
1672	8355	15.3959	1.0231
1673	8360	15.4008	1.028
1674	8365	15.4034	1.0306
1675	8370	15.3962	1.0234
1676	8375	15.3821	1.0093
1677	8380	15.3929	1.0201
1678	8385	15.3967	1.0239
1679	8390	15.3927	1.0199
1680	8395	15.4071	1.0343
1681	8400	15.4023	1.0295
1682	8405	15.3824	1.0096
1683	8410	15.3844	1.0116
1684	8415	15.3908	1.018
1685	8420	15.3835	1.0107
1686	8425	15.3989	1.0261
1687	8430	15.4025	1.0297
1688	8435	15.3985	1.0257
1689	8440	15.3929	1.0201
1690	8445	15.3978	1.025
1691	8450	15.3926	1.0198
1692	8455	15.4021	1.0293
1693	8460	15.4008	1.028
1694	8465	15.4055	1.0327
1695	8470	15.4068	1.034

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	15.4092	1.0364
1697	8480	15.4076	1.0348
1698	8485	15.4063	1.0335
1699	8490	15.4067	1.0339
1700	8495	15.4087	1.0359
1701	8500	15.4077	1.0349
1702	8505	15.4083	1.0355
1703	8510	15.4062	1.0334
1704	8515	15.4081	1.0353
1705	8520	15.4079	1.0351
1706	8525	15.4093	1.0365
1707	8530	15.4074	1.0346
1708	8535	15.4069	1.0341
1709	8540	15.4081	1.0353
1710	8545	15.4067	1.0339
1711	8550	15.4091	1.0363
1712	8555	15.4115	1.0387
1713	8560	15.4072	1.0344
1714	8565	15.4092	1.0364
1715	8570	15.4064	1.0336
1716	8575	15.4084	1.0356
1717	8580	15.4096	1.0368
1718	8585	15.4063	1.0335
1719	8590	15.4088	1.036
1720	8595	15.4077	1.0349
1721	8600	15.4079	1.0351
1722	8605	15.4063	1.0335
1723	8610	15.4055	1.0327
1724	8615	15.4087	1.0359
1725	8620	15.4075	1.0347
1726	8625	15.4106	1.0378
1727	8630	15.4086	1.0358
1728	8635	15.4097	1.0369
1729	8640	15.4085	1.0357
1730	8645	15.409	1.0362
1731	8650	15.4047	1.0319
1732	8655	15.4083	1.0355
1733	8660	14.7533	0.3805
1734	8665	15.4102	1.0374
1735	8670	15.407	1.0342
1736	8675	15.4122	1.0394
1737	8680	15.4086	1.0358
1738	8685	15.4127	1.0399
1739	8690	15.7573	1.3845
1740	8695	15.4063	1.0335
1741	8700	15.4089	1.0361
1742	8705	15.4102	1.0374
1743	8710	15.4051	1.0323
1744	8715	15.4114	1.0386
1745	8720	15.4089	1.0361
1746	8725	15.4114	1.0386
1747	8730	15.4067	1.0339
1748	8735	15.405	1.0322
1749	8740	15.8636	1.4908
1750	8745	15.8452	1.4724
1751	8750	15.411	1.0382
1752	8755	15.8822	1.5094
1753	8760	15.9194	1.5466
1754	8765	15.4135	1.0407
1755	8770	15.4096	1.0368
1756	8775	15.4127	1.0399
1757	8780	15.4122	1.0394
1758	8785	15.4118	1.039

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	15.4106	1.0378
1760	8795	15.4105	1.0377
1761	8800	15.4104	1.0376
1762	8805	15.4093	1.0365
1763	8810	15.4075	1.0347
1764	8815	15.7781	1.4053
1765	8820	15.4109	1.0381
1766	8825	15.414	1.0412
1767	8830	15.4126	1.0398
1768	8835	15.4125	1.0397
1769	8840	15.4147	1.0419
1770	8845	15.4109	1.0381
1771	8850	15.4163	1.0435
1772	8855	15.8477	1.4749
1773	8860	15.4128	1.04
1774	8865	15.416	1.0432
1775	8870	15.4124	1.0396
1776	8875	15.4189	1.0461
1777	8880	15.4134	1.0406
1778	8885	15.4207	1.0479
1779	8890	15.416	1.0432
1780	8895	15.7673	1.3945
1781	8900	15.4183	1.0455
1782	8905	15.42	1.0472
1783	8910	15.4141	1.0413
1784	8915	15.4151	1.0423
1785	8920	15.4169	1.0441
1786	8925	15.8477	1.4749
1787	8930	15.4141	1.0413
1788	8935	15.4149	1.0421
1789	8940	15.4143	1.0415
1790	8945	15.4169	1.0441
1791	8950	15.4209	1.0481
1792	8955	15.4173	1.0445
1793	8960	15.4146	1.0418
1794	8965	15.4181	1.0453
1795	8970	15.4178	1.045
1796	8975	15.4209	1.0481
1797	8980	15.4204	1.0476
1798	8985	15.8823	1.5095
1799	8990	15.7918	1.419
1800	8995	15.4221	1.0493
1801	9000	15.4211	1.0483
1802	9005	15.4255	1.0527
1803	9010	15.4261	1.0533
1804	9015	15.4236	1.0508
1805	9020	15.4238	1.051
1806	9025	15.4222	1.0494
1807	9030	15.4236	1.0508
1808	9035	15.4261	1.0533
1809	9040	15.4245	1.0517
1810	9045	15.4236	1.0508
1811	9050	15.4248	1.052
1812	9055	15.4189	1.0461
1813	9060	15.4224	1.0496
1814	9065	15.4243	1.0515
1815	9070	15.4216	1.0488
1816	9075	15.4221	1.0493
1817	9080	15.423	1.0502
1818	9085	15.4188	1.046
1819	9090	15.4191	1.0463
1820	9095	15.4188	1.046
1821	9100	15.4136	1.0408

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	15.4134	1.0406
1823	9110	15.4141	1.0413
1824	9115	15.4121	1.0393
1825	9120	15.4122	1.0394
1826	9125	15.4084	1.0356
1827	9130	15.4064	1.0336
1828	9135	15.4095	1.0367
1829	9140	15.4109	1.0381
1830	9145	15.4061	1.0333
1831	9150	15.407	1.0342
1832	9155	15.408	1.0352
1833	9160	15.4059	1.0331
1834	9165	15.4066	1.0338
1835	9170	15.4102	1.0374
1836	9175	15.4105	1.0377
1837	9180	15.4078	1.035
1838	9185	15.4079	1.0351
1839	9190	15.4094	1.0366
1840	9195	15.411	1.0382
1841	9200	15.4074	1.0346
1842	9205	15.4091	1.0363
1843	9210	15.4076	1.0348
1844	9215	15.4082	1.0354
1845	9220	15.4053	1.0325
1846	9225	15.4087	1.0359
1847	9230	15.4084	1.0356
1848	9235	15.4092	1.0364
1849	9240	15.4089	1.0361
1850	9245	15.4134	1.0406
1851	9250	15.4097	1.0369
1852	9255	15.4123	1.0395
1853	9260	15.4103	1.0375
1854	9265	15.4117	1.0389
1855	9270	15.4126	1.0398
1856	9275	15.4097	1.0369
1857	9280	15.4066	1.0338
1858	9285	15.4116	1.0388
1859	9290	15.4138	1.041
1860	9295	15.4121	1.0393
1861	9300	15.4159	1.0431
1862	9305	15.4162	1.0434
1863	9310	15.4137	1.0409
1864	9315	15.4139	1.0411
1865	9320	15.4116	1.0388
1866	9325	15.4159	1.0431
1867	9330	15.4143	1.0415
1868	9335	15.41	1.0372
1869	9340	15.4119	1.0391
1870	9345	15.411	1.0382
1871	9350	15.4106	1.0378
1872	9355	15.4131	1.0403
1873	9360	15.4128	1.04
1874	9365	15.4144	1.0416
1875	9370	15.4117	1.0389
1876	9375	15.4116	1.0388
1877	9380	15.4117	1.0389
1878	9385	15.411	1.0382
1879	9390	15.4096	1.0368
1880	9395	15.4117	1.0389
1881	9400	15.4089	1.0361
1882	9405	15.4073	1.0345
1883	9410	15.4068	1.034
1884	9415	15.4029	1.0301

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	15.3995	1.0267
1886	9425	15.4044	1.0316
1887	9430	15.4006	1.0278
1888	9435	15.398	1.0252
1889	9440	15.3971	1.0243
1890	9445	15.3982	1.0254
1891	9450	15.3984	1.0256
1892	9455	15.3975	1.0247
1893	9460	15.398	1.0252
1894	9465	15.3977	1.0249
1895	9470	15.3919	1.0191
1896	9475	15.397	1.0242
1897	9480	15.3959	1.0231
1898	9485	15.395	1.0222
1899	9490	15.393	1.0202
1900	9495	15.3892	1.0164
1901	9500	15.3879	1.0151
1902	9505	15.3876	1.0148
1903	9510	15.3855	1.0127
1904	9515	15.384	1.0112
1905	9520	15.3834	1.0106
1906	9525	15.3778	1.005
1907	9530	15.3802	1.0074
1908	9535	15.3795	1.0067
1909	9540	15.3788	1.006
1910	9545	15.371	0.9982
1911	9550	15.3716	0.9988
1912	9555	15.3707	0.9979
1913	9560	15.3707	0.9979
1914	9565	15.3705	0.9977
1915	9570	15.3712	0.9984
1916	9575	15.3664	0.9936
1917	9580	15.3643	0.9915
1918	9585	15.3627	0.9899
1919	9590	15.3599	0.9871
1920	9595	15.3568	0.984
1921	9600	15.3563	0.9835
1922	9605	15.3558	0.983
1923	9610	15.356	0.9832
1924	9615	15.3517	0.9789
1925	9620	15.3535	0.9807
1926	9625	15.3538	0.981
1927	9630	15.3528	0.98
1928	9635	15.3506	0.9778
1929	9640	15.3496	0.9768
1930	9645	15.3502	0.9774
1931	9650	15.3481	0.9753
1932	9655	15.3444	0.9716
1933	9660	15.3455	0.9727
1934	9665	15.3482	0.9754
1935	9670	15.3412	0.9684
1936	9675	15.7715	1.3987
1937	9680	15.3444	0.9716
1938	9685	15.342	0.9692
1939	9690	15.3421	0.9693
1940	9695	15.3413	0.9685
1941	9700	15.3441	0.9713
1942	9705	15.3425	0.9697
1943	9710	15.3411	0.9683
1944	9715	15.3412	0.9684
1945	9720	15.3409	0.9681
1946	9725	15.3393	0.9665
1947	9730	15.3376	0.9648

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	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	15.3399	0.9671
1949	9740	15.3383	0.9655
1950	9745	15.3393	0.9665
1951	9750	15.3392	0.9664
1952	9755	15.3373	0.9645
1953	9760	15.3355	0.9627
1954	9765	15.3385	0.9657
1955	9770	15.3386	0.9658
1956	9775	15.3355	0.9627
1957	9780	15.3375	0.9647
1958	9785	15.3339	0.9611
1959	9790	15.3348	0.962
1960	9795	15.3332	0.9604
1961	9800	15.3339	0.9611
1962	9805	15.3329	0.9601
1963	9810	15.3321	0.9593
1964	9815	15.3324	0.9596
1965	9820	15.3329	0.9601
1966	9825	15.3335	0.9607
1967	9830	15.3361	0.9633
1968	9835	15.3313	0.9585
1969	9840	15.3342	0.9614
1970	9845	15.3365	0.9637
1971	9850	15.3343	0.9615
1972	9855	15.3334	0.9606
1973	9860	15.3335	0.9607
1974	9865	15.3329	0.9601
1975	9870	15.3307	0.9579
1976	9875	15.331	0.9582
1977	9880	15.3384	0.9656
1978	9885	15.3345	0.9617
1979	9890	15.3373	0.9645
1980	9895	15.3352	0.9624
1981	9900	15.3369	0.9641
1982	9905	15.3371	0.9643
1983	9910	15.3377	0.9649
1984	9915	15.3402	0.9674
1985	9920	15.3386	0.9658
1986	9925	15.336	0.9632
1987	9930	15.3378	0.965
1988	9935	15.337	0.9642
1989	9940	15.3414	0.9686
1990	9945	15.3386	0.9658
1991	9950	15.3401	0.9673
1992	9955	15.3464	0.9736
1993	9960	15.338	0.9652
1994	9965	15.3416	0.9688
1995	9970	15.3424	0.9696
1996	9975	15.3414	0.9686
1997	9980	15.3462	0.9734
1998	9985	15.3405	0.9677
1999	9990	15.3459	0.9731
2000	9995	15.3498	0.977
2001	10000	15.3455	0.9727
2002	10005	15.3526	0.9798
2003	10010	15.3482	0.9754
2004	10015	15.3499	0.9771
2005	10020	15.3484	0.9756
2006	10025	15.3541	0.9813
2007	10030	15.355	0.9822
2008	10035	15.3537	0.9809
2009	10040	15.3532	0.9804
2010	10045	15.355	0.9822

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	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	15.353	0.9802
2012	10055	15.3544	0.9816
2013	10060	15.3591	0.9863
2014	10065	15.3516	0.9788
2015	10070	15.3533	0.9805
2016	10075	15.3558	0.983
2017	10080	15.3505	0.9777
2018	10085	15.3565	0.9837
2019	10090	15.3571	0.9843
2020	10095	15.3494	0.9766
2021	10100	15.3558	0.983
2022	10105	15.3521	0.9793
2023	10110	15.3534	0.9806
2024	10115	15.3573	0.9845
2025	10120	15.3579	0.9851
2026	10125	15.3586	0.9858
2027	10130	15.3547	0.9819
2028	10135	15.3528	0.98
2029	10140	15.3535	0.9807
2030	10145	15.3489	0.9761
2031	10150	15.3513	0.9785
2032	10155	15.3506	0.9778
2033	10160	15.3489	0.9761
2034	10165	15.3456	0.9728
2035	10170	15.3441	0.9713
2036	10175	15.3406	0.9678
2037	10180	15.7915	1.4187
2038	10185	15.8255	1.4527
2039	10190	15.3427	0.9699
2040	10195	15.763	1.3902
2041	10200	15.809	1.4362
2042	10205	15.3367	0.9639
2043	10210	15.3361	0.9633
2044	10215	15.331	0.9582
2045	10220	15.3378	0.965
2046	10225	15.3359	0.9631
2047	10230	15.332	0.9592
2048	10235	15.3265	0.9537
2049	10240	15.3268	0.954
2050	10245	15.3245	0.9517
2051	10250	15.3219	0.9491
2052	10255	15.3167	0.9439
2053	10260	15.3169	0.9441
2054	10265	15.313	0.9402
2055	10270	15.3118	0.939
2056	10275	15.309	0.9362
2057	10280	15.3084	0.9356
2058	10285	15.3069	0.9341
2059	10290	15.3059	0.9331
2060	10295	15.307	0.9342
2061	10300	15.3031	0.9303
2062	10305	15.298	0.9252
2063	10310	15.2968	0.924
2064	10315	15.2902	0.9174
2065	10320	15.2897	0.9169
2066	10325	15.2869	0.9141
2067	10330	15.2863	0.9135
2068	10335	15.2807	0.9079
2069	10340	15.2797	0.9069
2070	10345	15.2782	0.9054
2071	10350	15.2752	0.9024
2072	10355	15.2728	0.90
2073	10360	15.2719	0.8991

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	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	15.2683	0.8955
2075	10370	15.266	0.8932
2076	10375	15.264	0.8912
2077	10380	15.2605	0.8877
2078	10385	15.6542	1.2814
2079	10390	15.2599	0.8871
2080	10395	15.2549	0.8821
2081	10400	15.2571	0.8843
2082	10405	15.2551	0.8823
2083	10410	15.2488	0.876
2084	10415	15.2487	0.8759
2085	10420	15.2461	0.8733
2086	10425	15.2466	0.8738
2087	10430	15.243	0.8702
2088	10435	15.2418	0.869
2089	10440	15.2417	0.8689
2090	10445	15.2393	0.8665
2091	10450	15.2389	0.8661
2092	10455	15.2362	0.8634
2093	10460	15.2308	0.858
2094	10465	15.23	0.8572
2095	10470	15.2273	0.8545
2096	10475	15.2272	0.8544
2097	10480	15.2253	0.8525
2098	10485	15.2234	0.8506
2099	10490	15.2239	0.8511
2100	10495	15.2237	0.8509
2101	10500	15.22	0.8472
2102	10505	15.218	0.8452
2103	10510	15.2116	0.8388
2104	10515	15.2135	0.8407
2105	10520	15.2116	0.8388
2106	10525	15.2056	0.8328
2107	10530	15.2103	0.8375
2108	10535	15.2097	0.8369
2109	10540	15.2073	0.8345
2110	10545	15.2061	0.8333
2111	10550	15.6748	1.302
2112	10555	15.6663	1.2935
2113	10560	15.2023	0.8295
2114	10565	15.2051	0.8323
2115	10570	15.2034	0.8306
2116	10575	15.1984	0.8256
2117	10580	15.1984	0.8256
2118	10585	15.2015	0.8287
2119	10590	15.1927	0.8199
2120	10595	15.1927	0.8199
2121	10600	15.1923	0.8195
2122	10605	15.1913	0.8185
2123	10610	15.1903	0.8175
2124	10615	15.1873	0.8145
2125	10620	15.1881	0.8153
2126	10625	15.1868	0.814
2127	10630	15.1861	0.8133
2128	10635	15.1833	0.8105
2129	10640	15.1843	0.8115
2130	10645	15.1845	0.8117
2131	10650	15.1853	0.8125
2132	10655	15.1781	0.8053
2133	10660	15.1809	0.8081
2134	10665	15.179	0.8062
2135	10670	15.1763	0.8035
2136	10675	15.1764	0.8036

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	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	15.1738	0.801
2138	10685	15.1722	0.7994
2139	10690	15.1707	0.7979
2140	10695	15.1711	0.7983
2141	10700	15.1652	0.7924
2142	10705	15.1606	0.7878
2143	10710	15.161	0.7882
2144	10715	15.1587	0.7859
2145	10720	15.158	0.7852
2146	10725	15.155	0.7822
2147	10730	15.1513	0.7785
2148	10735	15.1523	0.7795
2149	10740	15.1499	0.7771
2150	10745	15.1486	0.7758
2151	10750	15.1484	0.7756
2152	10755	15.1472	0.7744
2153	10760	15.1441	0.7713
2154	10765	15.1404	0.7676
2155	10770	15.1426	0.7698
2156	10775	15.1402	0.7674
2157	10780	15.1381	0.7653
2158	10785	15.1347	0.7619
2159	10790	15.1331	0.7603
2160	10795	15.1336	0.7608
2161	10800	15.1314	0.7586
2162	10805	15.1296	0.7568
2163	10810	15.1253	0.7525
2164	10815	15.1256	0.7528
2165	10820	15.1232	0.7504
2166	10825	15.1217	0.7489
2167	10830	15.1211	0.7483
2168	10835	15.1179	0.7451
2169	10840	15.118	0.7452
2170	10845	15.1141	0.7413
2171	10850	15.1124	0.7396
2172	10855	15.1071	0.7343
2173	10860	15.1064	0.7336
2174	10865	15.1078	0.735
2175	10870	15.1054	0.7326
2176	10875	15.1053	0.7325
2177	10880	15.1009	0.7281
2178	10885	15.0981	0.7253
2179	10890	15.0973	0.7245
2180	10895	15.0915	0.7187
2181	10900	15.0902	0.7174
2182	10905	15.0904	0.7176
2183	10910	15.0909	0.7181
2184	10915	15.088	0.7152
2185	10920	15.0893	0.7165
2186	10925	15.0822	0.7094
2187	10930	15.0812	0.7084
2188	10935	15.0802	0.7074
2189	10940	15.0793	0.7065
2190	10945	15.0798	0.707
2191	10950	15.0744	0.7016
2192	10955	15.0717	0.6989
2193	10960	15.0698	0.697
2194	10965	15.0685	0.6957
2195	10970	15.0689	0.6961
2196	10975	15.0677	0.6949
2197	10980	15.0649	0.6921
2198	10985	15.063	0.6902
2199	10990	15.0577	0.6849

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	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	15.0568	0.684
2201	11000	15.0558	0.683
2202	11005	15.0577	0.6849
2203	11010	15.0503	0.6775
2204	11015	15.05	0.6772
2205	11020	15.043	0.6702
2206	11025	15.0443	0.6715
2207	11030	15.0435	0.6707
2208	11035	15.0428	0.67
2209	11040	15.0382	0.6654
2210	11045	15.037	0.6642
2211	11050	15.0375	0.6647
2212	11055	15.0312	0.6584
2213	11060	15.0299	0.6571
2214	11065	15.0275	0.6547
2215	11070	15.0267	0.6539
2216	11075	15.0252	0.6524
2217	11080	15.0235	0.6507
2218	11085	15.0195	0.6467
2219	11090	15.0224	0.6496
2220	11095	15.0201	0.6473
2221	11100	15.0135	0.6407
2222	11105	15.0126	0.6398
2223	11110	15.0131	0.6403
2224	11115	15.0098	0.637
2225	11120	15.5012	1.1284
2226	11125	15.0101	0.6373
2227	11130	15.0092	0.6364
2228	11135	15.0086	0.6358
2229	11140	15.0042	0.6314
2230	11145	15.006	0.6332
2231	11150	15.0026	0.6298
2232	11155	15.0034	0.6306
2233	11160	15.0035	0.6307
2234	11165	14.9985	0.6257
2235	11170	14.997	0.6242
2236	11175	14.9903	0.6175
2237	11180	14.997	0.6242
2238	11185	14.9899	0.6171
2239	11190	14.9901	0.6173
2240	11195	14.9872	0.6144
2241	11200	14.9916	0.6188
2242	11205	14.9853	0.6125
2243	11210	14.9833	0.6105
2244	11215	14.9833	0.6105
2245	11220	14.9788	0.606
2246	11225	14.9804	0.6076
2247	11230	14.9812	0.6084
2248	11235	14.9817	0.6089
2249	11240	14.9782	0.6054
2250	11245	14.9762	0.6034
2251	11250	14.9783	0.6055
2252	11255	14.9752	0.6024
2253	11260	14.9733	0.6005
2254	11265	14.9721	0.5993
2255	11270	14.9734	0.6006
2256	11275	14.9711	0.5983
2257	11280	14.9717	0.5989
2258	11285	14.969	0.5962
2259	11290	14.9691	0.5963
2260	11295	14.9668	0.594
2261	11300	14.9699	0.5971
2262	11305	14.967	0.5942

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	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	14.9682	0.5954
2264	11315	14.9677	0.5949
2265	11320	14.968	0.5952
2266	11325	14.9658	0.593
2267	11330	14.9663	0.5935
2268	11335	14.9651	0.5923
2269	11340	14.9645	0.5917
2270	11345	14.963	0.5902
2271	11350	14.9631	0.5903
2272	11355	14.9687	0.5959
2273	11360	14.9677	0.5949
2274	11365	14.9635	0.5907
2275	11370	14.9663	0.5935
2276	11375	14.9611	0.5883
2277	11380	14.9615	0.5887
2278	11385	14.9654	0.5926
2279	11390	14.9641	0.5913
2280	11395	14.9642	0.5914
2281	11400	14.9625	0.5897
2282	11405	14.9635	0.5907
2283	11410	14.9618	0.589
2284	11415	14.9646	0.5918
2285	11420	14.9616	0.5888
2286	11425	14.9591	0.5863
2287	11430	14.9622	0.5894
2288	11435	14.9655	0.5927
2289	11440	14.9682	0.5954
2290	11445	14.9693	0.5965
2291	11450	14.9692	0.5964
2292	11455	14.9683	0.5955
2293	11460	14.9675	0.5947
2294	11465	14.965	0.5922
2295	11470	14.9613	0.5885
2296	11475	14.9688	0.596
2297	11480	14.9707	0.5979
2298	11485	14.9688	0.596
2299	11490	14.9639	0.5911
2300	11495	14.9645	0.5917
2301	11500	14.9697	0.5969
2302	11505	14.9658	0.593
2303	11510	14.9662	0.5934
2304	11515	14.9652	0.5924
2305	11520	14.9664	0.5936
2306	11525	14.9642	0.5914
2307	11530	14.9664	0.5936
2308	11535	14.9657	0.5929
2309	11540	14.9661	0.5933
2310	11545	14.9657	0.5929
2311	11550	14.9655	0.5927
2312	11555	14.9688	0.596
2313	11560	14.9684	0.5956
2314	11565	14.9709	0.5981
2315	11570	14.9697	0.5969
2316	11575	14.9686	0.5958
2317	11580	14.9684	0.5956
2318	11585	14.9677	0.5949
2319	11590	14.965	0.5922
2320	11595	14.9675	0.5947
2321	11600	14.9712	0.5984
2322	11605	14.9686	0.5958
2323	11610	14.9675	0.5947
2324	11615	14.9634	0.5906
2325	11620	15.4084	1.0356

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	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	15.3733	1.0005
2327	11630	14.9691	0.5963
2328	11635	15.3906	1.0178
2329	11640	15.4682	1.0954
2330	11645	14.97	0.5972
2331	11650	14.9685	0.5957
2332	11655	14.968	0.5952
2333	11660	14.9673	0.5945
2334	11665	14.9671	0.5943
2335	11670	14.9681	0.5953
2336	11675	14.9644	0.5916
2337	11680	14.968	0.5952
2338	11685	14.9665	0.5937
2339	11690	14.9657	0.5929
2340	11695	14.9637	0.5909
2341	11700	14.967	0.5942
2342	11705	14.9614	0.5886
2343	11710	14.9596	0.5868
2344	11715	14.9597	0.5869
2345	11720	14.9564	0.5836
2346	11725	14.9569	0.5841
2347	11730	14.9566	0.5838
2348	11735	14.9552	0.5824
2349	11740	14.9551	0.5823
2350	11745	14.9557	0.5829
2351	11750	14.9531	0.5803
2352	11755	14.9539	0.5811
2353	11760	14.9522	0.5794
2354	11765	14.9512	0.5784
2355	11770	14.9522	0.5794
2356	11775	14.9505	0.5777
2357	11780	14.948	0.5752
2358	11785	14.9464	0.5736
2359	11790	14.9472	0.5744
2360	11795	14.9489	0.5761
2361	11800	14.9461	0.5733
2362	11805	14.9479	0.5751
2363	11810	14.9446	0.5718
2364	11815	14.9459	0.5731
2365	11820	14.9439	0.5711
2366	11825	14.9452	0.5724
2367	11830	14.9426	0.5698
2368	11835	14.9434	0.5706
2369	11840	14.9464	0.5736
2370	11845	14.9449	0.5721
2371	11850	14.942	0.5692
2372	11855	14.9428	0.57
2373	11860	14.9422	0.5694
2374	11865	14.9419	0.5691
2375	11870	14.9404	0.5676
2376	11875	14.9367	0.5639
2377	11880	14.935	0.5622
2378	11885	14.9415	0.5687
2379	11890	14.9391	0.5663
2380	11895	14.9346	0.5618
2381	11900	14.9374	0.5646
2382	11905	14.9364	0.5636
2383	11910	14.9382	0.5654
2384	11915	14.9382	0.5654
2385	11920	14.937	0.5642
2386	11925	14.931	0.5582
2387	11930	14.9356	0.5628
2388	11935	14.9381	0.5653

	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	14.9351	0.5623
2390	11945	14.9372	0.5644
2391	11950	14.9333	0.5605
2392	11955	14.933	0.5602
2393	11960	14.936	0.5632
2394	11965	14.9332	0.5604
2395	11970	14.9347	0.5619
2396	11975	14.9331	0.5603
2397	11980	14.932	0.5592
2398	11985	14.935	0.5622
2399	11990	14.9355	0.5627
2400	11995	14.9334	0.5606
2401	12000	14.9349	0.5621
2402	12005	14.9335	0.5607
2403	12010	14.9305	0.5577
2404	12015	14.9334	0.5606
2405	12020	14.9366	0.5638
2406	12025	14.9342	0.5614
2407	12030	14.936	0.5632
2408	12035	14.9354	0.5626
2409	12040	14.9338	0.561
2410	12045	14.9349	0.5621
2411	12050	14.9324	0.5596
2412	12055	14.9343	0.5615
2413	12060	14.9326	0.5598
2414	12065	14.9305	0.5577
2415	12070	14.9314	0.5586
2416	12075	14.9348	0.562
2417	12080	14.9331	0.5603
2418	12085	14.9336	0.5608
2419	12090	14.9316	0.5588
2420	12095	14.9314	0.5586
2421	12100	14.9341	0.5613
2422	12105	14.9329	0.5601
2423	12110	14.9326	0.5598
2424	12115	14.9327	0.5599
2425	12120	14.9346	0.5618
2426	12125	14.9335	0.5607
2427	12130	14.9327	0.5599
2428	12135	14.9345	0.5617
2429	12140	14.931	0.5582
2430	12145	14.9341	0.5613
2431	12150	14.9323	0.5595
2432	12155	14.9332	0.5604
2433	12160	14.9391	0.5663
2434	12165	14.9315	0.5587
2435	12170	14.9336	0.5608
2436	12175	14.9317	0.5589
2437	12180	14.9336	0.5608
2438	12185	14.9341	0.5613
2439	12190	14.9322	0.5594
2440	12195	14.9359	0.5631
2441	12200	14.9368	0.564
2442	12205	14.9389	0.5661
2443	12210	14.9344	0.5616
2444	12215	14.9381	0.5653
2445	12220	14.9363	0.5635
2446	12225	14.9375	0.5647
2447	12230	14.9355	0.5627
2448	12235	14.9358	0.563
2449	12240	14.9364	0.5636
2450	12245	14.9366	0.5638
2451	12250	14.9351	0.5623

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	14.9345	0.5617
2453	12260	14.9349	0.5621
2454	12265	14.9332	0.5604
2455	12270	14.9351	0.5623
2456	12275	14.9342	0.5614
2457	12280	14.9332	0.5604
2458	12285	14.9358	0.563
2459	12290	14.9325	0.5597
2460	12295	14.9311	0.5583
2461	12300	14.9339	0.5611
2462	12305	14.9336	0.5608
2463	12310	14.9332	0.5604
2464	12315	14.9332	0.5604
2465	12320	14.93	0.5572
2466	12325	14.934	0.5612
2467	12330	14.9296	0.5568
2468	12335	14.9294	0.5566
2469	12340	14.9299	0.5571
2470	12345	14.9297	0.5569
2471	12350	14.9298	0.557
2472	12355	14.9295	0.5567
2473	12360	14.9286	0.5558
2474	12365	14.9314	0.5586
2475	12370	14.924	0.5512
2476	12375	14.9256	0.5528
2477	12380	14.9278	0.555
2478	12385	14.9256	0.5528
2479	12390	14.9266	0.5538
2480	12395	14.9263	0.5535
2481	12400	14.9289	0.5561
2482	12405	14.9259	0.5531
2483	12410	14.9274	0.5546
2484	12415	14.93	0.5572
2485	12420	14.9292	0.5564
2486	12425	14.9261	0.5533
2487	12430	14.9227	0.5499
2488	12435	14.9226	0.5498
2489	12440	14.9263	0.5535
2490	12445	14.9211	0.5483
2491	12450	14.9257	0.5529
2492	12455	14.9247	0.5519
2493	12460	14.9248	0.552
2494	12465	14.9228	0.55
2495	12470	14.9218	0.549
2496	12475	14.9239	0.5511
2497	12480	14.9227	0.5499
2498	12485	14.9193	0.5465
2499	12490	14.919	0.5462
2500	12495	14.9178	0.545
2501	12500	14.9172	0.5444
2502	12505	14.9157	0.5429
2503	12510	14.9145	0.5417
2504	12515	14.917	0.5442
2505	12520	14.9127	0.5399
2506	12525	14.9127	0.5399
2507	12530	14.9081	0.5353
2508	12535	14.9116	0.5388
2509	12540	14.9097	0.5369
2510	12545	14.9082	0.5354
2511	12550	14.9095	0.5367
2512	12555	14.9044	0.5316
2513	12560	14.9069	0.5341
2514	12565	14.9069	0.5341

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	14.9041	0.5313
2516	12575	14.9047	0.5319
2517	12580	14.9012	0.5284
2518	12585	14.8991	0.5263
2519	12590	14.9028	0.53
2520	12595	14.8998	0.527
2521	12600	14.8979	0.5251
2522	12605	14.8968	0.524
2523	12610	14.895	0.5222
2524	12615	14.8964	0.5236
2525	12620	14.8924	0.5196
2526	12625	14.898	0.5252
2527	12630	14.8913	0.5185
2528	12635	14.8933	0.5205
2529	12640	14.8928	0.52
2530	12645	14.8957	0.5229
2531	12650	15.3766	1.0038
2532	12655	14.8958	0.523
2533	12660	14.8921	0.5193
2534	12665	14.8934	0.5206
2535	12670	14.8952	0.5224
2536	12675	14.8934	0.5206
2537	12680	14.8942	0.5214
2538	12685	14.8932	0.5204
2539	12690	14.8925	0.5197
2540	12695	14.8941	0.5213
2541	12700	14.8904	0.5176
2542	12705	14.8893	0.5165
2543	12710	14.8909	0.5181
2544	12715	14.8897	0.5169
2545	12720	14.8901	0.5173
2546	12725	14.8868	0.514
2547	12730	14.8892	0.5164
2548	12735	14.8878	0.515
2549	12740	14.8896	0.5168
2550	12745	14.8894	0.5166
2551	12750	14.8854	0.5126
2552	12755	14.8835	0.5107
2553	12760	14.8859	0.5131
2554	12765	14.8868	0.514
2555	12770	14.8895	0.5167
2556	12775	14.8855	0.5127
2557	12780	14.8892	0.5164
2558	12785	14.892	0.5192
2559	12790	14.887	0.5142
2560	12795	14.888	0.5152
2561	12800	14.889	0.5162
2562	12805	14.8859	0.5131
2563	12810	14.8914	0.5186
2564	12815	14.8893	0.5165
2565	12820	14.8935	0.5207
2566	12825	14.891	0.5182
2567	12830	14.8938	0.521
2568	12835	14.8962	0.5234
2569	12840	14.8951	0.5223

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-OC1	Static Water Level [ft]: 13.68	Radial Distance to PW [ft]: 14465

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	13.678	0.00
2	5	13.678	0.00
3	10	13.678	0.00
4	15	13.678	0.00
5	20	13.678	0.00
6	25	13.688	0.01
7	30	13.688	0.01
8	35	13.678	0.00
9	40	13.688	0.01
10	45	13.855	0.177
11	50	13.688	0.01
12	55	13.688	0.01
13	60	13.688	0.01
14	65	13.786	0.108
15	70	13.688	0.01
16	75	13.688	0.01
17	80	13.688	0.01
18	85	13.688	0.01
19	90	13.688	0.01
20	95	13.875	0.197
21	100	13.688	0.01
22	105	13.688	0.01
23	110	13.688	0.01
24	115	13.806	0.128
25	120	13.688	0.01
26	125	13.688	0.01
27	130	13.688	0.01
28	135	13.806	0.128
29	140	13.688	0.01
30	145	13.688	0.01
31	150	13.688	0.01
32	155	13.845	0.167
33	160	13.875	0.197
34	165	13.688	0.01
35	170	13.678	0.00
36	175	13.806	0.128
37	180	13.786	0.108
38	185	13.678	0.00
39	190	13.678	0.00
40	195	13.678	0.00
41	200	13.678	0.00
42	205	13.678	0.00
43	210	13.737	0.059
44	215	13.678	0.00
45	220	13.678	0.00
46	225	13.678	0.00
47	230	13.678	0.00
48	235	13.678	0.00
49	240	13.816	0.138
50	245	13.678	0.00
51	250	13.678	0.00
52	255	13.678	0.00
53	260	13.668	-0.01
54	265	13.678	0.00
55	270	13.668	-0.01
56	275	13.668	-0.01
57	280	13.668	-0.01

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	13.668	-0.01
59	290	13.668	-0.01
60	295	13.678	0.00
61	300	13.678	0.00
62	305	13.678	0.00
63	310	13.678	0.00
64	315	13.668	-0.01
65	320	13.668	-0.01
66	325	13.668	-0.01
67	330	13.668	-0.01
68	335	13.668	-0.01
69	340	13.668	-0.01
70	345	13.668	-0.01
71	350	13.678	0.00
72	355	13.668	-0.01
73	360	13.678	0.00
74	365	13.668	-0.01
75	370	13.668	-0.01
76	375	13.668	-0.01
77	380	13.668	-0.01
78	385	13.668	-0.01
79	390	13.668	-0.01
80	395	13.816	0.138
81	400	13.668	-0.01
82	405	13.668	-0.01
83	410	13.659	-0.019
84	415	13.659	-0.019
85	420	13.668	-0.01
86	425	13.668	-0.01
87	430	13.659	-0.019
88	435	13.659	-0.019
89	440	13.668	-0.01
90	445	13.668	-0.01
91	450	13.668	-0.01
92	455	13.659	-0.019
93	460	13.659	-0.019
94	465	13.659	-0.019
95	470	13.659	-0.019
96	475	13.668	-0.01
97	480	13.668	-0.01
98	485	13.668	-0.01
99	490	13.668	-0.01
100	495	13.668	-0.01
101	500	13.668	-0.01
102	505	13.668	-0.01
103	510	13.668	-0.01
104	515	13.668	-0.01
105	520	13.668	-0.01
106	525	13.668	-0.01
107	530	13.668	-0.01
108	535	13.668	-0.01
109	540	13.668	-0.01
110	545	13.668	-0.01
111	550	13.668	-0.01
112	555	13.668	-0.01
113	560	13.668	-0.01
114	565	13.668	-0.01
115	570	13.668	-0.01
116	575	13.668	-0.01
117	580	13.668	-0.01
118	585	13.668	-0.01
119	590	13.668	-0.01
120	595	13.668	-0.01

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	13.668	-0.01
122	605	13.668	-0.01
123	610	13.668	-0.01
124	615	13.668	-0.01
125	620	13.668	-0.01
126	625	13.668	-0.01
127	630	13.668	-0.01
128	635	13.668	-0.01
129	640	13.668	-0.01
130	645	13.668	-0.01
131	650	13.668	-0.01
132	655	13.668	-0.01
133	660	13.668	-0.01
134	665	13.668	-0.01
135	670	13.678	0.00
136	675	13.668	-0.01
137	680	13.678	0.00
138	685	13.678	0.00
139	690	13.678	0.00
140	695	13.678	0.00
141	700	13.678	0.00
142	705	13.678	0.00
143	710	13.678	0.00
144	715	13.678	0.00
145	720	13.678	0.00
146	725	13.678	0.00
147	730	13.678	0.00
148	735	13.678	0.00
149	740	13.678	0.00
150	745	13.678	0.00
151	750	13.688	0.01
152	755	13.678	0.00
153	760	13.678	0.00
154	765	13.678	0.00
155	770	13.678	0.00
156	775	13.678	0.00
157	780	13.678	0.00
158	785	13.678	0.00
159	790	13.688	0.01
160	795	13.688	0.01
161	800	13.688	0.01
162	805	13.688	0.01
163	810	13.688	0.01
164	815	13.688	0.01
165	820	13.688	0.01
166	825	13.688	0.01
167	830	13.688	0.01
168	835	13.688	0.01
169	840	13.688	0.01
170	845	13.688	0.01
171	850	13.688	0.01
172	855	13.688	0.01
173	860	13.688	0.01
174	865	13.688	0.01
175	870	13.688	0.01
176	875	13.698	0.02
177	880	13.688	0.01
178	885	13.698	0.02
179	890	13.698	0.02
180	895	13.698	0.02
181	900	13.698	0.02
182	905	13.698	0.02
183	910	13.698	0.02

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	13.698	0.02
185	920	13.698	0.02
186	925	13.698	0.02
187	930	13.698	0.02
188	935	13.698	0.02
189	940	13.698	0.02
190	945	13.698	0.02
191	950	13.698	0.02
192	955	13.698	0.02
193	960	13.698	0.02
194	965	13.698	0.02
195	970	13.698	0.02
196	975	13.698	0.02
197	980	13.698	0.02
198	985	13.698	0.02
199	990	13.698	0.02
200	995	13.698	0.02
201	1000	13.698	0.02
202	1005	13.698	0.02
203	1010	13.698	0.02
204	1015	13.698	0.02
205	1020	13.698	0.02
206	1025	13.698	0.02
207	1030	13.698	0.02
208	1035	13.698	0.02
209	1040	13.698	0.02
210	1045	13.698	0.02
211	1050	13.698	0.02
212	1055	13.698	0.02
213	1060	13.698	0.02
214	1065	13.698	0.02
215	1070	13.708	0.03
216	1075	13.698	0.02
217	1080	13.698	0.02
218	1085	13.708	0.03
219	1090	13.698	0.02
220	1095	13.698	0.02
221	1100	13.698	0.02
222	1105	13.698	0.02
223	1110	13.698	0.02
224	1115	13.698	0.02
225	1120	13.698	0.02
226	1125	13.698	0.02
227	1130	13.708	0.03
228	1135	13.708	0.03
229	1140	13.708	0.03
230	1145	13.708	0.03
231	1150	13.708	0.03
232	1155	13.698	0.02
233	1160	13.698	0.02
234	1165	13.698	0.02
235	1170	13.708	0.03
236	1175	13.698	0.02
237	1180	13.698	0.02
238	1185	13.698	0.02
239	1190	13.698	0.02
240	1195	13.698	0.02
241	1200	13.698	0.02
242	1205	13.698	0.02
243	1210	13.698	0.02
244	1215	13.698	0.02
245	1220	13.698	0.02
246	1225	13.688	0.01

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	13.688	0.01
248	1235	13.688	0.01
249	1240	13.698	0.02
250	1245	13.698	0.02
251	1250	13.688	0.01
252	1255	13.698	0.02
253	1260	13.698	0.02
254	1265	13.698	0.02
255	1270	13.688	0.01
256	1275	13.698	0.02
257	1280	13.698	0.02
258	1285	13.698	0.02
259	1290	13.688	0.01
260	1295	13.688	0.01
261	1300	13.698	0.02
262	1305	13.688	0.01
263	1310	13.688	0.01
264	1315	13.688	0.01
265	1320	13.698	0.02
266	1325	13.698	0.02
267	1330	13.698	0.02
268	1335	13.698	0.02
269	1340	13.698	0.02
270	1345	13.698	0.02
271	1350	13.698	0.02
272	1355	13.698	0.02
273	1360	13.698	0.02
274	1365	13.698	0.02
275	1370	13.698	0.02
276	1375	13.698	0.02
277	1380	13.698	0.02
278	1385	13.688	0.01
279	1390	13.698	0.02
280	1395	13.698	0.02
281	1400	13.698	0.02
282	1405	13.698	0.02
283	1410	13.698	0.02
284	1415	13.698	0.02
285	1420	13.698	0.02
286	1425	13.688	0.01
287	1430	13.688	0.01
288	1435	13.698	0.02
289	1440	13.698	0.02
290	1445	13.688	0.01
291	1450	13.698	0.02
292	1455	13.698	0.02
293	1460	13.698	0.02
294	1465	13.698	0.02
295	1470	13.698	0.02
296	1475	13.698	0.02
297	1480	13.698	0.02
298	1485	13.698	0.02
299	1490	13.698	0.02
300	1495	13.698	0.02
301	1500	13.698	0.02
302	1505	13.698	0.02
303	1510	13.698	0.02
304	1515	13.698	0.02
305	1520	13.698	0.02
306	1525	13.698	0.02
307	1530	13.708	0.03
308	1535	13.708	0.03
309	1540	13.708	0.03

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	13.708	0.03
311	1550	13.708	0.03
312	1555	13.708	0.03
313	1560	13.708	0.03
314	1565	13.708	0.03
315	1570	13.708	0.03
316	1575	13.708	0.03
317	1580	13.708	0.03
318	1585	13.708	0.03
319	1590	13.708	0.03
320	1595	13.717	0.039
321	1600	13.717	0.039
322	1605	13.717	0.039
323	1610	13.708	0.03
324	1615	13.717	0.039
325	1620	13.717	0.039
326	1625	13.717	0.039
327	1630	13.717	0.039
328	1635	13.717	0.039
329	1640	13.717	0.039
330	1645	13.717	0.039
331	1650	13.717	0.039
332	1655	13.717	0.039
333	1660	13.717	0.039
334	1665	13.717	0.039
335	1670	13.717	0.039
336	1675	13.717	0.039
337	1680	13.717	0.039
338	1685	13.717	0.039
339	1690	13.717	0.039
340	1695	13.717	0.039
341	1700	13.717	0.039
342	1705	13.717	0.039
343	1710	13.717	0.039
344	1715	13.717	0.039
345	1720	13.717	0.039
346	1725	13.717	0.039
347	1730	13.717	0.039
348	1735	13.727	0.049
349	1740	13.717	0.039
350	1745	13.727	0.049
351	1750	13.727	0.049
352	1755	13.717	0.039
353	1760	13.727	0.049
354	1765	13.727	0.049
355	1770	13.727	0.049
356	1775	13.717	0.039
357	1780	13.717	0.039
358	1785	13.727	0.049
359	1790	13.727	0.049
360	1795	13.727	0.049
361	1800	13.727	0.049
362	1805	13.727	0.049
363	1810	13.727	0.049
364	1815	13.717	0.039
365	1820	13.727	0.049
366	1825	13.717	0.039
367	1830	13.727	0.049
368	1835	13.727	0.049
369	1840	13.717	0.039
370	1845	13.727	0.049
371	1850	13.727	0.049
372	1855	13.727	0.049

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	13.717	0.039
374	1865	13.727	0.049
375	1870	13.717	0.039
376	1875	13.717	0.039
377	1880	13.717	0.039
378	1885	13.717	0.039
379	1890	13.717	0.039
380	1895	13.727	0.049
381	1900	13.717	0.039
382	1905	13.717	0.039
383	1910	13.727	0.049
384	1915	13.717	0.039
385	1920	13.717	0.039
386	1925	13.717	0.039
387	1930	13.717	0.039
388	1935	13.717	0.039
389	1940	13.717	0.039
390	1945	13.727	0.049
391	1950	13.717	0.039
392	1955	13.717	0.039
393	1960	13.717	0.039
394	1965	13.727	0.049
395	1970	13.727	0.049
396	1975	13.727	0.049
397	1980	13.727	0.049
398	1985	13.717	0.039
399	1990	13.717	0.039
400	1995	13.727	0.049
401	2000	13.717	0.039
402	2005	13.717	0.039
403	2010	13.717	0.039
404	2015	13.727	0.049
405	2020	13.727	0.049
406	2025	13.727	0.049
407	2030	13.717	0.039
408	2035	13.727	0.049
409	2040	13.727	0.049
410	2045	13.717	0.039
411	2050	13.717	0.039
412	2055	13.727	0.049
413	2060	13.717	0.039
414	2065	13.717	0.039
415	2070	13.727	0.049
416	2075	13.727	0.049
417	2080	13.727	0.049
418	2085	13.727	0.049
419	2090	13.727	0.049
420	2095	13.727	0.049
421	2100	13.717	0.039
422	2105	13.727	0.049
423	2110	13.717	0.039
424	2115	13.717	0.039
425	2120	13.727	0.049
426	2125	13.717	0.039
427	2130	13.717	0.039
428	2135	13.717	0.039
429	2140	13.727	0.049
430	2145	13.717	0.039
431	2150	13.717	0.039
432	2155	13.717	0.039
433	2160	13.717	0.039
434	2165	13.717	0.039
435	2170	13.717	0.039

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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	13.717	0.039
437	2180	13.717	0.039
438	2185	13.717	0.039
439	2190	13.717	0.039
440	2195	13.717	0.039
441	2200	13.727	0.049
442	2205	13.727	0.049
443	2210	13.727	0.049
444	2215	13.727	0.049
445	2220	13.727	0.049
446	2225	13.727	0.049
447	2230	13.727	0.049
448	2235	13.727	0.049
449	2240	13.727	0.049
450	2245	13.727	0.049
451	2250	13.727	0.049
452	2255	13.727	0.049
453	2260	13.727	0.049
454	2265	13.727	0.049
455	2270	13.727	0.049
456	2275	13.727	0.049
457	2280	13.727	0.049
458	2285	13.727	0.049
459	2290	13.727	0.049
460	2295	13.727	0.049
461	2300	13.727	0.049
462	2305	13.727	0.049
463	2310	13.727	0.049
464	2315	13.727	0.049
465	2320	13.727	0.049
466	2325	13.727	0.049
467	2330	13.727	0.049
468	2335	13.727	0.049
469	2340	13.727	0.049
470	2345	13.727	0.049
471	2350	13.727	0.049
472	2355	13.737	0.059
473	2360	13.737	0.059
474	2365	13.737	0.059
475	2370	13.737	0.059
476	2375	13.737	0.059
477	2380	13.737	0.059
478	2385	13.737	0.059
479	2390	13.737	0.059
480	2395	13.737	0.059
481	2400	13.737	0.059
482	2405	13.737	0.059
483	2410	13.737	0.059
484	2415	13.737	0.059
485	2420	13.737	0.059
486	2425	13.737	0.059
487	2430	13.737	0.059
488	2435	13.737	0.059
489	2440	13.747	0.069
490	2445	13.747	0.069
491	2450	13.747	0.069
492	2455	13.747	0.069
493	2460	13.747	0.069
494	2465	13.747	0.069
495	2470	13.747	0.069
496	2475	13.747	0.069
497	2480	13.747	0.069
498	2485	13.747	0.069

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	13.747	0.069
500	2495	13.747	0.069
501	2500	13.757	0.079
502	2505	13.747	0.069
503	2510	13.934	0.256
504	2515	13.757	0.079
505	2520	13.747	0.069
506	2525	13.757	0.079
507	2530	13.757	0.079
508	2535	13.757	0.079
509	2540	13.757	0.079
510	2545	13.757	0.079
511	2550	13.757	0.079
512	2555	13.757	0.079
513	2560	13.757	0.079
514	2565	13.757	0.079
515	2570	13.757	0.079
516	2575	13.757	0.079
517	2580	13.757	0.079
518	2585	13.757	0.079
519	2590	13.757	0.079
520	2595	13.757	0.079
521	2600	13.757	0.079
522	2605	13.757	0.079
523	2610	13.757	0.079
524	2615	13.757	0.079
525	2620	13.757	0.079
526	2625	13.757	0.079
527	2630	13.757	0.079
528	2635	13.767	0.089
529	2640	13.757	0.079
530	2645	13.757	0.079
531	2650	13.757	0.079
532	2655	13.757	0.079
533	2660	13.757	0.079
534	2665	13.767	0.089
535	2670	13.767	0.089
536	2675	13.767	0.089
537	2680	13.767	0.089
538	2685	13.767	0.089
539	2690	13.767	0.089
540	2695	13.767	0.089
541	2700	13.767	0.089
542	2705	13.767	0.089
543	2710	13.767	0.089
544	2715	13.777	0.099
545	2720	13.767	0.089
546	2725	13.767	0.089
547	2730	13.767	0.089
548	2735	13.767	0.089
549	2740	13.777	0.099
550	2745	13.767	0.089
551	2750	13.767	0.089
552	2755	13.767	0.089
553	2760	13.767	0.089
554	2765	13.767	0.089
555	2770	13.767	0.089
556	2775	13.777	0.099
557	2780	13.777	0.099
558	2785	13.777	0.099
559	2790	13.777	0.099
560	2795	13.777	0.099
561	2800	13.777	0.099

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	13.777	0.099
563	2810	13.777	0.099
564	2815	13.777	0.099
565	2820	13.777	0.099
566	2825	13.777	0.099
567	2830	13.777	0.099
568	2835	13.777	0.099
569	2840	13.777	0.099
570	2845	13.777	0.099
571	2850	13.777	0.099
572	2855	13.777	0.099
573	2860	13.786	0.108
574	2865	13.786	0.108
575	2870	13.786	0.108
576	2875	13.786	0.108
577	2880	13.786	0.108
578	2885	13.786	0.108
579	2890	13.786	0.108
580	2895	13.786	0.108
581	2900	13.786	0.108
582	2905	13.786	0.108
583	2910	13.796	0.118
584	2915	13.796	0.118
585	2920	13.796	0.118
586	2925	13.786	0.108
587	2930	13.786	0.108
588	2935	13.796	0.118
589	2940	13.796	0.118
590	2945	13.796	0.118
591	2950	13.796	0.118
592	2955	13.796	0.118
593	2960	13.796	0.118
594	2965	13.796	0.118
595	2970	13.806	0.128
596	2975	13.806	0.128
597	2980	13.806	0.128
598	2985	13.806	0.128
599	2990	13.806	0.128
600	2995	13.806	0.128
601	3000	13.806	0.128
602	3005	13.806	0.128
603	3010	13.806	0.128
604	3015	13.806	0.128
605	3020	13.806	0.128
606	3025	13.806	0.128
607	3030	13.806	0.128
608	3035	13.806	0.128
609	3040	13.806	0.128
610	3045	13.806	0.128
611	3050	13.806	0.128
612	3055	13.806	0.128
613	3060	13.806	0.128
614	3065	13.806	0.128
615	3070	13.806	0.128
616	3075	13.806	0.128
617	3080	13.806	0.128
618	3085	13.806	0.128
619	3090	13.806	0.128
620	3095	13.806	0.128
621	3100	13.806	0.128
622	3105	13.806	0.128
623	3110	13.806	0.128
624	3115	13.806	0.128

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	13.816	0.138
626	3125	13.816	0.138
627	3130	13.816	0.138
628	3135	13.816	0.138
629	3140	13.816	0.138
630	3145	13.826	0.148
631	3150	13.826	0.148
632	3155	13.826	0.148
633	3160	13.826	0.148
634	3165	13.826	0.148
635	3170	13.826	0.148
636	3175	13.826	0.148
637	3180	13.826	0.148
638	3185	13.826	0.148
639	3190	13.826	0.148
640	3195	13.826	0.148
641	3200	13.836	0.158
642	3205	13.836	0.158
643	3210	13.836	0.158
644	3215	13.836	0.158
645	3220	13.836	0.158
646	3225	13.836	0.158
647	3230	13.845	0.167
648	3235	13.845	0.167
649	3240	13.845	0.167
650	3245	13.845	0.167
651	3250	13.845	0.167
652	3255	13.845	0.167
653	3260	13.845	0.167
654	3265	13.845	0.167
655	3270	13.845	0.167
656	3275	13.845	0.167
657	3280	13.845	0.167
658	3285	13.845	0.167
659	3290	13.845	0.167
660	3295	13.855	0.177
661	3300	13.845	0.167
662	3305	13.855	0.177
663	3310	13.845	0.167
664	3315	13.845	0.167
665	3320	13.845	0.167
666	3325	13.845	0.167
667	3330	13.845	0.167
668	3335	13.855	0.177
669	3340	13.855	0.177
670	3345	13.855	0.177
671	3350	13.855	0.177
672	3355	13.855	0.177
673	3360	13.855	0.177
674	3365	13.855	0.177
675	3370	13.855	0.177
676	3375	13.855	0.177
677	3380	13.845	0.167
678	3385	13.855	0.177
679	3390	13.855	0.177
680	3395	13.845	0.167
681	3400	13.855	0.177
682	3405	13.855	0.177
683	3410	13.855	0.177
684	3415	13.855	0.177
685	3420	13.865	0.187
686	3425	13.865	0.187
687	3430	13.865	0.187

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	13.865	0.187
689	3440	13.865	0.187
690	3445	13.865	0.187
691	3450	13.865	0.187
692	3455	13.865	0.187
693	3460	13.865	0.187
694	3465	13.865	0.187
695	3470	13.865	0.187
696	3475	13.865	0.187
697	3480	13.865	0.187
698	3485	13.865	0.187
699	3490	13.865	0.187
700	3495	13.865	0.187
701	3500	13.865	0.187
702	3505	13.865	0.187
703	3510	13.865	0.187
704	3515	13.875	0.197
705	3520	13.875	0.197
706	3525	13.875	0.197
707	3530	13.875	0.197
708	3535	13.865	0.187
709	3540	13.875	0.197
710	3545	13.865	0.187
711	3550	13.875	0.197
712	3555	13.875	0.197
713	3560	13.875	0.197
714	3565	13.875	0.197
715	3570	13.875	0.197
716	3575	13.865	0.187
717	3580	13.865	0.187
718	3585	13.865	0.187
719	3590	13.865	0.187
720	3595	13.865	0.187
721	3600	13.865	0.187
722	3605	13.865	0.187
723	3610	13.865	0.187
724	3615	13.865	0.187
725	3620	13.865	0.187
726	3625	13.865	0.187
727	3630	13.865	0.187
728	3635	13.865	0.187
729	3640	13.865	0.187
730	3645	13.865	0.187
731	3650	13.865	0.187
732	3655	13.865	0.187
733	3660	13.865	0.187
734	3665	13.865	0.187
735	3670	13.865	0.187
736	3675	13.865	0.187
737	3680	13.865	0.187
738	3685	13.865	0.187
739	3690	13.865	0.187
740	3695	13.875	0.197
741	3700	13.875	0.197
742	3705	13.875	0.197
743	3710	13.865	0.187
744	3715	13.875	0.197
745	3720	13.875	0.197
746	3725	13.875	0.197
747	3730	13.875	0.197
748	3735	13.875	0.197
749	3740	13.875	0.197
750	3745	13.875	0.197

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	13.875	0.197
752	3755	13.875	0.197
753	3760	13.875	0.197
754	3765	13.875	0.197
755	3770	13.875	0.197
756	3775	13.875	0.197
757	3780	13.875	0.197
758	3785	13.875	0.197
759	3790	13.875	0.197
760	3795	13.875	0.197
761	3800	13.875	0.197
762	3805	13.875	0.197
763	3810	13.875	0.197
764	3815	13.875	0.197
765	3820	13.875	0.197
766	3825	13.875	0.197
767	3830	13.875	0.197
768	3835	13.875	0.197
769	3840	13.875	0.197
770	3845	13.885	0.207
771	3850	13.875	0.197
772	3855	13.885	0.207
773	3860	13.885	0.207
774	3865	13.895	0.217
775	3870	13.895	0.217
776	3875	13.895	0.217
777	3880	13.895	0.217
778	3885	13.895	0.217
779	3890	13.895	0.217
780	3895	13.895	0.217
781	3900	13.895	0.217
782	3905	13.905	0.227
783	3910	13.895	0.217
784	3915	13.895	0.217
785	3920	13.905	0.227
786	3925	14.111	0.433
787	3930	13.905	0.227
788	3935	13.905	0.227
789	3940	13.905	0.227
790	3945	13.905	0.227
791	3950	13.905	0.227
792	3955	13.905	0.227
793	3960	13.895	0.217
794	3965	13.905	0.227
795	3970	13.895	0.217
796	3975	13.905	0.227
797	3980	13.905	0.227
798	3985	13.905	0.227
799	3990	13.905	0.227
800	3995	13.905	0.227
801	4000	13.914	0.236
802	4005	13.914	0.236
803	4010	13.914	0.236
804	4015	13.914	0.236
805	4020	13.914	0.236
806	4025	13.924	0.246
807	4030	13.924	0.246
808	4035	13.934	0.256
809	4040	13.934	0.256
810	4045	13.934	0.256
811	4050	13.934	0.256
812	4055	13.934	0.256
813	4060	13.934	0.256

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	13.934	0.256
815	4070	13.944	0.266
816	4075	13.944	0.266
817	4080	13.944	0.266
818	4085	13.944	0.266
819	4090	13.944	0.266
820	4095	13.944	0.266
821	4100	13.944	0.266
822	4105	13.944	0.266
823	4110	13.944	0.266
824	4115	13.944	0.266
825	4120	13.944	0.266
826	4125	13.944	0.266
827	4130	13.944	0.266
828	4135	13.944	0.266
829	4140	13.944	0.266
830	4145	13.954	0.276
831	4150	13.944	0.266
832	4155	13.944	0.266
833	4160	13.944	0.266
834	4165	13.944	0.266
835	4170	13.954	0.276
836	4175	13.954	0.276
837	4180	13.954	0.276
838	4185	13.954	0.276
839	4190	13.954	0.276
840	4195	13.954	0.276
841	4200	13.954	0.276
842	4205	13.954	0.276
843	4210	13.954	0.276
844	4215	13.954	0.276
845	4220	13.944	0.266
846	4225	13.954	0.276
847	4230	13.954	0.276
848	4235	13.944	0.266
849	4240	13.944	0.266
850	4245	14.121	0.443
851	4250	13.954	0.276
852	4255	13.944	0.266
853	4260	13.954	0.276
854	4265	13.944	0.266
855	4270	13.944	0.266
856	4275	13.954	0.276
857	4280	13.944	0.266
858	4285	13.954	0.276
859	4290	13.954	0.276
860	4295	13.944	0.266
861	4300	13.954	0.276
862	4305	13.954	0.276
863	4310	13.954	0.276
864	4315	13.954	0.276
865	4320	13.944	0.266
866	4325	13.954	0.276
867	4330	13.944	0.266
868	4335	13.944	0.266
869	4340	13.944	0.266
870	4345	13.944	0.266
871	4350	13.944	0.266
872	4355	13.944	0.266
873	4360	13.944	0.266
874	4365	13.954	0.276
875	4370	13.944	0.266
876	4375	13.954	0.276

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	13.954	0.276
878	4385	13.954	0.276
879	4390	13.954	0.276
880	4395	13.964	0.286
881	4400	13.964	0.286
882	4405	13.964	0.286
883	4410	13.964	0.286
884	4415	13.964	0.286
885	4420	13.964	0.286
886	4425	13.964	0.286
887	4430	13.964	0.286
888	4435	13.964	0.286
889	4440	13.964	0.286
890	4445	13.974	0.296
891	4450	13.964	0.286
892	4455	13.964	0.286
893	4460	13.964	0.286
894	4465	13.964	0.286
895	4470	13.974	0.296
896	4475	13.974	0.296
897	4480	13.974	0.296
898	4485	13.974	0.296
899	4490	13.974	0.296
900	4495	13.974	0.296
901	4500	13.974	0.296
902	4505	13.974	0.296
903	4510	13.974	0.296
904	4515	13.974	0.296
905	4520	13.974	0.296
906	4525	13.974	0.296
907	4530	13.974	0.296
908	4535	13.974	0.296
909	4540	13.974	0.296
910	4545	13.974	0.296
911	4550	13.974	0.296
912	4555	13.974	0.296
913	4560	13.974	0.296
914	4565	13.974	0.296
915	4570	13.974	0.296
916	4575	13.974	0.296
917	4580	13.974	0.296
918	4585	13.974	0.296
919	4590	13.983	0.305
920	4595	13.983	0.305
921	4600	13.983	0.305
922	4605	13.983	0.305
923	4610	13.983	0.305
924	4615	13.983	0.305
925	4620	13.983	0.305
926	4625	13.983	0.305
927	4630	13.983	0.305
928	4635	13.983	0.305
929	4640	13.983	0.305
930	4645	13.983	0.305
931	4650	13.983	0.305
932	4655	13.983	0.305
933	4660	13.993	0.315
934	4665	13.993	0.315
935	4670	13.993	0.315
936	4675	13.993	0.315
937	4680	13.993	0.315
938	4685	13.993	0.315
939	4690	13.993	0.315

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Page 16 of 41
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	13.993	0.315
941	4700	13.993	0.315
942	4705	13.993	0.315
943	4710	13.993	0.315
944	4715	13.993	0.315
945	4720	13.993	0.315
946	4725	13.993	0.315
947	4730	13.993	0.315
948	4735	13.993	0.315
949	4740	13.993	0.315
950	4745	13.993	0.315
951	4750	13.993	0.315
952	4755	13.993	0.315
953	4760	13.993	0.315
954	4765	14.003	0.325
955	4770	13.993	0.315
956	4775	14.003	0.325
957	4780	14.003	0.325
958	4785	14.003	0.325
959	4790	14.003	0.325
960	4795	14.003	0.325
961	4800	14.003	0.325
962	4805	14.003	0.325
963	4810	14.003	0.325
964	4815	14.003	0.325
965	4820	14.003	0.325
966	4825	14.003	0.325
967	4830	14.003	0.325
968	4835	14.003	0.325
969	4840	14.003	0.325
970	4845	14.003	0.325
971	4850	14.003	0.325
972	4855	14.003	0.325
973	4860	14.003	0.325
974	4865	14.003	0.325
975	4870	14.003	0.325
976	4875	14.003	0.325
977	4880	14.003	0.325
978	4885	14.003	0.325
979	4890	14.003	0.325
980	4895	14.003	0.325
981	4900	14.003	0.325
982	4905	14.003	0.325
983	4910	14.003	0.325
984	4915	14.003	0.325
985	4920	14.003	0.325
986	4925	14.003	0.325
987	4930	14.003	0.325
988	4935	14.003	0.325
989	4940	14.003	0.325
990	4945	14.003	0.325
991	4950	14.003	0.325
992	4955	14.003	0.325
993	4960	14.003	0.325
994	4965	14.013	0.335
995	4970	14.003	0.325
996	4975	14.003	0.325
997	4980	14.003	0.325
998	4985	14.013	0.335
999	4990	14.013	0.335
1000	4995	14.003	0.325
1001	5000	14.003	0.325
1002	5005	14.003	0.325

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	14.003	0.325
1004	5015	14.003	0.325
1005	5020	14.003	0.325
1006	5025	14.003	0.325
1007	5030	14.003	0.325
1008	5035	14.003	0.325
1009	5040	14.003	0.325
1010	5045	14.003	0.325
1011	5050	14.003	0.325
1012	5055	14.003	0.325
1013	5060	14.003	0.325
1014	5065	14.013	0.335
1015	5070	14.013	0.335
1016	5075	14.013	0.335
1017	5080	14.013	0.335
1018	5085	14.013	0.335
1019	5090	14.013	0.335
1020	5095	14.013	0.335
1021	5100	14.013	0.335
1022	5105	14.013	0.335
1023	5110	14.013	0.335
1024	5115	14.013	0.335
1025	5120	14.013	0.335
1026	5125	14.013	0.335
1027	5130	14.013	0.335
1028	5135	14.013	0.335
1029	5140	14.013	0.335
1030	5145	14.013	0.335
1031	5150	14.013	0.335
1032	5155	14.013	0.335
1033	5160	14.013	0.335
1034	5165	14.013	0.335
1035	5170	14.013	0.335
1036	5175	14.013	0.335
1037	5180	14.013	0.335
1038	5185	14.013	0.335
1039	5190	14.013	0.335
1040	5195	14.013	0.335
1041	5200	14.013	0.335
1042	5205	14.013	0.335
1043	5210	14.013	0.335
1044	5215	14.013	0.335
1045	5220	14.013	0.335
1046	5225	14.023	0.345
1047	5230	14.023	0.345
1048	5235	14.023	0.345
1049	5240	14.023	0.345
1050	5245	14.023	0.345
1051	5250	14.023	0.345
1052	5255	14.023	0.345
1053	5260	14.023	0.345
1054	5265	14.023	0.345
1055	5270	14.023	0.345
1056	5275	14.023	0.345
1057	5280	14.042	0.364
1058	5285	14.023	0.345
1059	5290	14.023	0.345
1060	5295	14.023	0.345
1061	5300	14.023	0.345
1062	5305	14.023	0.345
1063	5310	14.032	0.354
1064	5315	14.032	0.354
1065	5320	14.023	0.345

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	14.023	0.345
1067	5330	14.032	0.354
1068	5335	14.023	0.345
1069	5340	14.032	0.354
1070	5345	14.032	0.354
1071	5350	14.032	0.354
1072	5355	14.023	0.345
1073	5360	14.032	0.354
1074	5365	14.032	0.354
1075	5370	14.032	0.354
1076	5375	14.032	0.354
1077	5380	14.032	0.354
1078	5385	14.032	0.354
1079	5390	14.032	0.354
1080	5395	14.032	0.354
1081	5400	14.032	0.354
1082	5405	14.032	0.354
1083	5410	14.032	0.354
1084	5415	14.032	0.354
1085	5420	14.042	0.364
1086	5425	14.042	0.364
1087	5430	14.032	0.354
1088	5435	14.042	0.364
1089	5440	14.042	0.364
1090	5445	14.042	0.364
1091	5450	14.042	0.364
1092	5455	14.042	0.364
1093	5460	14.042	0.364
1094	5465	14.042	0.364
1095	5470	14.052	0.374
1096	5475	14.052	0.374
1097	5480	14.052	0.374
1098	5485	14.052	0.374
1099	5490	14.052	0.374
1100	5495	14.052	0.374
1101	5500	14.062	0.384
1102	5505	14.062	0.384
1103	5510	14.062	0.384
1104	5515	14.052	0.374
1105	5520	14.062	0.384
1106	5525	14.062	0.384
1107	5530	14.062	0.384
1108	5535	14.062	0.384
1109	5540	14.062	0.384
1110	5545	14.062	0.384
1111	5550	14.062	0.384
1112	5555	14.072	0.394
1113	5560	14.072	0.394
1114	5565	14.072	0.394
1115	5570	14.072	0.394
1116	5575	14.082	0.404
1117	5580	14.082	0.404
1118	5585	14.082	0.404
1119	5590	14.082	0.404
1120	5595	14.082	0.404
1121	5600	14.092	0.414
1122	5605	14.082	0.404
1123	5610	14.082	0.404
1124	5615	14.082	0.404
1125	5620	14.092	0.414
1126	5625	14.082	0.404
1127	5630	14.092	0.414
1128	5635	14.092	0.414

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	14.092	0.414
1130	5645	14.092	0.414
1131	5650	14.092	0.414
1132	5655	14.092	0.414
1133	5660	14.092	0.414
1134	5665	14.092	0.414
1135	5670	14.092	0.414
1136	5675	14.092	0.414
1137	5680	14.092	0.414
1138	5685	14.092	0.414
1139	5690	14.092	0.414
1140	5695	14.092	0.414
1141	5700	14.092	0.414
1142	5705	14.101	0.423
1143	5710	14.101	0.423
1144	5715	14.101	0.423
1145	5720	14.101	0.423
1146	5725	14.101	0.423
1147	5730	14.101	0.423
1148	5735	14.101	0.423
1149	5740	14.101	0.423
1150	5745	14.101	0.423
1151	5750	14.101	0.423
1152	5755	14.111	0.433
1153	5760	14.101	0.423
1154	5765	14.101	0.423
1155	5770	14.111	0.433
1156	5775	14.101	0.423
1157	5780	14.101	0.423
1158	5785	14.111	0.433
1159	5790	14.111	0.433
1160	5795	14.111	0.433
1161	5800	14.111	0.433
1162	5805	14.111	0.433
1163	5810	14.111	0.433
1164	5815	14.111	0.433
1165	5820	14.121	0.443
1166	5825	14.121	0.443
1167	5830	14.121	0.443
1168	5835	14.111	0.433
1169	5840	14.121	0.443
1170	5845	14.121	0.443
1171	5850	14.121	0.443
1172	5855	14.121	0.443
1173	5860	14.121	0.443
1174	5865	14.121	0.443
1175	5870	14.121	0.443
1176	5875	14.131	0.453
1177	5880	14.131	0.453
1178	5885	14.121	0.443
1179	5890	14.131	0.453
1180	5895	14.131	0.453
1181	5900	14.131	0.453
1182	5905	14.131	0.453
1183	5910	14.131	0.453
1184	5915	14.141	0.463
1185	5920	14.141	0.463
1186	5925	14.141	0.463
1187	5930	14.141	0.463
1188	5935	14.141	0.463
1189	5940	14.141	0.463
1190	5945	14.131	0.453
1191	5950	14.131	0.453

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	14.141	0.463
1193	5960	14.141	0.463
1194	5965	14.141	0.463
1195	5970	14.141	0.463
1196	5975	14.141	0.463
1197	5980	14.141	0.463
1198	5985	14.141	0.463
1199	5990	14.141	0.463
1200	5995	14.141	0.463
1201	6000	14.141	0.463
1202	6005	14.141	0.463
1203	6010	14.151	0.473
1204	6015	14.151	0.473
1205	6020	14.141	0.463
1206	6025	14.151	0.473
1207	6030	14.151	0.473
1208	6035	14.151	0.473
1209	6040	14.151	0.473
1210	6045	14.151	0.473
1211	6050	14.161	0.483
1212	6055	14.151	0.473
1213	6060	14.151	0.473
1214	6065	14.151	0.473
1215	6070	14.151	0.473
1216	6075	14.151	0.473
1217	6080	14.151	0.473
1218	6085	14.151	0.473
1219	6090	14.151	0.473
1220	6095	14.161	0.483
1221	6100	14.161	0.483
1222	6105	14.161	0.483
1223	6110	14.161	0.483
1224	6115	14.161	0.483
1225	6120	14.161	0.483
1226	6125	14.161	0.483
1227	6130	14.161	0.483
1228	6135	14.161	0.483
1229	6140	14.17	0.492
1230	6145	14.17	0.492
1231	6150	14.17	0.492
1232	6155	14.17	0.492
1233	6160	14.17	0.492
1234	6165	14.17	0.492
1235	6170	14.17	0.492
1236	6175	14.18	0.502
1237	6180	14.18	0.502
1238	6185	14.18	0.502
1239	6190	14.18	0.502
1240	6195	14.18	0.502
1241	6200	14.18	0.502
1242	6205	14.18	0.502
1243	6210	14.18	0.502
1244	6215	14.18	0.502
1245	6220	14.19	0.512
1246	6225	14.19	0.512
1247	6230	14.19	0.512
1248	6235	14.19	0.512
1249	6240	14.19	0.512
1250	6245	14.20	0.522
1251	6250	14.19	0.512
1252	6255	14.20	0.522
1253	6260	14.20	0.522
1254	6265	14.20	0.522

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	14.20	0.522
1256	6275	14.20	0.522
1257	6280	14.20	0.522
1258	6285	14.20	0.522
1259	6290	14.21	0.532
1260	6295	14.21	0.532
1261	6300	14.21	0.532
1262	6305	14.21	0.532
1263	6310	14.21	0.532
1264	6315	14.21	0.532
1265	6320	14.21	0.532
1266	6325	14.21	0.532
1267	6330	14.21	0.532
1268	6335	14.21	0.532
1269	6340	14.219	0.541
1270	6345	14.219	0.541
1271	6350	14.219	0.541
1272	6355	14.219	0.541
1273	6360	14.219	0.541
1274	6365	14.219	0.541
1275	6370	14.219	0.541
1276	6375	14.219	0.541
1277	6380	14.219	0.541
1278	6385	14.219	0.541
1279	6390	14.219	0.541
1280	6395	14.219	0.541
1281	6400	14.219	0.541
1282	6405	14.219	0.541
1283	6410	14.219	0.541
1284	6415	14.219	0.541
1285	6420	14.229	0.551
1286	6425	14.229	0.551
1287	6430	14.229	0.551
1288	6435	14.229	0.551
1289	6440	14.229	0.551
1290	6445	14.229	0.551
1291	6450	14.229	0.551
1292	6455	14.229	0.551
1293	6460	14.229	0.551
1294	6465	14.229	0.551
1295	6470	14.229	0.551
1296	6475	14.229	0.551
1297	6480	14.229	0.551
1298	6485	14.229	0.551
1299	6490	14.229	0.551
1300	6495	14.229	0.551
1301	6500	14.229	0.551
1302	6505	14.229	0.551
1303	6510	14.229	0.551
1304	6515	14.229	0.551
1305	6520	14.229	0.551
1306	6525	14.229	0.551
1307	6530	14.229	0.551
1308	6535	14.229	0.551
1309	6540	14.229	0.551
1310	6545	14.229	0.551
1311	6550	14.229	0.551
1312	6555	14.229	0.551
1313	6560	14.229	0.551
1314	6565	14.239	0.561
1315	6570	14.239	0.561
1316	6575	14.239	0.561
1317	6580	14.239	0.561

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	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	14.239	0.561
1319	6590	14.239	0.561
1320	6595	14.239	0.561
1321	6600	14.239	0.561
1322	6605	14.239	0.561
1323	6610	14.239	0.561
1324	6615	14.239	0.561
1325	6620	14.239	0.561
1326	6625	14.239	0.561
1327	6630	14.239	0.561
1328	6635	14.239	0.561
1329	6640	14.239	0.561
1330	6645	14.239	0.561
1331	6650	14.239	0.561
1332	6655	14.239	0.561
1333	6660	14.239	0.561
1334	6665	14.239	0.561
1335	6670	14.239	0.561
1336	6675	14.239	0.561
1337	6680	14.239	0.561
1338	6685	14.239	0.561
1339	6690	14.239	0.561
1340	6695	14.249	0.571
1341	6700	14.249	0.571
1342	6705	14.249	0.571
1343	6710	14.249	0.571
1344	6715	14.249	0.571
1345	6720	14.249	0.571
1346	6725	14.249	0.571
1347	6730	14.249	0.571
1348	6735	14.249	0.571
1349	6740	14.249	0.571
1350	6745	14.249	0.571
1351	6750	14.249	0.571
1352	6755	14.249	0.571
1353	6760	14.249	0.571
1354	6765	14.249	0.571
1355	6770	14.249	0.571
1356	6775	14.259	0.581
1357	6780	14.259	0.581
1358	6785	14.259	0.581
1359	6790	14.259	0.581
1360	6795	14.259	0.581
1361	6800	14.259	0.581
1362	6805	14.259	0.581
1363	6810	14.259	0.581
1364	6815	14.259	0.581
1365	6820	14.269	0.591
1366	6825	14.269	0.591
1367	6830	14.269	0.591
1368	6835	14.269	0.591
1369	6840	14.269	0.591
1370	6845	14.279	0.601
1371	6850	14.279	0.601
1372	6855	14.279	0.601
1373	6860	14.288	0.61
1374	6865	14.288	0.61
1375	6870	14.288	0.61
1376	6875	14.288	0.61
1377	6880	14.288	0.61
1378	6885	14.298	0.62
1379	6890	14.288	0.61
1380	6895	14.288	0.61

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	14.288	0.61
1382	6905	14.298	0.62
1383	6910	14.288	0.61
1384	6915	14.288	0.61
1385	6920	14.298	0.62
1386	6925	14.298	0.62
1387	6930	14.308	0.63
1388	6935	14.308	0.63
1389	6940	14.308	0.63
1390	6945	14.308	0.63
1391	6950	14.318	0.64
1392	6955	14.318	0.64
1393	6960	14.318	0.64
1394	6965	14.318	0.64
1395	6970	14.328	0.65
1396	6975	14.318	0.64
1397	6980	14.328	0.65
1398	6985	14.328	0.65
1399	6990	14.328	0.65
1400	6995	14.338	0.66
1401	7000	14.338	0.66
1402	7005	14.338	0.66
1403	7010	14.348	0.67
1404	7015	14.348	0.67
1405	7020	14.348	0.67
1406	7025	14.348	0.67
1407	7030	14.348	0.67
1408	7035	14.348	0.67
1409	7040	14.348	0.67
1410	7045	14.357	0.679
1411	7050	14.357	0.679
1412	7055	14.357	0.679
1413	7060	14.357	0.679
1414	7065	14.357	0.679
1415	7070	14.357	0.679
1416	7075	14.367	0.689
1417	7080	14.367	0.689
1418	7085	14.367	0.689
1419	7090	14.377	0.699
1420	7095	14.475	0.797
1421	7100	14.377	0.699
1422	7105	14.377	0.699
1423	7110	14.377	0.699
1424	7115	14.377	0.699
1425	7120	14.377	0.699
1426	7125	14.377	0.699
1427	7130	14.387	0.709
1428	7135	14.387	0.709
1429	7140	14.387	0.709
1430	7145	14.387	0.709
1431	7150	14.397	0.719
1432	7155	14.397	0.719
1433	7160	14.397	0.719
1434	7165	14.397	0.719
1435	7170	14.397	0.719
1436	7175	14.397	0.719
1437	7180	14.397	0.719
1438	7185	14.406	0.728
1439	7190	14.406	0.728
1440	7195	14.406	0.728
1441	7200	14.406	0.728
1442	7205	14.406	0.728
1443	7210	14.406	0.728

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	14.406	0.728
1445	7220	14.416	0.738
1446	7225	14.416	0.738
1447	7230	14.416	0.738
1448	7235	14.416	0.738
1449	7240	14.416	0.738
1450	7245	14.416	0.738
1451	7250	14.416	0.738
1452	7255	14.416	0.738
1453	7260	14.416	0.738
1454	7265	14.416	0.738
1455	7270	14.426	0.748
1456	7275	14.426	0.748
1457	7280	14.426	0.748
1458	7285	14.426	0.748
1459	7290	14.426	0.748
1460	7295	14.436	0.758
1461	7300	14.436	0.758
1462	7305	14.436	0.758
1463	7310	14.436	0.758
1464	7315	14.436	0.758
1465	7320	14.436	0.758
1466	7325	14.436	0.758
1467	7330	14.446	0.768
1468	7335	14.446	0.768
1469	7340	14.446	0.768
1470	7345	14.446	0.768
1471	7350	14.446	0.768
1472	7355	14.446	0.768
1473	7360	14.446	0.768
1474	7365	14.446	0.768
1475	7370	14.446	0.768
1476	7375	14.456	0.778
1477	7380	14.446	0.768
1478	7385	14.456	0.778
1479	7390	14.456	0.778
1480	7395	14.456	0.778
1481	7400	14.456	0.778
1482	7405	14.456	0.778
1483	7410	14.456	0.778
1484	7415	14.456	0.778
1485	7420	14.456	0.778
1486	7425	14.456	0.778
1487	7430	14.466	0.788
1488	7435	14.466	0.788
1489	7440	14.466	0.788
1490	7445	14.466	0.788
1491	7450	14.466	0.788
1492	7455	14.466	0.788
1493	7460	14.475	0.797
1494	7465	14.466	0.788
1495	7470	14.475	0.797
1496	7475	14.475	0.797
1497	7480	14.475	0.797
1498	7485	14.475	0.797
1499	7490	14.475	0.797
1500	7495	14.475	0.797
1501	7500	14.475	0.797
1502	7505	14.475	0.797
1503	7510	14.475	0.797
1504	7515	14.485	0.807
1505	7520	14.485	0.807
1506	7525	14.485	0.807

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	14.485	0.807
1508	7535	14.495	0.817
1509	7540	14.495	0.817
1510	7545	14.495	0.817
1511	7550	14.495	0.817
1512	7555	14.495	0.817
1513	7560	14.495	0.817
1514	7565	14.495	0.817
1515	7570	14.495	0.817
1516	7575	14.495	0.817
1517	7580	14.495	0.817
1518	7585	14.505	0.827
1519	7590	14.505	0.827
1520	7595	14.505	0.827
1521	7600	14.505	0.827
1522	7605	14.505	0.827
1523	7610	14.515	0.837
1524	7615	14.515	0.837
1525	7620	14.515	0.837
1526	7625	14.525	0.847
1527	7630	14.525	0.847
1528	7635	14.525	0.847
1529	7640	14.525	0.847
1530	7645	14.525	0.847
1531	7650	14.525	0.847
1532	7655	14.525	0.847
1533	7660	14.525	0.847
1534	7665	14.525	0.847
1535	7670	14.535	0.857
1536	7675	14.584	0.906
1537	7680	14.535	0.857
1538	7685	14.535	0.857
1539	7690	14.535	0.857
1540	7695	14.535	0.857
1541	7700	14.535	0.857
1542	7705	14.535	0.857
1543	7710	14.544	0.866
1544	7715	14.544	0.866
1545	7720	14.544	0.866
1546	7725	14.544	0.866
1547	7730	14.544	0.866
1548	7735	14.554	0.876
1549	7740	14.554	0.876
1550	7745	14.554	0.876
1551	7750	14.554	0.876
1552	7755	14.554	0.876
1553	7760	14.564	0.886
1554	7765	14.564	0.886
1555	7770	14.564	0.886
1556	7775	14.564	0.886
1557	7780	14.564	0.886
1558	7785	14.564	0.886
1559	7790	14.564	0.886
1560	7795	14.574	0.896
1561	7800	14.574	0.896
1562	7805	14.574	0.896
1563	7810	14.574	0.896
1564	7815	14.574	0.896
1565	7820	14.574	0.896
1566	7825	14.584	0.906
1567	7830	14.584	0.906
1568	7835	14.584	0.906
1569	7840	14.584	0.906

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	14.584	0.906
1571	7850	14.584	0.906
1572	7855	14.584	0.906
1573	7860	14.584	0.906
1574	7865	14.584	0.906
1575	7870	14.584	0.906
1576	7875	14.584	0.906
1577	7880	14.584	0.906
1578	7885	14.584	0.906
1579	7890	14.584	0.906
1580	7895	14.593	0.915
1581	7900	14.593	0.915
1582	7905	14.593	0.915
1583	7910	14.593	0.915
1584	7915	14.593	0.915
1585	7920	14.593	0.915
1586	7925	14.593	0.915
1587	7930	14.593	0.915
1588	7935	14.593	0.915
1589	7940	14.593	0.915
1590	7945	14.593	0.915
1591	7950	14.593	0.915
1592	7955	14.593	0.915
1593	7960	14.593	0.915
1594	7965	14.593	0.915
1595	7970	14.593	0.915
1596	7975	14.593	0.915
1597	7980	14.593	0.915
1598	7985	14.593	0.915
1599	7990	14.593	0.915
1600	7995	14.593	0.915
1601	8000	14.593	0.915
1602	8005	14.593	0.915
1603	8010	14.593	0.915
1604	8015	14.593	0.915
1605	8020	14.593	0.915
1606	8025	14.593	0.915
1607	8030	14.593	0.915
1608	8035	14.593	0.915
1609	8040	14.593	0.915
1610	8045	14.593	0.915
1611	8050	14.593	0.915
1612	8055	14.593	0.915
1613	8060	14.593	0.915
1614	8065	14.593	0.915
1615	8070	14.593	0.915
1616	8075	14.584	0.906
1617	8080	14.584	0.906
1618	8085	14.593	0.915
1619	8090	14.603	0.925
1620	8095	14.593	0.915
1621	8100	14.593	0.915
1622	8105	14.593	0.915
1623	8110	14.593	0.915
1624	8115	14.593	0.915
1625	8120	14.593	0.915
1626	8125	14.603	0.925
1627	8130	14.603	0.925
1628	8135	14.593	0.915
1629	8140	14.593	0.915
1630	8145	14.584	0.906
1631	8150	14.584	0.906
1632	8155	14.584	0.906

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	14.584	0.906
1634	8165	14.574	0.896
1635	8170	14.584	0.906
1636	8175	14.593	0.915
1637	8180	14.584	0.906
1638	8185	14.593	0.915
1639	8190	14.593	0.915
1640	8195	14.584	0.906
1641	8200	14.584	0.906
1642	8205	14.574	0.896
1643	8210	14.574	0.896
1644	8215	14.574	0.896
1645	8220	14.574	0.896
1646	8225	14.564	0.886
1647	8230	14.564	0.886
1648	8235	14.564	0.886
1649	8240	14.564	0.886
1650	8245	14.564	0.886
1651	8250	14.564	0.886
1652	8255	14.574	0.896
1653	8260	14.564	0.886
1654	8265	14.574	0.896
1655	8270	14.584	0.906
1656	8275	14.574	0.896
1657	8280	14.574	0.896
1658	8285	14.584	0.906
1659	8290	14.751	1.073
1660	8295	14.584	0.906
1661	8300	14.584	0.906
1662	8305	14.593	0.915
1663	8310	14.584	0.906
1664	8315	14.574	0.896
1665	8320	14.574	0.896
1666	8325	14.564	0.886
1667	8330	14.574	0.896
1668	8335	14.574	0.896
1669	8340	14.574	0.896
1670	8345	14.584	0.906
1671	8350	14.584	0.906
1672	8355	14.593	0.915
1673	8360	14.593	0.915
1674	8365	14.593	0.915
1675	8370	14.584	0.906
1676	8375	14.574	0.896
1677	8380	14.584	0.906
1678	8385	14.584	0.906
1679	8390	14.574	0.896
1680	8395	14.584	0.906
1681	8400	14.593	0.915
1682	8405	14.574	0.896
1683	8410	14.574	0.896
1684	8415	14.584	0.906
1685	8420	14.584	0.906
1686	8425	14.593	0.915
1687	8430	14.593	0.915
1688	8435	14.593	0.915
1689	8440	14.584	0.906
1690	8445	14.584	0.906
1691	8450	14.584	0.906
1692	8455	14.593	0.915
1693	8460	14.603	0.925
1694	8465	14.593	0.915
1695	8470	14.603	0.925

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	14.593	0.915
1697	8480	14.593	0.915
1698	8485	14.593	0.915
1699	8490	14.603	0.925
1700	8495	14.603	0.925
1701	8500	14.603	0.925
1702	8505	14.603	0.925
1703	8510	14.603	0.925
1704	8515	14.603	0.925
1705	8520	14.603	0.925
1706	8525	14.603	0.925
1707	8530	14.603	0.925
1708	8535	14.603	0.925
1709	8540	14.603	0.925
1710	8545	14.603	0.925
1711	8550	14.603	0.925
1712	8555	14.603	0.925
1713	8560	14.603	0.925
1714	8565	14.603	0.925
1715	8570	14.603	0.925
1716	8575	14.603	0.925
1717	8580	14.603	0.925
1718	8585	14.603	0.925
1719	8590	14.603	0.925
1720	8595	14.603	0.925
1721	8600	14.603	0.925
1722	8605	14.603	0.925
1723	8610	14.603	0.925
1724	8615	14.603	0.925
1725	8620	14.603	0.925
1726	8625	14.603	0.925
1727	8630	14.603	0.925
1728	8635	14.603	0.925
1729	8640	14.603	0.925
1730	8645	14.603	0.925
1731	8650	14.603	0.925
1732	8655	14.603	0.925
1733	8660	14.603	0.925
1734	8665	14.603	0.925
1735	8670	14.603	0.925
1736	8675	14.603	0.925
1737	8680	14.603	0.925
1738	8685	14.603	0.925
1739	8690	14.603	0.925
1740	8695	14.603	0.925
1741	8700	14.603	0.925
1742	8705	14.603	0.925
1743	8710	14.603	0.925
1744	8715	14.603	0.925
1745	8720	14.603	0.925
1746	8725	14.603	0.925
1747	8730	14.603	0.925
1748	8735	14.603	0.925
1749	8740	14.603	0.925
1750	8745	14.603	0.925
1751	8750	14.603	0.925
1752	8755	14.603	0.925
1753	8760	14.603	0.925
1754	8765	14.603	0.925
1755	8770	14.603	0.925
1756	8775	14.603	0.925
1757	8780	14.603	0.925
1758	8785	14.603	0.925

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	Page 29 of 41
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	14.603	0.925
1760	8795	14.603	0.925
1761	8800	14.603	0.925
1762	8805	14.603	0.925
1763	8810	14.603	0.925
1764	8815	14.603	0.925
1765	8820	14.603	0.925
1766	8825	14.603	0.925
1767	8830	14.603	0.925
1768	8835	14.603	0.925
1769	8840	14.603	0.925
1770	8845	14.603	0.925
1771	8850	14.603	0.925
1772	8855	14.613	0.935
1773	8860	14.613	0.935
1774	8865	14.613	0.935
1775	8870	14.613	0.935
1776	8875	14.613	0.935
1777	8880	14.613	0.935
1778	8885	14.613	0.935
1779	8890	14.603	0.925
1780	8895	14.613	0.935
1781	8900	14.613	0.935
1782	8905	14.603	0.925
1783	8910	14.613	0.935
1784	8915	14.613	0.935
1785	8920	14.613	0.935
1786	8925	14.613	0.935
1787	8930	14.613	0.935
1788	8935	14.613	0.935
1789	8940	14.613	0.935
1790	8945	14.613	0.935
1791	8950	14.613	0.935
1792	8955	14.613	0.935
1793	8960	14.613	0.935
1794	8965	14.613	0.935
1795	8970	14.613	0.935
1796	8975	14.613	0.935
1797	8980	14.613	0.935
1798	8985	14.613	0.935
1799	8990	14.613	0.935
1800	8995	14.613	0.935
1801	9000	14.613	0.935
1802	9005	14.613	0.935
1803	9010	14.613	0.935
1804	9015	14.613	0.935
1805	9020	14.613	0.935
1806	9025	14.613	0.935
1807	9030	14.613	0.935
1808	9035	14.613	0.935
1809	9040	14.613	0.935
1810	9045	14.613	0.935
1811	9050	14.613	0.935
1812	9055	14.613	0.935
1813	9060	14.613	0.935
1814	9065	14.613	0.935
1815	9070	14.613	0.935
1816	9075	14.613	0.935
1817	9080	14.613	0.935
1818	9085	14.603	0.925
1819	9090	14.603	0.925
1820	9095	14.603	0.925
1821	9100	14.603	0.925

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	14.603	0.925
1823	9110	14.603	0.925
1824	9115	14.593	0.915
1825	9120	14.593	0.915
1826	9125	14.593	0.915
1827	9130	14.593	0.915
1828	9135	14.593	0.915
1829	9140	14.593	0.915
1830	9145	14.593	0.915
1831	9150	14.593	0.915
1832	9155	14.593	0.915
1833	9160	14.593	0.915
1834	9165	14.593	0.915
1835	9170	14.593	0.915
1836	9175	14.593	0.915
1837	9180	14.593	0.915
1838	9185	14.593	0.915
1839	9190	14.593	0.915
1840	9195	14.593	0.915
1841	9200	14.593	0.915
1842	9205	14.593	0.915
1843	9210	14.593	0.915
1844	9215	14.593	0.915
1845	9220	14.593	0.915
1846	9225	14.593	0.915
1847	9230	14.593	0.915
1848	9235	14.593	0.915
1849	9240	14.593	0.915
1850	9245	14.593	0.915
1851	9250	14.593	0.915
1852	9255	14.593	0.915
1853	9260	14.593	0.915
1854	9265	14.593	0.915
1855	9270	14.593	0.915
1856	9275	14.593	0.915
1857	9280	14.593	0.915
1858	9285	14.603	0.925
1859	9290	14.603	0.925
1860	9295	14.603	0.925
1861	9300	14.603	0.925
1862	9305	14.603	0.925
1863	9310	14.603	0.925
1864	9315	14.603	0.925
1865	9320	14.603	0.925
1866	9325	14.603	0.925
1867	9330	14.603	0.925
1868	9335	14.603	0.925
1869	9340	14.603	0.925
1870	9345	14.603	0.925
1871	9350	14.603	0.925
1872	9355	14.603	0.925
1873	9360	14.603	0.925
1874	9365	14.603	0.925
1875	9370	14.603	0.925
1876	9375	14.603	0.925
1877	9380	14.603	0.925
1878	9385	14.603	0.925
1879	9390	14.603	0.925
1880	9395	14.603	0.925
1881	9400	14.593	0.915
1882	9405	14.593	0.915
1883	9410	14.593	0.915
1884	9415	14.593	0.915

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	14.593	0.915
1886	9425	14.593	0.915
1887	9430	14.584	0.906
1888	9435	14.584	0.906
1889	9440	14.584	0.906
1890	9445	14.584	0.906
1891	9450	14.584	0.906
1892	9455	14.584	0.906
1893	9460	14.584	0.906
1894	9465	14.584	0.906
1895	9470	14.584	0.906
1896	9475	14.584	0.906
1897	9480	14.584	0.906
1898	9485	14.584	0.906
1899	9490	14.584	0.906
1900	9495	14.584	0.906
1901	9500	14.584	0.906
1902	9505	14.574	0.896
1903	9510	14.574	0.896
1904	9515	14.574	0.896
1905	9520	14.574	0.896
1906	9525	14.574	0.896
1907	9530	14.574	0.896
1908	9535	14.574	0.896
1909	9540	14.564	0.886
1910	9545	14.564	0.886
1911	9550	14.574	0.896
1912	9555	14.564	0.886
1913	9560	14.574	0.896
1914	9565	14.564	0.886
1915	9570	14.574	0.896
1916	9575	14.564	0.886
1917	9580	14.564	0.886
1918	9585	14.564	0.886
1919	9590	14.554	0.876
1920	9595	14.554	0.876
1921	9600	14.554	0.876
1922	9605	14.554	0.876
1923	9610	14.554	0.876
1924	9615	14.554	0.876
1925	9620	14.554	0.876
1926	9625	14.554	0.876
1927	9630	14.554	0.876
1928	9635	14.554	0.876
1929	9640	14.554	0.876
1930	9645	14.544	0.866
1931	9650	14.544	0.866
1932	9655	14.544	0.866
1933	9660	14.544	0.866
1934	9665	14.544	0.866
1935	9670	14.544	0.866
1936	9675	14.535	0.857
1937	9680	14.544	0.866
1938	9685	14.535	0.857
1939	9690	14.535	0.857
1940	9695	14.535	0.857
1941	9700	14.544	0.866
1942	9705	14.535	0.857
1943	9710	14.535	0.857
1944	9715	14.535	0.857
1945	9720	14.535	0.857
1946	9725	14.535	0.857
1947	9730	14.535	0.857

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	14.535	0.857
1949	9740	14.535	0.857
1950	9745	14.535	0.857
1951	9750	14.535	0.857
1952	9755	14.535	0.857
1953	9760	14.535	0.857
1954	9765	14.535	0.857
1955	9770	14.535	0.857
1956	9775	14.535	0.857
1957	9780	14.535	0.857
1958	9785	14.525	0.847
1959	9790	14.535	0.857
1960	9795	14.525	0.847
1961	9800	14.525	0.847
1962	9805	14.525	0.847
1963	9810	14.525	0.847
1964	9815	14.525	0.847
1965	9820	14.525	0.847
1966	9825	14.525	0.847
1967	9830	14.525	0.847
1968	9835	14.525	0.847
1969	9840	14.525	0.847
1970	9845	14.525	0.847
1971	9850	14.525	0.847
1972	9855	14.525	0.847
1973	9860	14.525	0.847
1974	9865	14.78	1.102
1975	9870	14.525	0.847
1976	9875	14.525	0.847
1977	9880	14.525	0.847
1978	9885	14.525	0.847
1979	9890	14.525	0.847
1980	9895	14.525	0.847
1981	9900	14.525	0.847
1982	9905	14.525	0.847
1983	9910	14.535	0.857
1984	9915	14.535	0.857
1985	9920	14.525	0.847
1986	9925	14.525	0.847
1987	9930	14.525	0.847
1988	9935	14.535	0.857
1989	9940	14.535	0.857
1990	9945	14.535	0.857
1991	9950	14.535	0.857
1992	9955	14.535	0.857
1993	9960	14.535	0.857
1994	9965	14.535	0.857
1995	9970	14.535	0.857
1996	9975	14.535	0.857
1997	9980	14.535	0.857
1998	9985	14.535	0.857
1999	9990	14.535	0.857
2000	9995	14.535	0.857
2001	10000	14.544	0.866
2002	10005	14.544	0.866
2003	10010	14.544	0.866
2004	10015	14.544	0.866
2005	10020	14.544	0.866
2006	10025	14.544	0.866
2007	10030	14.544	0.866
2008	10035	14.544	0.866
2009	10040	14.544	0.866
2010	10045	14.544	0.866

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	14.544	0.866
2012	10055	14.544	0.866
2013	10060	14.544	0.866
2014	10065	14.554	0.876
2015	10070	14.544	0.866
2016	10075	14.544	0.866
2017	10080	14.544	0.866
2018	10085	14.544	0.866
2019	10090	14.544	0.866
2020	10095	14.544	0.866
2021	10100	14.544	0.866
2022	10105	14.554	0.876
2023	10110	14.554	0.876
2024	10115	14.554	0.876
2025	10120	14.554	0.876
2026	10125	14.554	0.876
2027	10130	14.544	0.866
2028	10135	14.554	0.876
2029	10140	14.544	0.866
2030	10145	14.544	0.866
2031	10150	14.544	0.866
2032	10155	14.544	0.866
2033	10160	14.544	0.866
2034	10165	14.544	0.866
2035	10170	14.544	0.866
2036	10175	14.544	0.866
2037	10180	14.544	0.866
2038	10185	14.544	0.866
2039	10190	14.544	0.866
2040	10195	14.544	0.866
2041	10200	14.544	0.866
2042	10205	14.535	0.857
2043	10210	14.535	0.857
2044	10215	14.535	0.857
2045	10220	14.535	0.857
2046	10225	14.535	0.857
2047	10230	14.535	0.857
2048	10235	14.535	0.857
2049	10240	14.525	0.847
2050	10245	14.525	0.847
2051	10250	14.525	0.847
2052	10255	14.525	0.847
2053	10260	14.525	0.847
2054	10265	14.525	0.847
2055	10270	14.515	0.837
2056	10275	14.525	0.847
2057	10280	14.525	0.847
2058	10285	14.515	0.837
2059	10290	14.515	0.837
2060	10295	14.515	0.837
2061	10300	14.515	0.837
2062	10305	14.515	0.837
2063	10310	14.505	0.827
2064	10315	14.505	0.827
2065	10320	14.505	0.827
2066	10325	14.505	0.827
2067	10330	14.495	0.817
2068	10335	14.495	0.817
2069	10340	14.495	0.817
2070	10345	14.495	0.817
2071	10350	14.495	0.817
2072	10355	14.485	0.807
2073	10360	14.485	0.807

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	14.485	0.807
2075	10370	14.485	0.807
2076	10375	14.485	0.807
2077	10380	14.485	0.807
2078	10385	14.475	0.797
2079	10390	14.475	0.797
2080	10395	14.475	0.797
2081	10400	14.475	0.797
2082	10405	14.475	0.797
2083	10410	14.475	0.797
2084	10415	14.466	0.788
2085	10420	14.466	0.788
2086	10425	14.466	0.788
2087	10430	14.466	0.788
2088	10435	14.466	0.788
2089	10440	14.466	0.788
2090	10445	14.456	0.778
2091	10450	14.456	0.778
2092	10455	14.456	0.778
2093	10460	14.456	0.778
2094	10465	14.456	0.778
2095	10470	14.446	0.768
2096	10475	14.446	0.768
2097	10480	14.446	0.768
2098	10485	14.584	0.906
2099	10490	14.446	0.768
2100	10495	14.446	0.768
2101	10500	14.446	0.768
2102	10505	14.446	0.768
2103	10510	14.436	0.758
2104	10515	14.436	0.758
2105	10520	14.436	0.758
2106	10525	14.436	0.758
2107	10530	14.436	0.758
2108	10535	14.436	0.758
2109	10540	14.436	0.758
2110	10545	14.436	0.758
2111	10550	14.436	0.758
2112	10555	14.436	0.758
2113	10560	14.436	0.758
2114	10565	14.426	0.748
2115	10570	14.436	0.758
2116	10575	14.426	0.748
2117	10580	14.426	0.748
2118	10585	14.426	0.748
2119	10590	14.426	0.748
2120	10595	14.426	0.748
2121	10600	14.426	0.748
2122	10605	14.426	0.748
2123	10610	14.416	0.738
2124	10615	14.416	0.738
2125	10620	14.426	0.748
2126	10625	14.426	0.748
2127	10630	14.416	0.738
2128	10635	14.416	0.738
2129	10640	14.416	0.738
2130	10645	14.416	0.738
2131	10650	14.416	0.738
2132	10655	14.416	0.738
2133	10660	14.416	0.738
2134	10665	14.416	0.738
2135	10670	14.406	0.728
2136	10675	14.416	0.738

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	14.406	0.728
2138	10685	14.406	0.728
2139	10690	14.406	0.728
2140	10695	14.406	0.728
2141	10700	14.397	0.719
2142	10705	14.397	0.719
2143	10710	14.397	0.719
2144	10715	14.397	0.719
2145	10720	14.397	0.719
2146	10725	14.387	0.709
2147	10730	14.397	0.719
2148	10735	14.387	0.709
2149	10740	14.387	0.709
2150	10745	14.387	0.709
2151	10750	14.387	0.709
2152	10755	14.387	0.709
2153	10760	14.387	0.709
2154	10765	14.377	0.699
2155	10770	14.377	0.699
2156	10775	14.377	0.699
2157	10780	14.377	0.699
2158	10785	14.377	0.699
2159	10790	14.377	0.699
2160	10795	14.377	0.699
2161	10800	14.367	0.689
2162	10805	14.367	0.689
2163	10810	14.367	0.689
2164	10815	14.367	0.689
2165	10820	14.367	0.689
2166	10825	14.357	0.679
2167	10830	14.357	0.679
2168	10835	14.357	0.679
2169	10840	14.357	0.679
2170	10845	14.357	0.679
2171	10850	14.357	0.679
2172	10855	14.348	0.67
2173	10860	14.348	0.67
2174	10865	14.348	0.67
2175	10870	14.348	0.67
2176	10875	14.348	0.67
2177	10880	14.348	0.67
2178	10885	14.338	0.66
2179	10890	14.338	0.66
2180	10895	14.338	0.66
2181	10900	14.338	0.66
2182	10905	14.338	0.66
2183	10910	14.338	0.66
2184	10915	14.338	0.66
2185	10920	14.328	0.65
2186	10925	14.328	0.65
2187	10930	14.328	0.65
2188	10935	14.338	0.66
2189	10940	14.328	0.65
2190	10945	14.328	0.65
2191	10950	14.328	0.65
2192	10955	14.328	0.65
2193	10960	14.328	0.65
2194	10965	14.318	0.64
2195	10970	14.318	0.64
2196	10975	14.318	0.64
2197	10980	14.318	0.64
2198	10985	14.318	0.64
2199	10990	14.318	0.64

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	14.318	0.64
2201	11000	14.308	0.63
2202	11005	14.308	0.63
2203	11010	14.308	0.63
2204	11015	14.308	0.63
2205	11020	14.308	0.63
2206	11025	14.298	0.62
2207	11030	14.298	0.62
2208	11035	14.298	0.62
2209	11040	14.298	0.62
2210	11045	14.298	0.62
2211	11050	14.288	0.61
2212	11055	14.288	0.61
2213	11060	14.288	0.61
2214	11065	14.288	0.61
2215	11070	14.288	0.61
2216	11075	14.279	0.601
2217	11080	14.279	0.601
2218	11085	14.279	0.601
2219	11090	14.279	0.601
2220	11095	14.279	0.601
2221	11100	14.279	0.601
2222	11105	14.269	0.591
2223	11110	14.269	0.591
2224	11115	14.269	0.591
2225	11120	14.269	0.591
2226	11125	14.269	0.591
2227	11130	14.269	0.591
2228	11135	14.269	0.591
2229	11140	14.269	0.591
2230	11145	14.269	0.591
2231	11150	14.259	0.581
2232	11155	14.259	0.581
2233	11160	14.259	0.581
2234	11165	14.259	0.581
2235	11170	14.259	0.581
2236	11175	14.249	0.571
2237	11180	14.249	0.571
2238	11185	14.249	0.571
2239	11190	14.249	0.571
2240	11195	14.249	0.571
2241	11200	14.249	0.571
2242	11205	14.239	0.561
2243	11210	14.239	0.561
2244	11215	14.239	0.561
2245	11220	14.239	0.561
2246	11225	14.456	0.778
2247	11230	14.239	0.561
2248	11235	14.239	0.561
2249	11240	14.239	0.561
2250	11245	14.229	0.551
2251	11250	14.229	0.551
2252	11255	14.229	0.551
2253	11260	14.229	0.551
2254	11265	14.229	0.551
2255	11270	14.229	0.551
2256	11275	14.229	0.551
2257	11280	14.229	0.551
2258	11285	14.229	0.551
2259	11290	14.229	0.551
2260	11295	14.229	0.551
2261	11300	14.229	0.551
2262	11305	14.229	0.551

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Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	14.219	0.541
2264	11315	14.229	0.551
2265	11320	14.229	0.551
2266	11325	14.229	0.551
2267	11330	14.229	0.551
2268	11335	14.229	0.551
2269	11340	14.219	0.541
2270	11345	14.229	0.551
2271	11350	14.229	0.551
2272	11355	14.229	0.551
2273	11360	14.229	0.551
2274	11365	14.229	0.551
2275	11370	14.229	0.551
2276	11375	14.229	0.551
2277	11380	14.229	0.551
2278	11385	14.229	0.551
2279	11390	14.229	0.551
2280	11395	14.229	0.551
2281	11400	14.229	0.551
2282	11405	14.229	0.551
2283	11410	14.229	0.551
2284	11415	14.219	0.541
2285	11420	14.229	0.551
2286	11425	14.229	0.551
2287	11430	14.229	0.551
2288	11435	14.229	0.551
2289	11440	14.229	0.551
2290	11445	14.229	0.551
2291	11450	14.229	0.551
2292	11455	14.229	0.551
2293	11460	14.229	0.551
2294	11465	14.229	0.551
2295	11470	14.229	0.551
2296	11475	14.229	0.551
2297	11480	14.229	0.551
2298	11485	14.229	0.551
2299	11490	14.229	0.551
2300	11495	14.229	0.551
2301	11500	14.229	0.551
2302	11505	14.229	0.551
2303	11510	14.229	0.551
2304	11515	14.229	0.551
2305	11520	14.229	0.551
2306	11525	14.229	0.551
2307	11530	14.229	0.551
2308	11535	14.229	0.551
2309	11540	14.229	0.551
2310	11545	14.229	0.551
2311	11550	14.239	0.561
2312	11555	14.239	0.561
2313	11560	14.229	0.551
2314	11565	14.239	0.561
2315	11570	14.239	0.561
2316	11575	14.239	0.561
2317	11580	14.239	0.561
2318	11585	14.239	0.561
2319	11590	14.239	0.561
2320	11595	14.239	0.561
2321	11600	14.239	0.561
2322	11605	14.239	0.561
2323	11610	14.239	0.561
2324	11615	14.239	0.561
2325	11620	14.239	0.561

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	14.239	0.561
2327	11630	14.239	0.561
2328	11635	14.239	0.561
2329	11640	14.239	0.561
2330	11645	14.239	0.561
2331	11650	14.239	0.561
2332	11655	14.229	0.551
2333	11660	14.229	0.551
2334	11665	14.239	0.561
2335	11670	14.239	0.561
2336	11675	14.239	0.561
2337	11680	14.239	0.561
2338	11685	14.239	0.561
2339	11690	14.239	0.561
2340	11695	14.229	0.551
2341	11700	14.229	0.551
2342	11705	14.229	0.551
2343	11710	14.229	0.551
2344	11715	14.229	0.551
2345	11720	14.229	0.551
2346	11725	14.229	0.551
2347	11730	14.229	0.551
2348	11735	14.219	0.541
2349	11740	14.219	0.541
2350	11745	14.219	0.541
2351	11750	14.229	0.551
2352	11755	14.229	0.551
2353	11760	14.229	0.551
2354	11765	14.229	0.551
2355	11770	14.229	0.551
2356	11775	14.229	0.551
2357	11780	14.219	0.541
2358	11785	14.219	0.541
2359	11790	14.219	0.541
2360	11795	14.219	0.541
2361	11800	14.219	0.541
2362	11805	14.219	0.541
2363	11810	14.219	0.541
2364	11815	14.219	0.541
2365	11820	14.219	0.541
2366	11825	14.219	0.541
2367	11830	14.219	0.541
2368	11835	14.21	0.532
2369	11840	14.219	0.541
2370	11845	14.21	0.532
2371	11850	14.219	0.541
2372	11855	14.21	0.532
2373	11860	14.21	0.532
2374	11865	14.21	0.532
2375	11870	14.21	0.532
2376	11875	14.21	0.532
2377	11880	14.21	0.532
2378	11885	14.21	0.532
2379	11890	14.21	0.532
2380	11895	14.21	0.532
2381	11900	14.21	0.532
2382	11905	14.21	0.532
2383	11910	14.21	0.532
2384	11915	14.20	0.522
2385	11920	14.20	0.522
2386	11925	14.20	0.522
2387	11930	14.20	0.522
2388	11935	14.21	0.532

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	14.20	0.522
2390	11945	14.20	0.522
2391	11950	14.20	0.522
2392	11955	14.20	0.522
2393	11960	14.20	0.522
2394	11965	14.21	0.532
2395	11970	14.20	0.522
2396	11975	14.20	0.522
2397	11980	14.20	0.522
2398	11985	14.20	0.522
2399	11990	14.20	0.522
2400	11995	14.20	0.522
2401	12000	14.20	0.522
2402	12005	14.20	0.522
2403	12010	14.20	0.522
2404	12015	14.21	0.532
2405	12020	14.20	0.522
2406	12025	14.21	0.532
2407	12030	14.21	0.532
2408	12035	14.21	0.532
2409	12040	14.21	0.532
2410	12045	14.21	0.532
2411	12050	14.20	0.522
2412	12055	14.21	0.532
2413	12060	14.20	0.522
2414	12065	14.21	0.532
2415	12070	14.20	0.522
2416	12075	14.20	0.522
2417	12080	14.21	0.532
2418	12085	14.20	0.522
2419	12090	14.20	0.522
2420	12095	14.20	0.522
2421	12100	14.21	0.532
2422	12105	14.20	0.522
2423	12110	14.21	0.532
2424	12115	14.21	0.532
2425	12120	14.21	0.532
2426	12125	14.21	0.532
2427	12130	14.21	0.532
2428	12135	14.21	0.532
2429	12140	14.21	0.532
2430	12145	14.21	0.532
2431	12150	14.21	0.532
2432	12155	14.21	0.532
2433	12160	14.20	0.522
2434	12165	14.20	0.522
2435	12170	14.21	0.532
2436	12175	14.21	0.532
2437	12180	14.21	0.532
2438	12185	14.21	0.532
2439	12190	14.21	0.532
2440	12195	14.21	0.532
2441	12200	14.21	0.532
2442	12205	14.21	0.532
2443	12210	14.20	0.522
2444	12215	14.21	0.532
2445	12220	14.21	0.532
2446	12225	14.21	0.532
2447	12230	14.21	0.532
2448	12235	14.21	0.532
2449	12240	14.21	0.532
2450	12245	14.21	0.532
2451	12250	14.21	0.532

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	14.21	0.532
2453	12260	14.21	0.532
2454	12265	14.21	0.532
2455	12270	14.21	0.532
2456	12275	14.21	0.532
2457	12280	14.21	0.532
2458	12285	14.21	0.532
2459	12290	14.21	0.532
2460	12295	14.21	0.532
2461	12300	14.21	0.532
2462	12305	14.21	0.532
2463	12310	14.20	0.522
2464	12315	14.20	0.522
2465	12320	14.20	0.522
2466	12325	14.20	0.522
2467	12330	14.20	0.522
2468	12335	14.20	0.522
2469	12340	14.20	0.522
2470	12345	14.20	0.522
2471	12350	14.20	0.522
2472	12355	14.20	0.522
2473	12360	14.20	0.522
2474	12365	14.20	0.522
2475	12370	14.20	0.522
2476	12375	14.20	0.522
2477	12380	14.20	0.522
2478	12385	14.20	0.522
2479	12390	14.20	0.522
2480	12395	14.20	0.522
2481	12400	14.20	0.522
2482	12405	14.20	0.522
2483	12410	14.20	0.522
2484	12415	14.20	0.522
2485	12420	14.20	0.522
2486	12425	14.20	0.522
2487	12430	14.20	0.522
2488	12435	14.20	0.522
2489	12440	14.20	0.522
2490	12445	14.20	0.522
2491	12450	14.20	0.522
2492	12455	14.20	0.522
2493	12460	14.21	0.532
2494	12465	14.20	0.522
2495	12470	14.20	0.522
2496	12475	14.20	0.522
2497	12480	14.20	0.522
2498	12485	14.20	0.522
2499	12490	14.20	0.522
2500	12495	14.20	0.522
2501	12500	14.20	0.522
2502	12505	14.20	0.522
2503	12510	14.20	0.522
2504	12515	14.20	0.522
2505	12520	14.20	0.522
2506	12525	14.20	0.522
2507	12530	14.19	0.512
2508	12535	14.19	0.512
2509	12540	14.19	0.512
2510	12545	14.19	0.512
2511	12550	14.19	0.512
2512	12555	14.19	0.512
2513	12560	14.19	0.512
2514	12565	14.19	0.512

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	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	14.19	0.512
2516	12575	14.19	0.512
2517	12580	14.18	0.502
2518	12585	14.18	0.502
2519	12590	14.18	0.502
2520	12595	14.18	0.502
2521	12600	14.18	0.502
2522	12605	14.18	0.502
2523	12610	14.17	0.492
2524	12615	14.17	0.492
2525	12620	14.17	0.492
2526	12625	14.17	0.492
2527	12630	14.17	0.492
2528	12635	14.17	0.492
2529	12640	14.17	0.492
2530	12645	14.17	0.492
2531	12650	14.17	0.492
2532	12655	14.17	0.492
2533	12660	14.17	0.492
2534	12665	14.17	0.492
2535	12670	14.17	0.492
2536	12675	14.17	0.492
2537	12680	14.17	0.492
2538	12685	14.17	0.492
2539	12690	14.17	0.492
2540	12695	14.17	0.492
2541	12700	14.161	0.483
2542	12705	14.17	0.492
2543	12710	14.17	0.492
2544	12715	14.161	0.483
2545	12720	14.161	0.483
2546	12725	14.161	0.483
2547	12730	14.161	0.483
2548	12735	14.161	0.483
2549	12740	14.161	0.483
2550	12745	14.17	0.492
2551	12750	14.161	0.483
2552	12755	14.161	0.483
2553	12760	14.161	0.483
2554	12765	14.17	0.492
2555	12770	14.17	0.492
2556	12775	14.17	0.492
2557	12780	14.161	0.483
2558	12785	14.17	0.492
2559	12790	14.17	0.492
2560	12795	14.161	0.483
2561	12800	14.161	0.483
2562	12805	14.161	0.483
2563	12810	14.17	0.492
2564	12815	14.17	0.492
2565	12820	14.17	0.492
2566	12825	14.17	0.492
2567	12830	14.17	0.492
2568	12835	14.17	0.492
2569	12840	14.18	0.502
2570	12845	14.17	0.492
2571	12850	14.17	0.492

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-32	Static Water Level [ft]: 10.51	Radial Distance to PW [ft]: 18971

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	10.5112	0.00
2	10	10.5093	-0.0019
3	20	10.5048	-0.0064
4	30	10.5016	-0.0096
5	40	10.4964	-0.0148
6	50	10.4896	-0.0216
7	60	10.4735	-0.0377
8	70	10.464	-0.0472
9	80	10.4589	-0.0523
10	90	10.4602	-0.051
11	100	10.45	-0.0612
12	110	10.4414	-0.0698
13	120	10.4305	-0.0807
14	130	10.4191	-0.0921
15	140	10.4059	-0.1053
16	150	10.3871	-0.1241
17	160	10.3783	-0.1329
18	170	10.3663	-0.1449
19	180	10.356	-0.1552
20	190	10.3462	-0.165
21	200	10.3368	-0.1744
22	210	10.3227	-0.1885
23	220	10.3156	-0.1956
24	230	10.3033	-0.2079
25	240	10.2903	-0.2209
26	250	10.2764	-0.2348
27	260	10.2683	-0.2429
28	270	10.2561	-0.2551
29	280	10.2516	-0.2596
30	290	10.2455	-0.2657
31	300	10.2349	-0.2763
32	310	10.2204	-0.2908
33	320	10.2122	-0.299
34	330	10.2043	-0.3069
35	340	10.194	-0.3172
36	350	10.1877	-0.3235
37	360	10.1819	-0.3293
38	370	10.172	-0.3392
39	380	10.1644	-0.3468
40	390	10.1547	-0.3565
41	400	10.1396	-0.3716
42	410	10.1311	-0.3801
43	420	10.1212	-0.39
44	430	10.1122	-0.399
45	440	10.1067	-0.4045
46	450	10.1021	-0.4091
47	460	10.095	-0.4162
48	470	10.0847	-0.4265
49	480	10.0785	-0.4327
50	490	10.0675	-0.4437
51	500	10.0629	-0.4483
52	510	10.0578	-0.4534
53	520	10.0525	-0.4587
54	530	10.0459	-0.4653
55	540	10.0422	-0.469
56	550	10.0356	-0.4756
57	560	10.0309	-0.4803

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	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	10.0265	-0.4847
59	580	10.0222	-0.489
60	590	10.0159	-0.4953
61	600	10.0137	-0.4975
62	610	10.0091	-0.5021
63	620	10.0083	-0.5029
64	630	10.0091	-0.5021
65	640	10.0086	-0.5026
66	650	10.0015	-0.5097
67	660	10.0009	-0.5103
68	670	9.9958	-0.5154
69	680	9.9952	-0.516
70	690	9.9917	-0.5195
71	700	9.9882	-0.523
72	710	9.9851	-0.5261
73	720	9.9801	-0.5311
74	730	9.9779	-0.5333
75	740	9.9773	-0.5339
76	750	9.9712	-0.54
77	760	9.9645	-0.5467
78	770	9.9593	-0.5519
79	780	9.9565	-0.5547
80	790	9.954	-0.5572
81	800	9.9528	-0.5584
82	810	9.9502	-0.561
83	820	9.9456	-0.5656
84	830	9.9441	-0.5671
85	840	9.9409	-0.5703
86	850	9.9366	-0.5746
87	860	9.9351	-0.5761
88	870	9.9278	-0.5834
89	880	9.9247	-0.5865
90	890	9.9215	-0.5897
91	900	9.9194	-0.5918
92	910	9.9129	-0.5983
93	920	9.9097	-0.6015
94	930	9.8999	-0.6113
95	940	9.8961	-0.6151
96	950	9.8914	-0.6198
97	960	9.8878	-0.6234
98	970	9.8776	-0.6336
99	980	9.8723	-0.6389
100	990	9.8737	-0.6375
101	1000	9.8709	-0.6403
102	1010	9.8601	-0.6511
103	1020	9.8501	-0.6611
104	1030	9.8415	-0.6697
105	1040	9.834	-0.6772
106	1050	9.8262	-0.685
107	1060	9.8155	-0.6957
108	1070	9.8154	-0.6958
109	1080	9.8116	-0.6996
110	1090	9.7938	-0.7174
111	1100	9.7841	-0.7271
112	1110	9.7796	-0.7316
113	1120	9.7814	-0.7298
114	1130	9.7777	-0.7335
115	1140	9.7774	-0.7338
116	1150	9.7746	-0.7366
117	1160	9.7691	-0.7421
118	1170	9.7706	-0.7406
119	1180	9.7656	-0.7456
120	1190	9.7657	-0.7455

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	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	9.7578	-0.7534
122	1210	9.7487	-0.7625
123	1220	9.7428	-0.7684
124	1230	9.7401	-0.7711
125	1240	9.7342	-0.777
126	1250	9.7347	-0.7765
127	1260	9.7303	-0.7809
128	1270	9.7294	-0.7818
129	1280	9.7245	-0.7867
130	1290	9.7212	-0.79
131	1300	9.7172	-0.794
132	1310	9.7203	-0.7909
133	1320	9.7174	-0.7938
134	1330	9.7199	-0.7913
135	1340	9.7171	-0.7941
136	1350	9.7197	-0.7915
137	1360	9.7183	-0.7929
138	1370	9.7161	-0.7951
139	1380	9.7137	-0.7975
140	1390	9.7089	-0.8023
141	1400	9.705	-0.8062
142	1410	9.7033	-0.8079
143	1420	9.7001	-0.8111
144	1430	9.6999	-0.8113
145	1440	9.6938	-0.8174
146	1450	9.6961	-0.8151
147	1460	9.6998	-0.8114
148	1470	9.6982	-0.813
149	1480	9.6994	-0.8118
150	1490	9.7027	-0.8085
151	1500	9.6995	-0.8117
152	1510	9.7043	-0.8069
153	1520	9.7023	-0.8089
154	1530	9.7032	-0.808
155	1540	9.7018	-0.8094
156	1550	9.703	-0.8082
157	1560	9.6976	-0.8136
158	1570	9.6977	-0.8135
159	1580	9.6981	-0.8131
160	1590	9.7011	-0.8101
161	1600	9.7003	-0.8109
162	1610	9.7032	-0.808
163	1620	9.7051	-0.8061
164	1630	9.7057	-0.8055
165	1640	9.7047	-0.8065
166	1650	9.702	-0.8092
167	1660	9.70	-0.8112
168	1670	9.6984	-0.8128
169	1680	9.6994	-0.8118
170	1690	9.6971	-0.8141
171	1700	9.6869	-0.8243
172	1710	9.6888	-0.8224
173	1720	9.6868	-0.8244
174	1730	9.6893	-0.8219
175	1740	9.6914	-0.8198
176	1750	9.6846	-0.8266
177	1760	9.6901	-0.8211
178	1770	9.6765	-0.8347
179	1780	9.6828	-0.8284
180	1790	9.6821	-0.8291
181	1800	9.6745	-0.8367
182	1810	9.6686	-0.8426
183	1820	9.6698	-0.8414

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	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	9.6666	-0.8446
185	1840	9.6664	-0.8448
186	1850	9.6613	-0.8499
187	1860	9.6577	-0.8535
188	1870	9.6532	-0.858
189	1880	9.6507	-0.8605
190	1890	9.6447	-0.8665
191	1900	9.6444	-0.8668
192	1910	9.6416	-0.8696
193	1920	9.6418	-0.8694
194	1930	9.6339	-0.8773
195	1940	9.6343	-0.8769
196	1950	9.6314	-0.8798
197	1960	9.6319	-0.8793
198	1970	9.6301	-0.8811
199	1980	9.6249	-0.8863
200	1990	9.6249	-0.8863
201	2000	9.6265	-0.8847
202	2010	9.6258	-0.8854
203	2020	9.6241	-0.8871
204	2030	9.6212	-0.89
205	2040	9.6193	-0.8919
206	2050	9.6216	-0.8896
207	2060	9.6205	-0.8907
208	2070	9.6241	-0.8871
209	2080	9.6215	-0.8897
210	2090	9.6193	-0.8919
211	2100	9.6134	-0.8978
212	2110	9.6145	-0.8967
213	2120	9.614	-0.8972
214	2130	9.6153	-0.8959
215	2140	9.6087	-0.9025
216	2150	9.6104	-0.9008
217	2160	9.6096	-0.9016
218	2170	9.6065	-0.9047
219	2180	9.6066	-0.9046
220	2190	9.61	-0.9012
221	2200	9.6145	-0.8967
222	2210	9.6117	-0.8995
223	2220	9.6128	-0.8984
224	2230	9.6061	-0.9051
225	2240	9.6095	-0.9017
226	2250	9.6078	-0.9034
227	2260	9.6099	-0.9013
228	2270	9.6113	-0.8999
229	2280	9.6078	-0.9034
230	2290	9.6098	-0.9014
231	2300	9.6078	-0.9034
232	2310	9.6063	-0.9049
233	2320	9.6022	-0.909
234	2330	9.6053	-0.9059
235	2340	9.5984	-0.9128
236	2350	9.5984	-0.9128
237	2360	9.5947	-0.9165
238	2370	9.5917	-0.9195
239	2380	9.5834	-0.9278
240	2390	9.5802	-0.931
241	2400	9.5757	-0.9355
242	2410	9.5709	-0.9403
243	2420	9.5705	-0.9407
244	2430	9.57	-0.9412
245	2440	9.5669	-0.9443
246	2450	9.5705	-0.9407

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	9.5677	-0.9435
248	2470	9.566	-0.9452
249	2480	9.5596	-0.9516
250	2490	9.563	-0.9482
251	2500	9.5594	-0.9518
252	2510	9.5567	-0.9545
253	2520	9.5561	-0.9551
254	2530	9.5539	-0.9573
255	2540	9.5574	-0.9538
256	2550	9.5549	-0.9563
257	2560	9.5547	-0.9565
258	2570	9.5615	-0.9497
259	2580	9.5515	-0.9597
260	2590	9.5488	-0.9624
261	2600	9.5488	-0.9624
262	2610	9.5553	-0.9559
263	2620	9.5523	-0.9589
264	2630	9.5492	-0.962
265	2640	9.5495	-0.9617
266	2650	9.5459	-0.9653
267	2660	9.5472	-0.964
268	2670	9.5502	-0.961
269	2680	9.5533	-0.9579
270	2690	9.5581	-0.9531
271	2700	9.5579	-0.9533
272	2710	9.5539	-0.9573
273	2720	9.5554	-0.9558
274	2730	9.5558	-0.9554
275	2740	9.557	-0.9542
276	2750	9.5548	-0.9564
277	2760	9.5591	-0.9521
278	2770	9.5672	-0.944
279	2780	9.565	-0.9462
280	2790	9.5672	-0.944
281	2800	9.5731	-0.9381
282	2810	9.58	-0.9312
283	2820	9.5815	-0.9297
284	2830	9.5827	-0.9285
285	2840	9.5796	-0.9316
286	2850	9.591	-0.9202
287	2860	9.5915	-0.9197
288	2870	9.5931	-0.9181
289	2880	9.5992	-0.912
290	2890	9.5992	-0.912
291	2900	9.6066	-0.9046
292	2910	9.6075	-0.9037
293	2920	9.6019	-0.9093
294	2930	9.6138	-0.8974
295	2940	9.6141	-0.8971
296	2950	9.6197	-0.8915
297	2960	9.6177	-0.8935
298	2970	9.6231	-0.8881
299	2980	9.6271	-0.8841
300	2990	9.6313	-0.8799
301	3000	9.6365	-0.8747
302	3010	9.6326	-0.8786
303	3020	9.634	-0.8772
304	3030	9.6388	-0.8724
305	3040	9.6401	-0.8711
306	3050	9.6371	-0.8741
307	3060	9.6313	-0.8799
308	3070	9.6354	-0.8758
309	3080	9.6343	-0.8769

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	9.6312	-0.88
311	3100	9.6314	-0.8798
312	3110	9.6353	-0.8759
313	3120	9.64	-0.8712
314	3130	9.6482	-0.863
315	3140	9.6532	-0.858
316	3150	9.6622	-0.849
317	3160	9.6687	-0.8425
318	3170	9.6684	-0.8428
319	3180	9.6669	-0.8443
320	3190	9.664	-0.8472
321	3200	9.67	-0.8412
322	3210	9.6708	-0.8404
323	3220	9.6774	-0.8338
324	3230	9.6798	-0.8314
325	3240	9.6833	-0.8279
326	3250	9.6768	-0.8344
327	3260	9.6764	-0.8348
328	3270	9.6824	-0.8288
329	3280	9.6847	-0.8265
330	3290	9.6763	-0.8349
331	3300	9.6713	-0.8399
332	3310	9.6679	-0.8433
333	3320	9.6705	-0.8407
334	3330	9.6785	-0.8327
335	3340	9.6769	-0.8343
336	3350	9.6735	-0.8377
337	3360	9.6678	-0.8434
338	3370	9.6623	-0.8489
339	3380	9.6623	-0.8489
340	3390	9.6559	-0.8553
341	3400	9.6689	-0.8423
342	3410	9.6739	-0.8373
343	3420	9.6741	-0.8371
344	3430	9.6765	-0.8347
345	3440	9.6779	-0.8333
346	3450	9.6806	-0.8306
347	3460	9.6836	-0.8276
348	3470	9.684	-0.8272
349	3480	9.6821	-0.8291
350	3490	9.6848	-0.8264
351	3500	9.6853	-0.8259
352	3510	9.6874	-0.8238
353	3520	9.6878	-0.8234
354	3530	9.6916	-0.8196
355	3540	9.688	-0.8232
356	3550	9.688	-0.8232
357	3560	9.6886	-0.8226
358	3570	9.6878	-0.8234
359	3580	9.6826	-0.8286
360	3590	9.6748	-0.8364
361	3600	9.6778	-0.8334
362	3610	9.6773	-0.8339
363	3620	9.6806	-0.8306
364	3630	9.6797	-0.8315
365	3640	9.6804	-0.8308
366	3650	9.684	-0.8272
367	3660	9.6856	-0.8256
368	3670	9.6882	-0.823
369	3680	9.689	-0.8222
370	3690	9.6878	-0.8234
371	3700	9.6901	-0.8211
372	3710	9.6907	-0.8205

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	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	9.6885	-0.8227
374	3730	9.6933	-0.8179
375	3740	9.698	-0.8132
376	3750	9.704	-0.8072
377	3760	9.7024	-0.8088
378	3770	9.6902	-0.821
379	3780	9.6866	-0.8246
380	3790	9.6896	-0.8216
381	3800	9.6883	-0.8229
382	3810	9.6787	-0.8325
383	3820	9.677	-0.8342
384	3830	9.675	-0.8362
385	3840	9.675	-0.8362
386	3850	9.6754	-0.8358
387	3860	9.6786	-0.8326
388	3870	9.6818	-0.8294
389	3880	9.6783	-0.8329
390	3890	9.6728	-0.8384
391	3900	9.6715	-0.8397
392	3910	9.6703	-0.8409
393	3920	9.6671	-0.8441
394	3930	9.6621	-0.8491
395	3940	9.6548	-0.8564
396	3950	9.6511	-0.8601
397	3960	9.6507	-0.8605
398	3970	9.6527	-0.8585
399	3980	9.6573	-0.8539
400	3990	9.6619	-0.8493
401	4000	9.6657	-0.8455
402	4010	9.6664	-0.8448
403	4020	9.668	-0.8432
404	4030	9.6694	-0.8418
405	4040	9.6751	-0.8361
406	4050	9.6777	-0.8335
407	4060	9.6778	-0.8334
408	4070	9.6799	-0.8313
409	4080	9.6789	-0.8323
410	4090	9.6759	-0.8353
411	4100	9.6736	-0.8376
412	4110	9.6745	-0.8367
413	4120	9.6736	-0.8376
414	4130	9.6746	-0.8366
415	4140	9.6716	-0.8396
416	4150	9.6711	-0.8401
417	4160	9.6704	-0.8408
418	4170	9.6721	-0.8391
419	4180	9.6718	-0.8394
420	4190	9.6736	-0.8376
421	4200	9.6744	-0.8368
422	4210	9.6722	-0.839
423	4220	9.6722	-0.839
424	4230	9.669	-0.8422
425	4240	9.6706	-0.8406
426	4250	9.6693	-0.8419
427	4260	9.6688	-0.8424
428	4270	9.6652	-0.846
429	4280	9.6666	-0.8446
430	4290	9.6644	-0.8468
431	4300	9.6655	-0.8457
432	4310	9.6598	-0.8514
433	4320	9.659	-0.8522
434	4330	9.6588	-0.8524
435	4340	9.6588	-0.8524

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	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	9.6614	-0.8498
437	4360	9.6619	-0.8493
438	4370	9.6607	-0.8505
439	4380	9.6663	-0.8449
440	4390	9.6707	-0.8405
441	4400	9.673	-0.8382
442	4410	9.6747	-0.8365
443	4420	9.6713	-0.8399
444	4430	9.675	-0.8362
445	4440	9.6774	-0.8338
446	4450	9.6763	-0.8349
447	4460	9.6716	-0.8396
448	4470	9.6755	-0.8357
449	4480	9.6734	-0.8378
450	4490	9.6726	-0.8386
451	4500	9.677	-0.8342
452	4510	9.6735	-0.8377
453	4520	9.6718	-0.8394
454	4530	9.6746	-0.8366
455	4540	9.6753	-0.8359
456	4550	9.6751	-0.8361
457	4560	9.6766	-0.8346
458	4570	9.6793	-0.8319
459	4580	9.6741	-0.8371
460	4590	9.6718	-0.8394
461	4600	9.6736	-0.8376
462	4610	9.6701	-0.8411
463	4620	9.6691	-0.8421
464	4630	9.6682	-0.843
465	4640	9.6681	-0.8431
466	4650	9.6676	-0.8436
467	4660	9.6677	-0.8435
468	4670	9.6691	-0.8421
469	4680	9.6675	-0.8437
470	4690	9.6645	-0.8467
471	4700	9.6596	-0.8516
472	4710	9.6603	-0.8509
473	4720	9.6587	-0.8525
474	4730	9.6575	-0.8537
475	4740	9.6591	-0.8521
476	4750	9.6563	-0.8549
477	4760	9.6534	-0.8578
478	4770	9.6532	-0.858
479	4780	9.6516	-0.8596
480	4790	9.6481	-0.8631
481	4800	9.646	-0.8652
482	4810	9.6447	-0.8665
483	4820	9.641	-0.8702
484	4830	9.6356	-0.8756
485	4840	9.6351	-0.8761
486	4850	9.6341	-0.8771
487	4860	9.6342	-0.877
488	4870	9.6317	-0.8795
489	4880	9.6298	-0.8814
490	4890	9.6299	-0.8813
491	4900	9.6294	-0.8818
492	4910	9.628	-0.8832
493	4920	9.6295	-0.8817
494	4930	9.6289	-0.8823
495	4940	9.6303	-0.8809
496	4950	9.6335	-0.8777
497	4960	9.6339	-0.8773
498	4970	9.6338	-0.8774

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	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	9.6348	-0.8764
500	4990	9.6325	-0.8787
501	5000	9.6326	-0.8786
502	5010	9.63	-0.8812
503	5020	9.628	-0.8832
504	5030	9.6257	-0.8855
505	5040	9.6236	-0.8876
506	5050	9.6244	-0.8868
507	5060	9.6286	-0.8826
508	5070	9.6305	-0.8807
509	5080	9.6269	-0.8843
510	5090	9.63	-0.8812
511	5100	9.633	-0.8782
512	5110	9.6328	-0.8784
513	5120	9.63	-0.8812
514	5130	9.6324	-0.8788
515	5140	9.635	-0.8762
516	5150	9.6366	-0.8746
517	5160	9.6396	-0.8716
518	5170	9.6397	-0.8715
519	5180	9.6422	-0.869
520	5190	9.6423	-0.8689
521	5200	9.6422	-0.869
522	5210	9.644	-0.8672
523	5220	9.6453	-0.8659
524	5230	9.6489	-0.8623
525	5240	9.6488	-0.8624
526	5250	9.6503	-0.8609
527	5260	9.6477	-0.8635
528	5270	9.6502	-0.861
529	5280	9.6515	-0.8597
530	5290	9.6532	-0.858
531	5300	9.6505	-0.8607
532	5310	9.6468	-0.8644
533	5320	9.6488	-0.8624
534	5330	9.6495	-0.8617
535	5340	9.6497	-0.8615
536	5350	9.6472	-0.864
537	5360	9.6433	-0.8679
538	5370	9.6411	-0.8701
539	5380	9.6396	-0.8716
540	5390	9.6403	-0.8709
541	5400	9.6417	-0.8695
542	5410	9.6441	-0.8671
543	5420	9.6404	-0.8708
544	5430	9.6383	-0.8729
545	5440	9.6422	-0.869
546	5450	9.6447	-0.8665
547	5460	9.6509	-0.8603
548	5470	9.6503	-0.8609
549	5480	9.6497	-0.8615
550	5490	9.6508	-0.8604
551	5500	9.6486	-0.8626
552	5510	9.6487	-0.8625
553	5520	9.6524	-0.8588
554	5530	9.6563	-0.8549
555	5540	9.6553	-0.8559
556	5550	9.6558	-0.8554
557	5560	9.6516	-0.8596
558	5570	9.6555	-0.8557
559	5580	9.6615	-0.8497
560	5590	9.6656	-0.8456
561	5600	9.666	-0.8452

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	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	9.6689	-0.8423
563	5620	9.6723	-0.8389
564	5630	9.6783	-0.8329
565	5640	9.6833	-0.8279
566	5650	9.6811	-0.8301
567	5660	9.6836	-0.8276
568	5670	9.6853	-0.8259
569	5680	9.6848	-0.8264
570	5690	9.6912	-0.82
571	5700	9.6975	-0.8137
572	5710	9.7007	-0.8105
573	5720	9.7039	-0.8073
574	5730	9.7106	-0.8006
575	5740	9.7209	-0.7903
576	5750	9.7113	-0.7999
577	5760	9.7145	-0.7967
578	5770	9.7238	-0.7874
579	5780	9.7294	-0.7818
580	5790	9.7278	-0.7834
581	5800	9.7341	-0.7771
582	5810	9.736	-0.7752
583	5820	9.7453	-0.7659
584	5830	9.7473	-0.7639
585	5840	9.7566	-0.7546
586	5850	9.7602	-0.751
587	5860	9.7704	-0.7408
588	5870	9.7682	-0.743
589	5880	9.776	-0.7352
590	5890	9.7813	-0.7299
591	5900	9.7933	-0.7179
592	5910	9.7942	-0.717
593	5920	9.7954	-0.7158
594	5930	9.7953	-0.7159
595	5940	9.7998	-0.7114
596	5950	9.8082	-0.703
597	5960	9.8098	-0.7014
598	5970	9.8106	-0.7006
599	5980	9.8169	-0.6943
600	5990	9.8143	-0.6969
601	6000	9.8149	-0.6963
602	6010	9.8163	-0.6949
603	6020	9.8216	-0.6896
604	6030	9.8238	-0.6874
605	6040	9.8275	-0.6837
606	6050	9.8211	-0.6901
607	6060	9.8167	-0.6945
608	6070	9.8154	-0.6958
609	6080	9.8143	-0.6969
610	6090	9.8233	-0.6879
611	6100	9.8231	-0.6881
612	6110	9.8219	-0.6893
613	6120	9.8249	-0.6863
614	6130	9.8294	-0.6818
615	6140	9.8336	-0.6776
616	6150	9.8369	-0.6743
617	6160	9.8382	-0.673
618	6170	9.8389	-0.6723
619	6180	9.8477	-0.6635
620	6190	9.8479	-0.6633
621	6200	9.8461	-0.6651
622	6210	9.8508	-0.6604
623	6220	9.854	-0.6572
624	6230	9.8556	-0.6556

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	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	9.8552	-0.656
626	6250	9.8555	-0.6557
627	6260	9.8577	-0.6535
628	6270	9.8649	-0.6463
629	6280	9.8706	-0.6406
630	6290	9.8752	-0.636
631	6300	9.8656	-0.6456
632	6310	9.8647	-0.6465
633	6320	9.8678	-0.6434
634	6330	9.8742	-0.637
635	6340	9.8779	-0.6333
636	6350	9.8773	-0.6339
637	6360	9.8762	-0.635
638	6370	9.8792	-0.632
639	6380	9.8817	-0.6295
640	6390	9.8846	-0.6266
641	6400	9.886	-0.6252
642	6410	9.891	-0.6202
643	6420	9.8933	-0.6179
644	6430	9.8954	-0.6158
645	6440	9.8989	-0.6123
646	6450	9.8987	-0.6125
647	6460	9.8987	-0.6125
648	6470	9.8984	-0.6128
649	6480	9.8946	-0.6166
650	6490	9.8983	-0.6129
651	6500	9.8964	-0.6148
652	6510	9.8957	-0.6155
653	6520	9.8966	-0.6146
654	6530	9.8982	-0.613
655	6540	9.9025	-0.6087
656	6550	9.9058	-0.6054
657	6560	9.9035	-0.6077
658	6570	9.9081	-0.6031
659	6580	9.9135	-0.5977
660	6590	9.917	-0.5942
661	6600	9.9181	-0.5931
662	6610	9.9207	-0.5905
663	6620	9.9245	-0.5867
664	6630	9.9247	-0.5865
665	6640	9.9283	-0.5829
666	6650	9.9326	-0.5786
667	6660	9.931	-0.5802
668	6670	9.9386	-0.5726
669	6680	9.9411	-0.5701
670	6690	9.9487	-0.5625
671	6700	9.9426	-0.5686
672	6710	9.9489	-0.5623
673	6720	9.9468	-0.5644
674	6730	9.9487	-0.5625
675	6740	9.9518	-0.5594
676	6750	9.9486	-0.5626
677	6760	9.9508	-0.5604
678	6770	9.9518	-0.5594
679	6780	9.9558	-0.5554
680	6790	9.9586	-0.5526
681	6800	9.9579	-0.5533
682	6810	9.9599	-0.5513
683	6820	9.9705	-0.5407
684	6830	9.9665	-0.5447
685	6840	9.968	-0.5432
686	6850	9.9697	-0.5415
687	6860	9.9743	-0.5369

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	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	9.9803	-0.5309
689	6880	9.9837	-0.5275
690	6890	9.9879	-0.5233
691	6900	9.9929	-0.5183
692	6910	9.9975	-0.5137
693	6920	10.0018	-0.5094
694	6930	10.0044	-0.5068
695	6940	10.0088	-0.5024
696	6950	10.0111	-0.5001
697	6960	10.0154	-0.4958
698	6970	10.021	-0.4902
699	6980	10.0294	-0.4818
700	6990	10.0304	-0.4808
701	7000	10.0336	-0.4776
702	7010	10.0368	-0.4744
703	7020	10.047	-0.4642
704	7030	10.0454	-0.4658
705	7040	10.0487	-0.4625
706	7050	10.0551	-0.4561
707	7060	10.0556	-0.4556
708	7070	10.0656	-0.4456
709	7080	10.0739	-0.4373
710	7090	10.0776	-0.4336
711	7100	10.0854	-0.4258
712	7110	10.0908	-0.4204
713	7120	10.0982	-0.413
714	7130	10.1002	-0.411
715	7140	10.1217	-0.3895
716	7150	10.1108	-0.4004
717	7160	10.1173	-0.3939
718	7170	10.1279	-0.3833
719	7180	10.1349	-0.3763
720	7190	10.1366	-0.3746
721	7200	10.1436	-0.3676
722	7210	10.1515	-0.3597
723	7220	10.149	-0.3622
724	7230	10.1553	-0.3559
725	7240	10.1641	-0.3471
726	7250	10.171	-0.3402
727	7260	10.1738	-0.3374
728	7270	10.1778	-0.3334
729	7280	10.1908	-0.3204
730	7290	10.2014	-0.3098
731	7300	10.2035	-0.3077
732	7310	10.2079	-0.3033
733	7320	10.2296	-0.2816
734	7330	10.2229	-0.2883
735	7340	10.2405	-0.2707
736	7350	10.2397	-0.2715
737	7360	10.2437	-0.2675
738	7370	10.251	-0.2602
739	7380	10.2519	-0.2593
740	7390	10.2771	-0.2341
741	7400	10.2594	-0.2518
742	7410	10.2665	-0.2447
743	7420	10.2692	-0.242
744	7430	10.2736	-0.2376
745	7440	10.276	-0.2352
746	7450	10.2857	-0.2255
747	7460	10.278	-0.2332
748	7470	10.2866	-0.2246
749	7480	10.2874	-0.2238
750	7490	10.2872	-0.224

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	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	10.2939	-0.2173
752	7510	10.2929	-0.2183
753	7520	10.2965	-0.2147
754	7530	10.3014	-0.2098
755	7540	10.3121	-0.1991
756	7550	10.3057	-0.2055
757	7560	10.3003	-0.2109
758	7570	10.3051	-0.2061
759	7580	10.3065	-0.2047
760	7590	10.3119	-0.1993
761	7600	10.322	-0.1892
762	7610	10.3277	-0.1835
763	7620	10.3217	-0.1895
764	7630	10.3204	-0.1908
765	7640	10.3185	-0.1927
766	7650	10.3179	-0.1933
767	7660	10.3205	-0.1907
768	7670	10.3198	-0.1914
769	7680	10.3235	-0.1877
770	7690	10.3199	-0.1913
771	7700	10.3185	-0.1927
772	7710	10.3219	-0.1893
773	7720	10.3285	-0.1827
774	7730	10.331	-0.1802
775	7740	10.3351	-0.1761
776	7750	10.3355	-0.1757
777	7760	10.342	-0.1692
778	7770	10.3462	-0.165
779	7780	10.3496	-0.1616
780	7790	10.3547	-0.1565
781	7800	10.3554	-0.1558
782	7810	10.3626	-0.1486
783	7820	10.366	-0.1452
784	7830	10.3768	-0.1344
785	7840	10.3713	-0.1399
786	7850	10.3693	-0.1419
787	7860	10.3669	-0.1443
788	7870	10.3677	-0.1435
789	7880	10.3686	-0.1426
790	7890	10.3748	-0.1364
791	7900	10.3724	-0.1388
792	7910	10.379	-0.1322
793	7920	10.3781	-0.1331
794	7930	10.3808	-0.1304
795	7940	10.3825	-0.1287
796	7950	10.3793	-0.1319
797	7960	10.3827	-0.1285
798	7970	10.3757	-0.1355
799	7980	10.3773	-0.1339
800	7990	10.3749	-0.1363
801	8000	10.3831	-0.1281
802	8010	10.3761	-0.1351
803	8020	10.3719	-0.1393
804	8030	10.3756	-0.1356
805	8040	10.3736	-0.1376
806	8050	10.3706	-0.1406
807	8060	10.3716	-0.1396
808	8070	10.3672	-0.144
809	8080	10.398	-0.1132
810	8090	10.3845	-0.1267
811	8100	10.3891	-0.1221
812	8110	10.3887	-0.1225
813	8120	10.3809	-0.1303

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	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	10.3528	-0.1584
815	8140	10.3396	-0.1716
816	8150	10.3248	-0.1864
817	8160	10.3328	-0.1784
818	8170	10.3314	-0.1798
819	8180	10.3375	-0.1737
820	8190	10.3277	-0.1835
821	8200	10.31	-0.2012
822	8210	10.2861	-0.2251
823	8220	10.2552	-0.256
824	8230	10.2472	-0.264
825	8240	10.2637	-0.2475
826	8250	10.2678	-0.2434
827	8260	10.2789	-0.2323
828	8270	10.2731	-0.2381
829	8280	10.2748	-0.2364
830	8290	10.2942	-0.217
831	8300	10.266	-0.2452
832	8310	10.2559	-0.2553
833	8320	10.2562	-0.255
834	8330	10.2643	-0.2469
835	8340	10.2724	-0.2388
836	8350	10.2768	-0.2344
837	8360	10.2617	-0.2495
838	8370	10.2626	-0.2486
839	8380	10.243	-0.2682
840	8390	10.2822	-0.229
841	8400	10.2399	-0.2713
842	8410	10.2327	-0.2785
843	8420	10.2443	-0.2669
844	8430	10.2349	-0.2763
845	8440	10.2297	-0.2815
846	8450	10.2426	-0.2686
847	8460	10.2385	-0.2727
848	8470	10.2376	-0.2736
849	8480	10.2377	-0.2735
850	8490	10.2334	-0.2778
851	8500	10.2297	-0.2815
852	8510	10.2228	-0.2884
853	8520	10.218	-0.2932
854	8530	10.2153	-0.2959
855	8540	10.2112	-0.30
856	8550	10.2077	-0.3035
857	8560	10.2039	-0.3073
858	8570	10.1988	-0.3124
859	8580	10.1964	-0.3148
860	8590	10.1911	-0.3201
861	8600	10.1924	-0.3188
862	8610	10.1879	-0.3233
863	8620	10.1897	-0.3215
864	8630	10.1884	-0.3228
865	8640	10.1867	-0.3245
866	8650	10.1872	-0.324
867	8660	10.1877	-0.3235
868	8670	10.1844	-0.3268
869	8680	10.1814	-0.3298
870	8690	10.1822	-0.329
871	8700	10.182	-0.3292
872	8710	10.1837	-0.3275
873	8720	10.1818	-0.3294
874	8730	10.1821	-0.3291
875	8740	10.1804	-0.3308
876	8750	10.1826	-0.3286

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	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	10.1838	-0.3274
878	8770	10.1839	-0.3273
879	8780	10.1847	-0.3265
880	8790	10.1842	-0.327
881	8800	10.1877	-0.3235
882	8810	10.1894	-0.3218
883	8820	10.1873	-0.3239
884	8830	10.1875	-0.3237
885	8840	10.1858	-0.3254
886	8850	10.1892	-0.322
887	8860	10.1899	-0.3213
888	8870	10.19	-0.3212
889	8880	10.1881	-0.3231
890	8890	10.1917	-0.3195
891	8900	10.1901	-0.3211
892	8910	10.1886	-0.3226
893	8920	10.1887	-0.3225
894	8930	10.1866	-0.3246
895	8940	10.1858	-0.3254
896	8950	10.1863	-0.3249
897	8960	10.186	-0.3252
898	8970	10.1855	-0.3257
899	8980	10.1838	-0.3274
900	8990	10.1821	-0.3291
901	9000	10.1786	-0.3326
902	9010	10.1737	-0.3375
903	9020	10.1697	-0.3415
904	9030	10.1669	-0.3443
905	9040	10.1615	-0.3497
906	9050	10.1583	-0.3529
907	9060	10.1532	-0.358
908	9070	10.1502	-0.361
909	9080	10.1456	-0.3656
910	9090	10.1435	-0.3677
911	9100	10.1397	-0.3715
912	9110	10.1351	-0.3761
913	9120	10.1292	-0.382
914	9130	10.1268	-0.3844
915	9140	10.1233	-0.3879
916	9150	10.1238	-0.3874
917	9160	10.1248	-0.3864
918	9170	10.1256	-0.3856
919	9180	10.1287	-0.3825
920	9190	10.1239	-0.3873
921	9200	10.1202	-0.391
922	9210	10.1192	-0.392
923	9220	10.1188	-0.3924
924	9230	10.1152	-0.396
925	9240	10.1185	-0.3927
926	9250	10.1175	-0.3937
927	9260	10.1154	-0.3958
928	9270	10.1139	-0.3973
929	9280	10.117	-0.3942
930	9290	10.1212	-0.39
931	9300	10.1222	-0.389
932	9310	10.1211	-0.3901
933	9320	10.122	-0.3892
934	9330	10.1193	-0.3919
935	9340	10.1178	-0.3934
936	9350	10.1196	-0.3916
937	9360	10.1209	-0.3903
938	9370	10.1192	-0.392
939	9380	10.1195	-0.3917

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	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	10.1146	-0.3966
941	9400	10.1091	-0.4021
942	9410	10.1063	-0.4049
943	9420	10.1028	-0.4084
944	9430	10.0984	-0.4128
945	9440	10.0991	-0.4121
946	9450	10.0994	-0.4118
947	9460	10.0975	-0.4137
948	9470	10.0986	-0.4126
949	9480	10.0978	-0.4134
950	9490	10.095	-0.4162
951	9500	10.0892	-0.422
952	9510	10.0833	-0.4279
953	9520	10.0761	-0.4351
954	9530	10.0728	-0.4384
955	9540	10.0607	-0.4505
956	9550	10.0583	-0.4529
957	9560	10.053	-0.4582
958	9570	10.0477	-0.4635
959	9580	10.0391	-0.4721
960	9590	10.0321	-0.4791
961	9600	10.0311	-0.4801
962	9610	10.0216	-0.4896
963	9620	10.0158	-0.4954
964	9630	10.0104	-0.5008
965	9640	10.003	-0.5082
966	9650	9.9967	-0.5145
967	9660	9.9914	-0.5198
968	9670	9.9865	-0.5247
969	9680	9.9849	-0.5263
970	9690	9.9787	-0.5325
971	9700	9.9747	-0.5365
972	9710	9.9699	-0.5413
973	9720	9.9631	-0.5481
974	9730	9.9591	-0.5521
975	9740	9.9523	-0.5589
976	9750	9.9494	-0.5618
977	9760	9.9471	-0.5641
978	9770	9.94	-0.5712
979	9780	9.9353	-0.5759
980	9790	9.9301	-0.5811
981	9800	9.9264	-0.5848
982	9810	9.9231	-0.5881
983	9820	9.9202	-0.591
984	9830	9.9152	-0.596
985	9840	9.909	-0.6022
986	9850	9.9034	-0.6078
987	9860	9.8992	-0.612
988	9870	9.90	-0.6112
989	9880	9.8973	-0.6139
990	9890	9.8931	-0.6181
991	9900	9.8922	-0.619
992	9910	9.8927	-0.6185
993	9920	9.892	-0.6192
994	9930	9.8846	-0.6266
995	9940	9.8878	-0.6234
996	9950	9.8847	-0.6265
997	9960	9.8923	-0.6189
998	9970	9.8873	-0.6239
999	9980	9.8863	-0.6249
1000	9990	9.8881	-0.6231
1001	10000	9.8897	-0.6215
1002	10010	9.8902	-0.621

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	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	9.8903	-0.6209
1004	10030	9.8931	-0.6181
1005	10040	9.8922	-0.619
1006	10050	9.8903	-0.6209
1007	10060	9.8888	-0.6224
1008	10070	9.8838	-0.6274
1009	10080	9.8868	-0.6244
1010	10090	9.8839	-0.6273
1011	10100	9.8818	-0.6294
1012	10110	9.8791	-0.6321
1013	10120	9.887	-0.6242
1014	10130	9.8913	-0.6199
1015	10140	9.8809	-0.6303
1016	10150	9.8819	-0.6293
1017	10160	9.8839	-0.6273
1018	10170	9.8842	-0.627
1019	10180	9.8848	-0.6264
1020	10190	9.887	-0.6242
1021	10200	9.8847	-0.6265
1022	10210	9.8896	-0.6216
1023	10220	9.8892	-0.622
1024	10230	9.8935	-0.6177
1025	10240	9.8853	-0.6259
1026	10250	9.8863	-0.6249
1027	10260	9.8846	-0.6266
1028	10270	9.8861	-0.6251
1029	10280	9.8904	-0.6208
1030	10290	9.8903	-0.6209
1031	10300	9.8889	-0.6223
1032	10310	9.8837	-0.6275
1033	10320	9.8815	-0.6297
1034	10330	9.881	-0.6302
1035	10340	9.8807	-0.6305
1036	10350	9.8799	-0.6313
1037	10360	9.8792	-0.632
1038	10370	9.8771	-0.6341
1039	10380	9.8775	-0.6337
1040	10390	9.8755	-0.6357
1041	10400	9.8717	-0.6395
1042	10410	9.872	-0.6392
1043	10420	9.87	-0.6412
1044	10430	9.8696	-0.6416
1045	10440	9.867	-0.6442
1046	10450	9.8641	-0.6471
1047	10460	9.863	-0.6482
1048	10470	9.8624	-0.6488
1049	10480	9.8614	-0.6498
1050	10490	9.8589	-0.6523
1051	10500	9.8546	-0.6566
1052	10510	9.8514	-0.6598
1053	10520	9.8461	-0.6651
1054	10530	9.8474	-0.6638
1055	10540	9.8454	-0.6658
1056	10550	9.8427	-0.6685
1057	10560	9.8414	-0.6698
1058	10570	9.8399	-0.6713
1059	10580	9.834	-0.6772
1060	10590	9.8309	-0.6803
1061	10600	9.8297	-0.6815
1062	10610	9.8292	-0.682
1063	10620	9.8294	-0.6818
1064	10630	9.8279	-0.6833
1065	10640	9.8282	-0.683

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	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	9.8267	-0.6845
1067	10660	9.8256	-0.6856
1068	10670	9.8253	-0.6859
1069	10680	9.8175	-0.6937
1070	10690	9.803	-0.7082
1071	10700	9.7985	-0.7127
1072	10710	9.7973	-0.7139
1073	10720	9.7961	-0.7151
1074	10730	9.7912	-0.72
1075	10740	9.7905	-0.7207
1076	10750	9.7895	-0.7217
1077	10760	9.7858	-0.7254
1078	10770	9.7828	-0.7284
1079	10780	9.779	-0.7322
1080	10790	9.7777	-0.7335
1081	10800	9.7777	-0.7335
1082	10810	9.772	-0.7392
1083	10820	9.7703	-0.7409
1084	10830	9.7693	-0.7419
1085	10840	9.7657	-0.7455
1086	10850	9.7643	-0.7469
1087	10860	9.7641	-0.7471
1088	10870	9.7642	-0.747
1089	10880	9.7632	-0.748
1090	10890	9.7625	-0.7487
1091	10900	9.7636	-0.7476
1092	10910	9.7644	-0.7468
1093	10920	9.763	-0.7482
1094	10930	9.7619	-0.7493
1095	10940	9.7613	-0.7499
1096	10950	9.7599	-0.7513
1097	10960	9.7611	-0.7501
1098	10970	9.7615	-0.7497
1099	10980	9.7611	-0.7501
1100	10990	9.7605	-0.7507
1101	11000	9.7551	-0.7561
1102	11010	9.7536	-0.7576
1103	11020	9.7546	-0.7566
1104	11030	9.7513	-0.7599
1105	11040	9.7507	-0.7605
1106	11050	9.7464	-0.7648
1107	11060	9.7438	-0.7674
1108	11070	9.7459	-0.7653
1109	11080	9.742	-0.7692
1110	11090	9.7348	-0.7764
1111	11100	9.7352	-0.776
1112	11110	9.7325	-0.7787
1113	11120	9.7306	-0.7806
1114	11130	9.7287	-0.7825
1115	11140	9.727	-0.7842
1116	11150	9.724	-0.7872
1117	11160	9.7195	-0.7917
1118	11170	9.7168	-0.7944
1119	11180	9.7154	-0.7958
1120	11190	9.7122	-0.799
1121	11200	9.7081	-0.8031
1122	11210	9.7052	-0.806
1123	11220	9.7059	-0.8053
1124	11230	9.7041	-0.8071
1125	11240	9.6982	-0.813
1126	11250	9.6946	-0.8166
1127	11260	9.6968	-0.8144
1128	11270	9.6945	-0.8167

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	9.6917	-0.8195
1130	11290	9.6931	-0.8181
1131	11300	9.6931	-0.8181
1132	11310	9.6902	-0.821
1133	11320	9.6912	-0.82
1134	11330	9.6918	-0.8194
1135	11340	9.6913	-0.8199
1136	11350	9.6903	-0.8209
1137	11360	9.6928	-0.8184
1138	11370	9.6919	-0.8193
1139	11380	9.6934	-0.8178
1140	11390	9.6928	-0.8184
1141	11400	9.6936	-0.8176
1142	11410	9.6933	-0.8179
1143	11420	9.694	-0.8172
1144	11430	9.7005	-0.8107
1145	11440	9.7049	-0.8063
1146	11450	9.7065	-0.8047
1147	11460	9.7058	-0.8054
1148	11470	9.7054	-0.8058
1149	11480	9.7078	-0.8034
1150	11490	9.7105	-0.8007
1151	11500	9.7126	-0.7986
1152	11510	9.7134	-0.7978
1153	11520	9.7159	-0.7953
1154	11530	9.7168	-0.7944
1155	11540	9.7208	-0.7904
1156	11550	9.7222	-0.789
1157	11560	9.7273	-0.7839
1158	11570	9.7307	-0.7805
1159	11580	9.7331	-0.7781
1160	11590	9.7371	-0.7741
1161	11600	9.7412	-0.77
1162	11610	9.7458	-0.7654
1163	11620	9.7499	-0.7613
1164	11630	9.7549	-0.7563
1165	11640	9.7534	-0.7578
1166	11650	9.7547	-0.7565
1167	11660	9.7582	-0.753
1168	11670	9.7613	-0.7499
1169	11680	9.7653	-0.7459
1170	11690	9.7655	-0.7457
1171	11700	9.7653	-0.7459
1172	11710	9.7682	-0.743
1173	11720	9.7707	-0.7405
1174	11730	9.7728	-0.7384
1175	11740	9.7719	-0.7393
1176	11750	9.7741	-0.7371
1177	11760	9.7748	-0.7364
1178	11770	9.7776	-0.7336
1179	11780	9.7786	-0.7326
1180	11790	9.7808	-0.7304
1181	11800	9.7839	-0.7273
1182	11810	9.7832	-0.728
1183	11820	9.7837	-0.7275
1184	11830	9.7823	-0.7289
1185	11840	9.784	-0.7272
1186	11850	9.784	-0.7272
1187	11860	9.7825	-0.7287
1188	11870	9.7842	-0.727
1189	11880	9.7849	-0.7263
1190	11890	9.7833	-0.7279
1191	11900	9.7847	-0.7265

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	9.7812	-0.73
1193	11920	9.7844	-0.7268
1194	11930	9.7846	-0.7266
1195	11940	9.784	-0.7272
1196	11950	9.7844	-0.7268
1197	11960	9.7835	-0.7277
1198	11970	9.7804	-0.7308
1199	11980	9.7817	-0.7295
1200	11990	9.7804	-0.7308
1201	12000	9.778	-0.7332
1202	12010	9.7783	-0.7329
1203	12020	9.7764	-0.7348
1204	12030	9.7792	-0.732
1205	12040	9.7795	-0.7317
1206	12050	9.7794	-0.7318
1207	12060	9.7767	-0.7345
1208	12070	9.7767	-0.7345
1209	12080	9.7753	-0.7359
1210	12090	9.7745	-0.7367
1211	12100	9.7709	-0.7403
1212	12110	9.7713	-0.7399
1213	12120	9.7703	-0.7409
1214	12130	9.7686	-0.7426
1215	12140	9.7677	-0.7435
1216	12150	9.7657	-0.7455
1217	12160	9.7696	-0.7416
1218	12170	9.7711	-0.7401
1219	12180	9.7724	-0.7388
1220	12190	9.7727	-0.7385
1221	12200	9.7749	-0.7363
1222	12210	9.7761	-0.7351
1223	12220	9.7787	-0.7325
1224	12230	9.7793	-0.7319
1225	12240	9.7794	-0.7318
1226	12250	9.778	-0.7332
1227	12260	9.7806	-0.7306
1228	12270	9.7842	-0.727
1229	12280	9.7856	-0.7256
1230	12290	9.7899	-0.7213
1231	12300	9.7867	-0.7245
1232	12310	9.7875	-0.7237
1233	12320	9.7894	-0.7218
1234	12330	9.7907	-0.7205
1235	12340	9.7929	-0.7183
1236	12350	9.793	-0.7182
1237	12360	9.7959	-0.7153
1238	12370	9.7939	-0.7173
1239	12380	9.80	-0.7112
1240	12390	9.8029	-0.7083
1241	12400	9.8086	-0.7026
1242	12410	9.814	-0.6972
1243	12420	9.8149	-0.6963
1244	12430	9.8173	-0.6939
1245	12440	9.8207	-0.6905
1246	12450	9.8246	-0.6866
1247	12460	9.8261	-0.6851
1248	12470	9.8261	-0.6851
1249	12480	9.8274	-0.6838
1250	12490	9.8292	-0.682
1251	12500	9.828	-0.6832
1252	12510	9.828	-0.6832
1253	12520	9.825	-0.6862
1254	12530	9.8218	-0.6894

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	9.8179	-0.6933
1256	12550	9.8188	-0.6924
1257	12560	9.8156	-0.6956
1258	12570	9.8137	-0.6975
1259	12580	9.814	-0.6972
1260	12590	9.8125	-0.6987
1261	12600	9.8146	-0.6966
1262	12610	9.8125	-0.6987
1263	12620	9.8108	-0.7004
1264	12630	9.8109	-0.7003
1265	12640	9.8095	-0.7017
1266	12650	9.8123	-0.6989
1267	12660	9.8088	-0.7024
1268	12670	9.8069	-0.7043
1269	12680	9.8101	-0.7011
1270	12690	9.8062	-0.705
1271	12700	9.8034	-0.7078
1272	12710	9.802	-0.7092
1273	12720	9.8005	-0.7107
1274	12730	9.7916	-0.7196
1275	12740	9.7906	-0.7206
1276	12750	9.7885	-0.7227
1277	12760	9.7886	-0.7226
1278	12770	9.7921	-0.7191
1279	12780	9.7921	-0.7191
1280	12790	9.796	-0.7152
1281	12800	9.7928	-0.7184
1282	12810	9.796	-0.7152
1283	12820	9.8005	-0.7107
1284	12830	9.806	-0.7052
1285	12840	9.806	-0.7052
1286	12850	9.41	-1.1012

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	Page 1 of 21
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-36	Static Water Level [ft]: 4.76	Radial Distance to PW [ft]: 15185

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	4.76	0.00
2	10	4.76	0.00
3	20	4.76	0.00
4	30	4.76	0.00
5	40	4.76	0.00
6	50	4.76	0.00
7	60	4.751	-0.009
8	70	4.751	-0.009
9	80	4.741	-0.019
10	90	4.731	-0.029
11	100	4.731	-0.029
12	110	4.731	-0.029
13	120	4.721	-0.039
14	130	4.711	-0.049
15	140	4.711	-0.049
16	150	4.691	-0.069
17	160	4.691	-0.069
18	170	4.682	-0.078
19	180	4.672	-0.088
20	190	4.672	-0.088
21	200	4.662	-0.098
22	210	4.652	-0.108
23	220	4.642	-0.118
24	230	4.652	-0.108
25	240	4.632	-0.128
26	250	4.622	-0.138
27	260	4.613	-0.147
28	270	4.613	-0.147
29	280	4.603	-0.157
30	290	4.603	-0.157
31	300	4.593	-0.167
32	310	4.593	-0.167
33	320	4.583	-0.177
34	330	4.573	-0.187
35	340	4.573	-0.187
36	350	4.564	-0.196
37	360	4.564	-0.196
38	370	4.554	-0.206
39	380	4.583	-0.177
40	390	4.603	-0.157
41	400	4.554	-0.206
42	410	4.534	-0.226
43	420	4.544	-0.216
44	430	4.524	-0.236
45	440	4.514	-0.246
46	450	4.514	-0.246
47	460	4.504	-0.256
48	470	4.504	-0.256
49	480	4.573	-0.187
50	490	4.504	-0.256
51	500	4.495	-0.265
52	510	4.485	-0.275
53	520	4.485	-0.275
54	530	4.475	-0.285
55	540	4.475	-0.285
56	550	4.465	-0.295
57	560	4.465	-0.295

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	4.455	-0.305
59	580	4.455	-0.305
60	590	4.445	-0.315
61	600	4.445	-0.315
62	610	4.445	-0.315
63	620	4.435	-0.325
64	630	4.435	-0.325
65	640	4.445	-0.315
66	650	4.435	-0.325
67	660	4.435	-0.325
68	670	4.475	-0.285
69	680	4.435	-0.325
70	690	4.435	-0.325
71	700	4.435	-0.325
72	710	4.426	-0.334
73	720	4.426	-0.334
74	730	4.426	-0.334
75	740	4.426	-0.334
76	750	4.416	-0.344
77	760	4.416	-0.344
78	770	4.416	-0.344
79	780	4.416	-0.344
80	790	4.406	-0.354
81	800	4.406	-0.354
82	810	4.406	-0.354
83	820	4.406	-0.354
84	830	4.406	-0.354
85	840	4.406	-0.354
86	850	4.406	-0.354
87	860	4.396	-0.364
88	870	4.396	-0.364
89	880	4.396	-0.364
90	890	4.396	-0.364
91	900	4.396	-0.364
92	910	4.396	-0.364
93	920	4.386	-0.374
94	930	4.386	-0.374
95	940	4.386	-0.374
96	950	4.377	-0.383
97	960	4.377	-0.383
98	970	4.377	-0.383
99	980	4.377	-0.383
100	990	4.396	-0.364
101	1000	4.377	-0.383
102	1010	4.367	-0.393
103	1020	4.367	-0.393
104	1030	4.357	-0.403
105	1040	4.357	-0.403
106	1050	4.347	-0.413
107	1060	4.347	-0.413
108	1070	4.337	-0.423
109	1080	4.337	-0.423
110	1090	4.337	-0.423
111	1100	4.327	-0.433
112	1110	4.317	-0.443
113	1120	4.308	-0.452
114	1130	4.308	-0.452
115	1140	4.347	-0.413
116	1150	4.327	-0.433
117	1160	4.317	-0.443
118	1170	4.317	-0.443
119	1180	4.308	-0.452
120	1190	4.308	-0.452

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	4.327	-0.433
122	1210	4.308	-0.452
123	1220	4.298	-0.462
124	1230	4.308	-0.452
125	1240	4.288	-0.472
126	1250	4.288	-0.472
127	1260	4.288	-0.472
128	1270	4.278	-0.482
129	1280	4.288	-0.472
130	1290	4.278	-0.482
131	1300	4.268	-0.492
132	1310	4.268	-0.492
133	1320	4.268	-0.492
134	1330	4.268	-0.492
135	1340	4.268	-0.492
136	1350	4.258	-0.502
137	1360	4.258	-0.502
138	1370	4.258	-0.502
139	1380	4.258	-0.502
140	1390	4.258	-0.502
141	1400	4.248	-0.512
142	1410	4.248	-0.512
143	1420	4.248	-0.512
144	1430	4.248	-0.512
145	1440	4.239	-0.521
146	1450	4.239	-0.521
147	1460	4.248	-0.512
148	1470	4.239	-0.521
149	1480	4.239	-0.521
150	1490	4.239	-0.521
151	1500	4.239	-0.521
152	1510	4.239	-0.521
153	1520	4.248	-0.512
154	1530	4.239	-0.521
155	1540	4.239	-0.521
156	1550	4.239	-0.521
157	1560	4.239	-0.521
158	1570	4.229	-0.531
159	1580	4.229	-0.531
160	1590	4.229	-0.531
161	1600	4.229	-0.531
162	1610	4.229	-0.531
163	1620	4.229	-0.531
164	1630	4.239	-0.521
165	1640	4.229	-0.531
166	1650	4.239	-0.521
167	1660	4.229	-0.531
168	1670	4.229	-0.531
169	1680	4.229	-0.531
170	1690	4.229	-0.531
171	1700	4.239	-0.521
172	1710	4.229	-0.531
173	1720	4.229	-0.531
174	1730	4.219	-0.541
175	1740	4.229	-0.531
176	1750	4.229	-0.531
177	1760	4.219	-0.541
178	1770	4.229	-0.531
179	1780	4.219	-0.541
180	1790	4.219	-0.541
181	1800	4.229	-0.531
182	1810	4.219	-0.541
183	1820	4.209	-0.551

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	4.209	-0.551
185	1840	4.209	-0.551
186	1850	4.229	-0.531
187	1860	4.229	-0.531
188	1870	4.229	-0.531
189	1880	4.219	-0.541
190	1890	4.209	-0.551
191	1900	4.209	-0.551
192	1910	4.199	-0.561
193	1920	4.199	-0.561
194	1930	4.199	-0.561
195	1940	4.209	-0.551
196	1950	4.199	-0.561
197	1960	4.199	-0.561
198	1970	4.239	-0.521
199	1980	4.229	-0.531
200	1990	4.199	-0.561
201	2000	4.199	-0.561
202	2010	4.199	-0.561
203	2020	4.19	-0.57
204	2030	4.19	-0.57
205	2040	4.19	-0.57
206	2050	4.19	-0.57
207	2060	4.19	-0.57
208	2070	4.19	-0.57
209	2080	4.19	-0.57
210	2090	4.19	-0.57
211	2100	4.19	-0.57
212	2110	4.18	-0.58
213	2120	4.18	-0.58
214	2130	4.18	-0.58
215	2140	4.18	-0.58
216	2150	4.17	-0.59
217	2160	4.17	-0.59
218	2170	4.18	-0.58
219	2180	4.18	-0.58
220	2190	4.17	-0.59
221	2200	4.17	-0.59
222	2210	4.19	-0.57
223	2220	4.18	-0.58
224	2230	4.18	-0.58
225	2240	4.18	-0.58
226	2250	4.17	-0.59
227	2260	4.18	-0.58
228	2270	4.18	-0.58
229	2280	4.18	-0.58
230	2290	4.18	-0.58
231	2300	4.18	-0.58
232	2310	4.18	-0.58
233	2320	4.18	-0.58
234	2330	4.18	-0.58
235	2340	4.17	-0.59
236	2350	4.18	-0.58
237	2360	4.18	-0.58
238	2370	4.17	-0.59
239	2380	4.17	-0.59
240	2390	4.19	-0.57
241	2400	4.17	-0.59
242	2410	4.17	-0.59
243	2420	4.16	-0.60
244	2430	4.16	-0.60
245	2440	4.17	-0.59
246	2450	4.17	-0.59

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Project: OBS-853

Number: 2014-078-11472

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	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	4.17	-0.59
248	2470	4.17	-0.59
249	2480	4.16	-0.60
250	2490	4.19	-0.57
251	2500	4.17	-0.59
252	2510	4.17	-0.59
253	2520	4.17	-0.59
254	2530	4.17	-0.59
255	2540	4.17	-0.59
256	2550	4.17	-0.59
257	2560	4.17	-0.59
258	2570	4.17	-0.59
259	2580	4.17	-0.59
260	2590	4.17	-0.59
261	2600	4.17	-0.59
262	2610	4.16	-0.60
263	2620	4.17	-0.59
264	2630	4.17	-0.59
265	2640	4.17	-0.59
266	2650	4.16	-0.60
267	2660	4.16	-0.60
268	2670	4.17	-0.59
269	2680	4.18	-0.58
270	2690	4.17	-0.59
271	2700	4.17	-0.59
272	2710	4.17	-0.59
273	2720	4.17	-0.59
274	2730	4.17	-0.59
275	2740	4.17	-0.59
276	2750	4.17	-0.59
277	2760	4.17	-0.59
278	2770	4.17	-0.59
279	2780	4.17	-0.59
280	2790	4.17	-0.59
281	2800	3.766	-0.994
282	2810	3.766	-0.994
283	2820	3.776	-0.984
284	2830	3.776	-0.984
285	2840	3.766	-0.994
286	2850	3.776	-0.984
287	2860	3.786	-0.974
288	2870	3.776	-0.984
289	2880	3.776	-0.984
290	2890	3.776	-0.984
291	2900	3.776	-0.984
292	2910	3.786	-0.974
293	2920	3.786	-0.974
294	2930	3.776	-0.984
295	2940	3.776	-0.984
296	2950	3.786	-0.974
297	2960	3.786	-0.974
298	2970	3.786	-0.974
299	2980	3.786	-0.974
300	2990	3.786	-0.974
301	3000	3.786	-0.974
302	3010	3.786	-0.974
303	3020	3.825	-0.935
304	3030	3.796	-0.964
305	3040	3.796	-0.964
306	3050	3.806	-0.954
307	3060	3.796	-0.964
308	3070	3.796	-0.964
309	3080	3.796	-0.964

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	3.796	-0.964
311	3100	3.796	-0.964
312	3110	3.796	-0.964
313	3120	3.796	-0.964
314	3130	3.796	-0.964
315	3140	3.796	-0.964
316	3150	3.806	-0.954
317	3160	3.806	-0.954
318	3170	3.816	-0.944
319	3180	3.816	-0.944
320	3190	3.835	-0.925
321	3200	3.825	-0.935
322	3210	3.816	-0.944
323	3220	3.835	-0.925
324	3230	3.835	-0.925
325	3240	3.845	-0.915
326	3250	3.835	-0.925
327	3260	3.835	-0.925
328	3270	3.865	-0.895
329	3280	3.835	-0.925
330	3290	3.845	-0.915
331	3300	3.855	-0.905
332	3310	3.874	-0.886
333	3320	3.845	-0.915
334	3330	3.845	-0.915
335	3340	3.845	-0.915
336	3350	3.845	-0.915
337	3360	3.845	-0.915
338	3370	3.845	-0.915
339	3380	3.835	-0.925
340	3390	3.835	-0.925
341	3400	3.865	-0.895
342	3410	3.835	-0.925
343	3420	3.845	-0.915
344	3430	3.845	-0.915
345	3440	3.845	-0.915
346	3450	3.845	-0.915
347	3460	3.845	-0.915
348	3470	3.845	-0.915
349	3480	3.845	-0.915
350	3490	3.845	-0.915
351	3500	3.845	-0.915
352	3510	3.845	-0.915
353	3520	3.845	-0.915
354	3530	3.845	-0.915
355	3540	3.845	-0.915
356	3550	3.845	-0.915
357	3560	3.845	-0.915
358	3570	3.845	-0.915
359	3580	3.845	-0.915
360	3590	3.845	-0.915
361	3600	3.835	-0.925
362	3610	3.835	-0.925
363	3620	3.835	-0.925
364	3630	3.845	-0.915
365	3640	3.983	-0.777
366	3650	3.953	-0.807
367	3660	3.914	-0.846
368	3670	3.904	-0.856
369	3680	3.894	-0.866
370	3690	3.914	-0.846
371	3700	3.914	-0.846
372	3710	3.904	-0.856

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	4.012	-0.748
374	3730	4.042	-0.718
375	3740	4.081	-0.679
376	3750	4.111	-0.649
377	3760	3.983	-0.777
378	3770	3.963	-0.797
379	3780	3.934	-0.826
380	3790	3.924	-0.836
381	3800	3.924	-0.836
382	3810	3.914	-0.846
383	3820	3.904	-0.856
384	3830	3.904	-0.856
385	3840	3.904	-0.856
386	3850	3.894	-0.866
387	3860	3.894	-0.866
388	3870	3.894	-0.866
389	3880	3.894	-0.866
390	3890	3.894	-0.866
391	3900	3.894	-0.866
392	3910	3.884	-0.876
393	3920	3.884	-0.876
394	3930	3.884	-0.876
395	3940	3.884	-0.876
396	3950	3.884	-0.876
397	3960	3.874	-0.886
398	3970	3.874	-0.886
399	3980	3.884	-0.876
400	3990	3.884	-0.876
401	4000	3.884	-0.876
402	4010	3.904	-0.856
403	4020	3.894	-0.866
404	4030	3.894	-0.866
405	4040	3.894	-0.866
406	4050	3.924	-0.836
407	4060	3.904	-0.856
408	4070	3.904	-0.856
409	4080	3.934	-0.826
410	4090	3.914	-0.846
411	4100	3.904	-0.856
412	4110	3.904	-0.856
413	4120	3.904	-0.856
414	4130	3.904	-0.856
415	4140	3.904	-0.856
416	4150	3.914	-0.846
417	4160	3.914	-0.846
418	4170	3.904	-0.856
419	4180	3.904	-0.856
420	4190	3.904	-0.856
421	4200	3.904	-0.856
422	4210	3.983	-0.777
423	4220	3.914	-0.846
424	4230	3.904	-0.856
425	4240	3.904	-0.856
426	4250	3.904	-0.856
427	4260	3.894	-0.866
428	4270	3.894	-0.866
429	4280	3.884	-0.876
430	4290	3.884	-0.876
431	4300	3.884	-0.876
432	4310	3.894	-0.866
433	4320	3.884	-0.876
434	4330	3.884	-0.876
435	4340	3.884	-0.876

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	3.884	-0.876
437	4360	3.884	-0.876
438	4370	3.874	-0.886
439	4380	3.874	-0.886
440	4390	3.874	-0.886
441	4400	3.874	-0.886
442	4410	3.874	-0.886
443	4420	3.874	-0.886
444	4430	3.874	-0.886
445	4440	3.865	-0.895
446	4450	3.865	-0.895
447	4460	3.904	-0.856
448	4470	3.884	-0.876
449	4480	3.865	-0.895
450	4490	3.865	-0.895
451	4500	3.865	-0.895
452	4510	3.865	-0.895
453	4520	3.865	-0.895
454	4530	3.855	-0.905
455	4540	3.884	-0.876
456	4550	3.865	-0.895
457	4560	3.865	-0.895
458	4570	3.865	-0.895
459	4580	3.894	-0.866
460	4590	3.865	-0.895
461	4600	3.874	-0.886
462	4610	3.865	-0.895
463	4620	3.874	-0.886
464	4630	3.865	-0.895
465	4640	3.865	-0.895
466	4650	3.904	-0.856
467	4660	3.934	-0.826
468	4670	3.884	-0.876
469	4680	3.874	-0.886
470	4690	3.874	-0.886
471	4700	3.874	-0.886
472	4710	3.865	-0.895
473	4720	3.904	-0.856
474	4730	3.874	-0.886
475	4740	3.865	-0.895
476	4750	3.865	-0.895
477	4760	3.865	-0.895
478	4770	3.874	-0.886
479	4780	3.874	-0.886
480	4790	3.874	-0.886
481	4800	3.865	-0.895
482	4810	3.865	-0.895
483	4820	3.865	-0.895
484	4830	3.865	-0.895
485	4840	3.865	-0.895
486	4850	3.855	-0.905
487	4860	3.855	-0.905
488	4870	3.855	-0.905
489	4880	3.855	-0.905
490	4890	3.855	-0.905
491	4900	3.855	-0.905
492	4910	3.855	-0.905
493	4920	3.855	-0.905
494	4930	3.855	-0.905
495	4940	3.855	-0.905
496	4950	3.855	-0.905
497	4960	3.855	-0.905
498	4970	3.855	-0.905

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	3.855	-0.905
500	4990	3.855	-0.905
501	5000	3.855	-0.905
502	5010	3.845	-0.915
503	5020	3.845	-0.915
504	5030	3.845	-0.915
505	5040	3.845	-0.915
506	5050	3.845	-0.915
507	5060	3.835	-0.925
508	5070	3.845	-0.915
509	5080	3.845	-0.915
510	5090	3.845	-0.915
511	5100	3.835	-0.925
512	5110	3.835	-0.925
513	5120	3.835	-0.925
514	5130	3.835	-0.925
515	5140	3.835	-0.925
516	5150	3.835	-0.925
517	5160	3.835	-0.925
518	5170	3.835	-0.925
519	5180	3.835	-0.925
520	5190	3.835	-0.925
521	5200	3.835	-0.925
522	5210	3.835	-0.925
523	5220	3.835	-0.925
524	5230	3.845	-0.915
525	5240	3.845	-0.915
526	5250	3.845	-0.915
527	5260	3.845	-0.915
528	5270	3.845	-0.915
529	5280	3.845	-0.915
530	5290	3.845	-0.915
531	5300	3.845	-0.915
532	5310	3.845	-0.915
533	5320	3.845	-0.915
534	5330	3.855	-0.905
535	5340	3.855	-0.905
536	5350	3.855	-0.905
537	5360	3.855	-0.905
538	5370	3.855	-0.905
539	5380	3.855	-0.905
540	5390	3.855	-0.905
541	5400	3.855	-0.905
542	5410	3.855	-0.905
543	5420	3.855	-0.905
544	5430	3.855	-0.905
545	5440	3.884	-0.876
546	5450	3.865	-0.895
547	5460	3.865	-0.895
548	5470	3.865	-0.895
549	5480	3.874	-0.886
550	5490	3.874	-0.886
551	5500	3.874	-0.886
552	5510	3.874	-0.886
553	5520	3.874	-0.886
554	5530	3.874	-0.886
555	5540	3.884	-0.876
556	5550	3.884	-0.876
557	5560	3.884	-0.876
558	5570	3.904	-0.856
559	5580	3.894	-0.866
560	5590	3.894	-0.866
561	5600	3.894	-0.866

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	3.983	-0.777
563	5620	3.914	-0.846
564	5630	3.924	-0.836
565	5640	3.924	-0.836
566	5650	3.934	-0.826
567	5660	3.924	-0.836
568	5670	3.924	-0.836
569	5680	3.924	-0.836
570	5690	3.934	-0.826
571	5700	3.924	-0.836
572	5710	3.924	-0.836
573	5720	3.924	-0.836
574	5730	3.934	-0.826
575	5740	3.924	-0.836
576	5750	3.934	-0.826
577	5760	3.934	-0.826
578	5770	3.943	-0.817
579	5780	3.934	-0.826
580	5790	3.973	-0.787
581	5800	3.943	-0.817
582	5810	3.943	-0.817
583	5820	3.943	-0.817
584	5830	3.943	-0.817
585	5840	3.943	-0.817
586	5850	3.943	-0.817
587	5860	3.953	-0.807
588	5870	3.953	-0.807
589	5880	3.953	-0.807
590	5890	3.953	-0.807
591	5900	3.953	-0.807
592	5910	3.963	-0.797
593	5920	3.963	-0.797
594	5930	3.963	-0.797
595	5940	3.973	-0.787
596	5950	3.963	-0.797
597	5960	3.973	-0.787
598	5970	3.973	-0.787
599	5980	3.993	-0.767
600	5990	3.983	-0.777
601	6000	3.983	-0.777
602	6010	3.983	-0.777
603	6020	3.983	-0.777
604	6030	3.983	-0.777
605	6040	3.983	-0.777
606	6050	3.983	-0.777
607	6060	3.983	-0.777
608	6070	3.983	-0.777
609	6080	3.983	-0.777
610	6090	4.012	-0.748
611	6100	4.012	-0.748
612	6110	4.003	-0.757
613	6120	4.003	-0.757
614	6130	3.993	-0.767
615	6140	4.003	-0.757
616	6150	4.003	-0.757
617	6160	4.003	-0.757
618	6170	4.003	-0.757
619	6180	4.012	-0.748
620	6190	4.012	-0.748
621	6200	4.022	-0.738
622	6210	4.022	-0.738
623	6220	4.022	-0.738
624	6230	4.022	-0.738

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	4.032	-0.728
626	6250	4.032	-0.728
627	6260	4.032	-0.728
628	6270	4.032	-0.728
629	6280	4.042	-0.718
630	6290	4.042	-0.718
631	6300	4.042	-0.718
632	6310	4.061	-0.699
633	6320	4.052	-0.708
634	6330	4.052	-0.708
635	6340	4.052	-0.708
636	6350	4.052	-0.708
637	6360	4.052	-0.708
638	6370	4.061	-0.699
639	6380	4.061	-0.699
640	6390	4.061	-0.699
641	6400	4.061	-0.699
642	6410	4.061	-0.699
643	6420	4.061	-0.699
644	6430	4.061	-0.699
645	6440	4.061	-0.699
646	6450	4.071	-0.689
647	6460	4.061	-0.699
648	6470	4.061	-0.699
649	6480	4.061	-0.699
650	6490	4.061	-0.699
651	6500	4.061	-0.699
652	6510	4.061	-0.699
653	6520	4.061	-0.699
654	6530	4.061	-0.699
655	6540	4.061	-0.699
656	6550	4.061	-0.699
657	6560	4.061	-0.699
658	6570	4.061	-0.699
659	6580	4.061	-0.699
660	6590	4.061	-0.699
661	6600	4.061	-0.699
662	6610	4.061	-0.699
663	6620	4.061	-0.699
664	6630	4.061	-0.699
665	6640	4.061	-0.699
666	6650	4.071	-0.689
667	6660	4.071	-0.689
668	6670	4.071	-0.689
669	6680	4.071	-0.689
670	6690	4.071	-0.689
671	6700	4.071	-0.689
672	6710	4.081	-0.679
673	6720	4.081	-0.679
674	6730	4.081	-0.679
675	6740	4.081	-0.679
676	6750	4.081	-0.679
677	6760	4.081	-0.679
678	6770	4.081	-0.679
679	6780	4.081	-0.679
680	6790	4.091	-0.669
681	6800	4.091	-0.669
682	6810	4.091	-0.669
683	6820	4.091	-0.669
684	6830	4.101	-0.659
685	6840	4.13	-0.63
686	6850	4.121	-0.639
687	6860	4.121	-0.639

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	4.121	-0.639
689	6880	4.121	-0.639
690	6890	4.13	-0.63
691	6900	4.13	-0.63
692	6910	4.14	-0.62
693	6920	4.14	-0.62
694	6930	4.15	-0.61
695	6940	4.15	-0.61
696	6950	4.16	-0.60
697	6960	4.16	-0.60
698	6970	4.16	-0.60
699	6980	4.17	-0.59
700	6990	4.18	-0.58
701	7000	4.18	-0.58
702	7010	4.209	-0.551
703	7020	4.199	-0.561
704	7030	4.199	-0.561
705	7040	4.219	-0.541
706	7050	4.209	-0.551
707	7060	4.219	-0.541
708	7070	4.219	-0.541
709	7080	4.219	-0.541
710	7090	4.229	-0.531
711	7100	4.239	-0.521
712	7110	4.239	-0.521
713	7120	4.239	-0.521
714	7130	4.239	-0.521
715	7140	4.248	-0.512
716	7150	4.248	-0.512
717	7160	4.248	-0.512
718	7170	4.268	-0.492
719	7180	4.268	-0.492
720	7190	4.268	-0.492
721	7200	4.268	-0.492
722	7210	4.278	-0.482
723	7220	4.278	-0.482
724	7230	4.288	-0.472
725	7240	4.288	-0.472
726	7250	4.288	-0.472
727	7260	4.288	-0.472
728	7270	4.298	-0.462
729	7280	4.298	-0.462
730	7290	4.298	-0.462
731	7300	4.308	-0.452
732	7310	4.317	-0.443
733	7320	4.308	-0.452
734	7330	4.317	-0.443
735	7340	4.317	-0.443
736	7350	4.327	-0.433
737	7360	4.357	-0.403
738	7370	4.327	-0.433
739	7380	4.327	-0.433
740	7390	4.327	-0.433
741	7400	4.337	-0.423
742	7410	4.337	-0.423
743	7420	4.337	-0.423
744	7430	4.337	-0.423
745	7440	4.347	-0.413
746	7450	4.347	-0.413
747	7460	4.347	-0.413
748	7470	4.347	-0.413
749	7480	4.347	-0.413
750	7490	4.367	-0.393

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	4.386	-0.374
752	7510	4.367	-0.393
753	7520	4.367	-0.393
754	7530	4.367	-0.393
755	7540	4.367	-0.393
756	7550	4.377	-0.383
757	7560	4.386	-0.374
758	7570	4.377	-0.383
759	7580	4.426	-0.334
760	7590	4.406	-0.354
761	7600	4.396	-0.364
762	7610	4.396	-0.364
763	7620	4.426	-0.334
764	7630	4.416	-0.344
765	7640	4.406	-0.354
766	7650	4.416	-0.344
767	7660	4.416	-0.344
768	7670	4.416	-0.344
769	7680	4.416	-0.344
770	7690	4.416	-0.344
771	7700	4.416	-0.344
772	7710	4.416	-0.344
773	7720	4.426	-0.334
774	7730	4.426	-0.334
775	7740	4.426	-0.334
776	7750	4.435	-0.325
777	7760	4.435	-0.325
778	7770	4.445	-0.315
779	7780	4.445	-0.315
780	7790	4.445	-0.315
781	7800	4.455	-0.305
782	7810	4.455	-0.305
783	7820	4.465	-0.295
784	7830	4.465	-0.295
785	7840	4.465	-0.295
786	7850	4.465	-0.295
787	7860	4.475	-0.285
788	7870	4.475	-0.285
789	7880	4.475	-0.285
790	7890	4.475	-0.285
791	7900	4.475	-0.285
792	7910	4.475	-0.285
793	7920	4.475	-0.285
794	7930	4.475	-0.285
795	7940	4.475	-0.285
796	7950	4.475	-0.285
797	7960	4.475	-0.285
798	7970	4.475	-0.285
799	7980	4.475	-0.285
800	7990	4.465	-0.295
801	8000	4.465	-0.295
802	8010	4.475	-0.285
803	8020	4.475	-0.285
804	8030	4.465	-0.295
805	8040	4.465	-0.295
806	8050	4.465	-0.295
807	8060	4.465	-0.295
808	8070	4.465	-0.295
809	8080	4.455	-0.305
810	8090	4.475	-0.285
811	8100	4.465	-0.295
812	8110	4.465	-0.295
813	8120	4.465	-0.295

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	4.465	-0.295
815	8140	4.455	-0.305
816	8150	4.435	-0.325
817	8160	4.426	-0.334
818	8170	4.416	-0.344
819	8180	4.426	-0.334
820	8190	4.426	-0.334
821	8200	4.426	-0.334
822	8210	4.406	-0.354
823	8220	4.406	-0.354
824	8230	4.386	-0.374
825	8240	4.367	-0.393
826	8250	4.377	-0.383
827	8260	4.386	-0.374
828	8270	4.386	-0.374
829	8280	4.396	-0.364
830	8290	4.396	-0.364
831	8300	4.406	-0.354
832	8310	4.406	-0.354
833	8320	4.386	-0.374
834	8330	4.386	-0.374
835	8340	4.396	-0.364
836	8350	4.396	-0.364
837	8360	4.406	-0.354
838	8370	4.406	-0.354
839	8380	4.396	-0.364
840	8390	4.396	-0.364
841	8400	4.396	-0.364
842	8410	4.406	-0.354
843	8420	4.406	-0.354
844	8430	4.396	-0.364
845	8440	4.416	-0.344
846	8450	4.416	-0.344
847	8460	4.445	-0.315
848	8470	4.426	-0.334
849	8480	4.426	-0.334
850	8490	4.416	-0.344
851	8500	4.416	-0.344
852	8510	4.416	-0.344
853	8520	4.465	-0.295
854	8530	4.426	-0.334
855	8540	4.416	-0.344
856	8550	4.406	-0.354
857	8560	4.416	-0.344
858	8570	4.406	-0.354
859	8580	4.406	-0.354
860	8590	4.396	-0.364
861	8600	4.396	-0.364
862	8610	4.396	-0.364
863	8620	4.396	-0.364
864	8630	4.396	-0.364
865	8640	4.396	-0.364
866	8650	4.386	-0.374
867	8660	4.386	-0.374
868	8670	4.396	-0.364
869	8680	4.396	-0.364
870	8690	4.396	-0.364
871	8700	4.386	-0.374
872	8710	4.386	-0.374
873	8720	4.386	-0.374
874	8730	4.386	-0.374
875	8740	4.386	-0.374
876	8750	4.377	-0.383

	Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
		Project: OBS-853	
		Number: 2014-078-11472	
		Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	4.377	-0.383
878	8770	4.377	-0.383
879	8780	4.377	-0.383
880	8790	4.377	-0.383
881	8800	4.377	-0.383
882	8810	4.386	-0.374
883	8820	4.377	-0.383
884	8830	4.377	-0.383
885	8840	4.377	-0.383
886	8850	4.377	-0.383
887	8860	4.367	-0.393
888	8870	4.367	-0.393
889	8880	4.367	-0.393
890	8890	4.367	-0.393
891	8900	4.367	-0.393
892	8910	4.377	-0.383
893	8920	4.367	-0.393
894	8930	4.377	-0.383
895	8940	4.367	-0.393
896	8950	4.377	-0.383
897	8960	4.396	-0.364
898	8970	4.377	-0.383
899	8980	4.367	-0.393
900	8990	4.367	-0.393
901	9000	4.367	-0.393
902	9010	4.435	-0.325
903	9020	4.386	-0.374
904	9030	4.377	-0.383
905	9040	4.377	-0.383
906	9050	4.367	-0.393
907	9060	4.377	-0.383
908	9070	4.367	-0.393
909	9080	4.367	-0.393
910	9090	4.367	-0.393
911	9100	4.367	-0.393
912	9110	4.357	-0.403
913	9120	4.357	-0.403
914	9130	4.367	-0.393
915	9140	4.357	-0.403
916	9150	4.357	-0.403
917	9160	4.357	-0.403
918	9170	4.357	-0.403
919	9180	4.367	-0.393
920	9190	4.367	-0.393
921	9200	4.367	-0.393
922	9210	4.367	-0.393
923	9220	4.367	-0.393
924	9230	4.367	-0.393
925	9240	4.367	-0.393
926	9250	4.367	-0.393
927	9260	4.367	-0.393
928	9270	4.367	-0.393
929	9280	4.367	-0.393
930	9290	4.367	-0.393
931	9300	4.377	-0.383
932	9310	4.377	-0.383
933	9320	4.377	-0.383
934	9330	4.377	-0.383
935	9340	4.377	-0.383
936	9350	4.377	-0.383
937	9360	4.377	-0.383
938	9370	4.377	-0.383
939	9380	4.377	-0.383

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	4.367	-0.393
941	9400	4.367	-0.393
942	9410	4.367	-0.393
943	9420	4.357	-0.403
944	9430	4.357	-0.403
945	9440	4.357	-0.403
946	9450	4.347	-0.413
947	9460	4.347	-0.413
948	9470	4.347	-0.413
949	9480	4.347	-0.413
950	9490	4.347	-0.413
951	9500	4.337	-0.423
952	9510	4.337	-0.423
953	9520	4.327	-0.433
954	9530	4.327	-0.433
955	9540	4.317	-0.443
956	9550	4.317	-0.443
957	9560	4.308	-0.452
958	9570	4.308	-0.452
959	9580	4.298	-0.462
960	9590	4.288	-0.472
961	9600	4.288	-0.472
962	9610	4.278	-0.482
963	9620	4.278	-0.482
964	9630	4.268	-0.492
965	9640	4.268	-0.492
966	9650	4.258	-0.502
967	9660	4.258	-0.502
968	9670	4.248	-0.512
969	9680	4.248	-0.512
970	9690	4.248	-0.512
971	9700	4.239	-0.521
972	9710	4.239	-0.521
973	9720	4.239	-0.521
974	9730	4.229	-0.531
975	9740	4.229	-0.531
976	9750	4.229	-0.531
977	9760	4.219	-0.541
978	9770	4.219	-0.541
979	9780	4.219	-0.541
980	9790	4.219	-0.541
981	9800	4.219	-0.541
982	9810	4.248	-0.512
983	9820	4.219	-0.541
984	9830	4.219	-0.541
985	9840	4.219	-0.541
986	9850	4.219	-0.541
987	9860	4.219	-0.541
988	9870	4.219	-0.541
989	9880	4.209	-0.551
990	9890	4.209	-0.551
991	9900	4.209	-0.551
992	9910	4.219	-0.541
993	9920	4.248	-0.512
994	9930	4.219	-0.541
995	9940	4.219	-0.541
996	9950	4.219	-0.541
997	9960	4.229	-0.531
998	9970	4.219	-0.541
999	9980	4.219	-0.541
1000	9990	4.219	-0.541
1001	10000	4.219	-0.541
1002	10010	4.219	-0.541

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	4.219	-0.541
1004	10030	4.229	-0.531
1005	10040	4.229	-0.531
1006	10050	4.229	-0.531
1007	10060	4.229	-0.531
1008	10070	4.229	-0.531
1009	10080	4.219	-0.541
1010	10090	4.327	-0.433
1011	10100	4.248	-0.512
1012	10110	4.239	-0.521
1013	10120	4.239	-0.521
1014	10130	4.229	-0.531
1015	10140	4.229	-0.531
1016	10150	4.229	-0.531
1017	10160	4.229	-0.531
1018	10170	4.229	-0.531
1019	10180	4.229	-0.531
1020	10190	4.229	-0.531
1021	10200	4.219	-0.541
1022	10210	4.219	-0.541
1023	10220	4.219	-0.541
1024	10230	4.219	-0.541
1025	10240	4.219	-0.541
1026	10250	4.219	-0.541
1027	10260	4.219	-0.541
1028	10270	4.209	-0.551
1029	10280	4.209	-0.551
1030	10290	4.209	-0.551
1031	10300	4.209	-0.551
1032	10310	4.209	-0.551
1033	10320	4.199	-0.561
1034	10330	4.199	-0.561
1035	10340	4.199	-0.561
1036	10350	4.199	-0.561
1037	10360	4.199	-0.561
1038	10370	4.199	-0.561
1039	10380	4.19	-0.57
1040	10390	4.19	-0.57
1041	10400	4.19	-0.57
1042	10410	4.19	-0.57
1043	10420	4.19	-0.57
1044	10430	4.19	-0.57
1045	10440	4.19	-0.57
1046	10450	4.19	-0.57
1047	10460	4.268	-0.492
1048	10470	4.209	-0.551
1049	10480	4.199	-0.561
1050	10490	4.199	-0.561
1051	10500	4.19	-0.57
1052	10510	4.199	-0.561
1053	10520	4.19	-0.57
1054	10530	4.19	-0.57
1055	10540	4.19	-0.57
1056	10550	4.19	-0.57
1057	10560	4.19	-0.57
1058	10570	4.19	-0.57
1059	10580	4.19	-0.57
1060	10590	4.19	-0.57
1061	10600	4.19	-0.57
1062	10610	4.19	-0.57
1063	10620	4.19	-0.57
1064	10630	4.19	-0.57
1065	10640	4.209	-0.551

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	4.199	-0.561
1067	10660	4.199	-0.561
1068	10670	4.199	-0.561
1069	10680	4.199	-0.561
1070	10690	4.199	-0.561
1071	10700	4.18	-0.58
1072	10710	4.18	-0.58
1073	10720	4.18	-0.58
1074	10730	4.18	-0.58
1075	10740	4.18	-0.58
1076	10750	4.18	-0.58
1077	10760	4.18	-0.58
1078	10770	4.18	-0.58
1079	10780	4.18	-0.58
1080	10790	4.18	-0.58
1081	10800	4.17	-0.59
1082	10810	4.17	-0.59
1083	10820	4.17	-0.59
1084	10830	4.17	-0.59
1085	10840	4.17	-0.59
1086	10850	4.17	-0.59
1087	10860	4.16	-0.60
1088	10870	4.16	-0.60
1089	10880	4.16	-0.60
1090	10890	4.16	-0.60
1091	10900	4.16	-0.60
1092	10910	4.16	-0.60
1093	10920	4.15	-0.61
1094	10930	4.15	-0.61
1095	10940	4.15	-0.61
1096	10950	4.15	-0.61
1097	10960	4.15	-0.61
1098	10970	4.14	-0.62
1099	10980	4.14	-0.62
1100	10990	4.14	-0.62
1101	11000	4.14	-0.62
1102	11010	4.13	-0.63
1103	11020	4.13	-0.63
1104	11030	4.13	-0.63
1105	11040	4.121	-0.639
1106	11050	4.121	-0.639
1107	11060	4.121	-0.639
1108	11070	4.111	-0.649
1109	11080	4.111	-0.649
1110	11090	4.111	-0.649
1111	11100	4.101	-0.659
1112	11110	4.101	-0.659
1113	11120	4.101	-0.659
1114	11130	4.101	-0.659
1115	11140	4.111	-0.649
1116	11150	4.101	-0.659
1117	11160	4.091	-0.669
1118	11170	4.111	-0.649
1119	11180	4.13	-0.63
1120	11190	4.091	-0.669
1121	11200	4.091	-0.669
1122	11210	4.081	-0.679
1123	11220	4.081	-0.679
1124	11230	4.081	-0.679
1125	11240	4.081	-0.679
1126	11250	4.071	-0.689
1127	11260	4.081	-0.679
1128	11270	4.071	-0.689

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	4.071	-0.689
1130	11290	4.071	-0.689
1131	11300	4.14	-0.62
1132	11310	4.091	-0.669
1133	11320	4.091	-0.669
1134	11330	4.081	-0.679
1135	11340	4.081	-0.679
1136	11350	4.081	-0.679
1137	11360	4.081	-0.679
1138	11370	4.091	-0.669
1139	11380	4.091	-0.669
1140	11390	4.091	-0.669
1141	11400	4.091	-0.669
1142	11410	4.091	-0.669
1143	11420	4.091	-0.669
1144	11430	4.091	-0.669
1145	11440	4.101	-0.659
1146	11450	4.101	-0.659
1147	11460	4.111	-0.649
1148	11470	4.111	-0.649
1149	11480	4.111	-0.649
1150	11490	4.111	-0.649
1151	11500	4.111	-0.649
1152	11510	4.111	-0.649
1153	11520	4.121	-0.639
1154	11530	4.121	-0.639
1155	11540	4.121	-0.639
1156	11550	4.121	-0.639
1157	11560	4.121	-0.639
1158	11570	4.13	-0.63
1159	11580	4.13	-0.63
1160	11590	4.13	-0.63
1161	11600	4.15	-0.61
1162	11610	4.14	-0.62
1163	11620	4.14	-0.62
1164	11630	4.14	-0.62
1165	11640	4.17	-0.59
1166	11650	4.15	-0.61
1167	11660	4.15	-0.61
1168	11670	4.16	-0.60
1169	11680	4.19	-0.57
1170	11690	4.16	-0.60
1171	11700	4.15	-0.61
1172	11710	4.15	-0.61
1173	11720	4.15	-0.61
1174	11730	4.16	-0.60
1175	11740	4.15	-0.61
1176	11750	4.15	-0.61
1177	11760	4.16	-0.60
1178	11770	4.15	-0.61
1179	11780	4.15	-0.61
1180	11790	4.15	-0.61
1181	11800	4.16	-0.60
1182	11810	4.19	-0.57
1183	11820	4.16	-0.60
1184	11830	4.16	-0.60
1185	11840	4.16	-0.60
1186	11850	4.15	-0.61
1187	11860	4.17	-0.59
1188	11870	4.16	-0.60
1189	11880	4.17	-0.59
1190	11890	4.16	-0.60
1191	11900	4.16	-0.60

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	4.15	-0.61
1193	11920	4.15	-0.61
1194	11930	4.16	-0.60
1195	11940	4.16	-0.60
1196	11950	4.16	-0.60
1197	11960	4.19	-0.57
1198	11970	4.17	-0.59
1199	11980	4.17	-0.59
1200	11990	4.17	-0.59
1201	12000	4.17	-0.59
1202	12010	4.17	-0.59
1203	12020	4.17	-0.59
1204	12030	4.17	-0.59
1205	12040	4.17	-0.59
1206	12050	4.17	-0.59
1207	12060	4.17	-0.59
1208	12070	4.17	-0.59
1209	12080	4.17	-0.59
1210	12090	4.17	-0.59
1211	12100	4.17	-0.59
1212	12110	4.17	-0.59
1213	12120	4.17	-0.59
1214	12130	4.239	-0.521
1215	12140	4.199	-0.561
1216	12150	4.19	-0.57
1217	12160	4.19	-0.57
1218	12170	4.19	-0.57
1219	12180	4.19	-0.57
1220	12190	4.19	-0.57
1221	12200	4.19	-0.57
1222	12210	4.19	-0.57
1223	12220	4.19	-0.57
1224	12230	4.199	-0.561
1225	12240	4.199	-0.561
1226	12250	4.199	-0.561
1227	12260	4.199	-0.561
1228	12270	4.199	-0.561
1229	12280	4.199	-0.561
1230	12290	4.209	-0.551
1231	12300	4.209	-0.551
1232	12310	4.209	-0.551
1233	12320	4.209	-0.551
1234	12330	4.209	-0.551
1235	12340	4.209	-0.551
1236	12350	4.209	-0.551
1237	12360	4.209	-0.551
1238	12370	4.209	-0.551
1239	12380	4.209	-0.551
1240	12390	4.209	-0.551
1241	12400	4.209	-0.551
1242	12410	4.209	-0.551
1243	12420	4.209	-0.551
1244	12430	4.209	-0.551
1245	12440	4.209	-0.551
1246	12450	4.209	-0.551
1247	12460	4.209	-0.551
1248	12470	4.209	-0.551
1249	12480	4.209	-0.551
1250	12490	4.209	-0.551
1251	12500	4.209	-0.551
1252	12510	4.209	-0.551
1253	12520	4.199	-0.561
1254	12530	4.199	-0.561

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	4.199	-0.561
1256	12550	4.199	-0.561
1257	12560	4.199	-0.561
1258	12570	4.19	-0.57
1259	12580	4.19	-0.57
1260	12590	4.19	-0.57
1261	12600	4.18	-0.58
1262	12610	4.18	-0.58
1263	12620	4.18	-0.58
1264	12630	4.19	-0.57
1265	12640	4.199	-0.561
1266	12650	4.19	-0.57
1267	12660	4.18	-0.58
1268	12670	4.18	-0.58
1269	12680	4.18	-0.58
1270	12690	4.18	-0.58
1271	12700	4.18	-0.58
1272	12710	4.18	-0.58
1273	12720	4.18	-0.58
1274	12730	4.18	-0.58
1275	12740	4.17	-0.59
1276	12750	4.17	-0.59
1277	12760	4.17	-0.59
1278	12770	4.17	-0.59
1279	12780	4.17	-0.59
1280	12790	4.17	-0.59
1281	12800	4.17	-0.59
1282	12810	4.17	-0.59
1283	12820	4.18	-0.58
1284	12830	4.18	-0.58
1285	12840	4.19	-0.57
1286	12850	4.19	-0.57
1287	12860	4.199	-0.561
1288	12870	4.19	-0.57
1289	12880	4.199	-0.561
1290	12890	4.199	-0.561
1291	12900	4.199	-0.561
1292	12910	4.199	-0.561
1293	12920	4.209	-0.551
1294	12930	4.209	-0.551
1295	12940	4.209	-0.551
1296	12950	4.219	-0.541
1297	12960	4.219	-0.541
1298	12970	4.219	-0.541
1299	12980	4.219	-0.541
1300	12990	4.229	-0.531
1301	13000	4.229	-0.531

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-BD2	Static Water Level [ft]: 6.88	Radial Distance to PW [ft]: 15642

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	6.8796	0.00
2	5	6.8886	0.009
3	10	6.8833	0.0037
4	15	6.8897	0.0101
5	20	6.8892	0.0096
6	25	6.8887	0.0091
7	30	6.888	0.0084
8	35	6.8854	0.0058
9	40	6.8866	0.007
10	45	6.8864	0.0068
11	50	6.8826	0.003
12	55	6.8838	0.0042
13	60	6.8758	-0.0038
14	65	6.8808	0.0012
15	70	6.8836	0.004
16	75	6.8832	0.0036
17	80	6.8816	0.002
18	85	6.8878	0.0082
19	90	6.8871	0.0075
20	95	6.8926	0.013
21	100	6.8795	-0.0001
22	105	6.8932	0.0136
23	110	6.8809	0.0013
24	115	6.8809	0.0013
25	120	6.8885	0.0089
26	125	6.8802	0.0006
27	130	6.8871	0.0075
28	135	6.8844	0.0048
29	140	6.8795	-0.0001
30	145	6.8814	0.0018
31	150	6.8792	-0.0004
32	155	6.8761	-0.0035
33	160	6.8749	-0.0047
34	165	6.8782	-0.0014
35	170	6.879	-0.0006
36	175	6.8786	-0.001
37	180	6.8774	-0.0022
38	185	6.8737	-0.0059
39	190	6.8792	-0.0004
40	195	6.8862	0.0066
41	200	6.8834	0.0038
42	205	6.8783	-0.0013
43	210	6.8812	0.0016
44	215	6.873	-0.0066
45	220	6.8797	0.0001
46	225	6.8814	0.0018
47	230	6.877	-0.0026
48	235	6.8782	-0.0014
49	240	6.8798	0.0002
50	245	6.875	-0.0046
51	250	6.8716	-0.008
52	255	6.8758	-0.0038
53	260	6.8782	-0.0014
54	265	6.8673	-0.0123
55	270	6.8738	-0.0058
56	275	6.8712	-0.0084
57	280	6.8659	-0.0137

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	6.8722	-0.0074
59	290	6.8748	-0.0048
60	295	6.8688	-0.0108
61	300	6.8681	-0.0115
62	305	6.8702	-0.0094
63	310	6.8743	-0.0053
64	315	6.8776	-0.002
65	320	6.8736	-0.006
66	325	6.8756	-0.004
67	330	6.8732	-0.0064
68	335	6.8745	-0.0051
69	340	6.8678	-0.0118
70	345	6.8705	-0.0091
71	350	6.87	-0.0096
72	355	6.8666	-0.013
73	360	6.8679	-0.0117
74	365	6.8709	-0.0087
75	370	6.8679	-0.0117
76	375	6.87	-0.0096
77	380	6.8738	-0.0058
78	385	6.8676	-0.012
79	390	6.8638	-0.0158
80	395	6.8674	-0.0122
81	400	6.87	-0.0096
82	405	6.8697	-0.0099
83	410	6.8728	-0.0068
84	415	6.8643	-0.0153
85	420	6.8626	-0.017
86	425	6.8596	-0.02
87	430	6.8648	-0.0148
88	435	6.8681	-0.0115
89	440	6.8667	-0.0129
90	445	6.8702	-0.0094
91	450	6.8692	-0.0104
92	455	6.8659	-0.0137
93	460	6.8652	-0.0144
94	465	6.8686	-0.011
95	470	6.8611	-0.0185
96	475	6.867	-0.0126
97	480	6.865	-0.0146
98	485	6.861	-0.0186
99	490	6.869	-0.0106
100	495	6.8632	-0.0164
101	500	6.857	-0.0226
102	505	6.8538	-0.0258
103	510	6.8647	-0.0149
104	515	6.8614	-0.0182
105	520	6.8566	-0.023
106	525	6.8576	-0.022
107	530	6.8492	-0.0304
108	535	6.8559	-0.0237
109	540	6.8595	-0.0201
110	545	6.8548	-0.0248
111	550	6.8604	-0.0192
112	555	6.8642	-0.0154
113	560	6.86	-0.0196
114	565	6.8609	-0.0187
115	570	6.8643	-0.0153
116	575	6.8638	-0.0158
117	580	6.8612	-0.0184
118	585	6.8664	-0.0132
119	590	6.862	-0.0176
120	595	6.8589	-0.0207

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	6.8652	-0.0144
122	605	6.8569	-0.0227
123	610	6.8598	-0.0198
124	615	6.8634	-0.0162
125	620	6.8617	-0.0179
126	625	6.8597	-0.0199
127	630	6.8612	-0.0184
128	635	6.8662	-0.0134
129	640	6.8693	-0.0103
130	645	6.869	-0.0106
131	650	6.864	-0.0156
132	655	6.8608	-0.0188
133	660	6.8688	-0.0108
134	665	6.8642	-0.0154
135	670	6.8723	-0.0073
136	675	6.869	-0.0106
137	680	6.864	-0.0156
138	685	6.8674	-0.0122
139	690	6.8696	-0.01
140	695	6.8617	-0.0179
141	700	6.8724	-0.0072
142	705	6.8716	-0.008
143	710	6.869	-0.0106
144	715	6.8659	-0.0137
145	720	6.8655	-0.0141
146	725	6.8648	-0.0148
147	730	6.8707	-0.0089
148	735	6.8693	-0.0103
149	740	6.8708	-0.0088
150	745	6.8664	-0.0132
151	750	6.87	-0.0096
152	755	6.8726	-0.007
153	760	6.8711	-0.0085
154	765	6.8668	-0.0128
155	770	6.869	-0.0106
156	775	6.8647	-0.0149
157	780	6.872	-0.0076
158	785	6.869	-0.0106
159	790	6.875	-0.0046
160	795	6.8685	-0.0111
161	800	6.8738	-0.0058
162	805	6.8654	-0.0142
163	810	6.8698	-0.0098
164	815	6.8716	-0.008
165	820	6.8726	-0.007
166	825	6.874	-0.0056
167	830	6.869	-0.0106
168	835	6.8704	-0.0092
169	840	6.8732	-0.0064
170	845	6.8738	-0.0058
171	850	6.8782	-0.0014
172	855	6.8802	0.0006
173	860	6.8818	0.0022
174	865	6.884	0.0044
175	870	6.8811	0.0015
176	875	6.8766	-0.003
177	880	6.8814	0.0018
178	885	6.878	-0.0016
179	890	6.8806	0.001
180	895	6.8816	0.002
181	900	6.8802	0.0006
182	905	6.8842	0.0046
183	910	6.889	0.0094

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	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	6.8761	-0.0035
185	920	6.8802	0.0006
186	925	6.889	0.0094
187	930	6.8809	0.0013
188	935	6.8854	0.0058
189	940	6.887	0.0074
190	945	6.8868	0.0072
191	950	6.8832	0.0036
192	955	6.886	0.0064
193	960	6.8875	0.0079
194	965	6.879	-0.0006
195	970	6.8821	0.0025
196	975	6.8822	0.0026
197	980	6.8856	0.006
198	985	6.8798	0.0002
199	990	6.8847	0.0051
200	995	6.8838	0.0042
201	1000	6.8821	0.0025
202	1005	6.887	0.0074
203	1010	6.8821	0.0025
204	1015	6.8809	0.0013
205	1020	6.8743	-0.0053
206	1025	6.8773	-0.0023
207	1030	6.8776	-0.002
208	1035	6.8856	0.006
209	1040	6.8872	0.0076
210	1045	6.8752	-0.0044
211	1050	6.8784	-0.0012
212	1055	6.8797	0.0001
213	1060	6.8888	0.0092
214	1065	6.8796	0.00
215	1070	6.874	-0.0056
216	1075	6.8807	0.0011
217	1080	6.8788	-0.0008
218	1085	6.8864	0.0068
219	1090	6.878	-0.0016
220	1095	6.8804	0.0008
221	1100	6.8788	-0.0008
222	1105	6.8768	-0.0028
223	1110	6.8706	-0.009
224	1115	6.8797	0.0001
225	1120	6.8811	0.0015
226	1125	6.8745	-0.0051
227	1130	6.87	-0.0096
228	1135	6.8698	-0.0098
229	1140	6.8772	-0.0024
230	1145	6.8731	-0.0065
231	1150	6.8695	-0.0101
232	1155	6.8734	-0.0062
233	1160	6.8762	-0.0034
234	1165	6.8738	-0.0058
235	1170	6.8723	-0.0073
236	1175	6.8698	-0.0098
237	1180	6.8633	-0.0163
238	1185	6.8638	-0.0158
239	1190	6.8618	-0.0178
240	1195	6.8684	-0.0112
241	1200	6.8697	-0.0099
242	1205	6.8688	-0.0108
243	1210	6.8666	-0.013
244	1215	6.8664	-0.0132
245	1220	6.8628	-0.0168
246	1225	6.8624	-0.0172

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	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	6.8617	-0.0179
248	1235	6.8668	-0.0128
249	1240	6.8676	-0.012
250	1245	6.8731	-0.0065
251	1250	6.8662	-0.0134
252	1255	6.8631	-0.0165
253	1260	6.8592	-0.0204
254	1265	6.8669	-0.0127
255	1270	6.861	-0.0186
256	1275	6.8631	-0.0165
257	1280	6.8646	-0.015
258	1285	6.8596	-0.02
259	1290	6.8592	-0.0204
260	1295	6.8574	-0.0222
261	1300	6.86	-0.0196
262	1305	6.8661	-0.0135
263	1310	6.8631	-0.0165
264	1315	6.86	-0.0196
265	1320	6.8606	-0.019
266	1325	6.8669	-0.0127
267	1330	6.8533	-0.0263
268	1335	6.868	-0.0116
269	1340	6.8666	-0.013
270	1345	6.8692	-0.0104
271	1350	6.8636	-0.016
272	1355	6.8622	-0.0174
273	1360	6.867	-0.0126
274	1365	6.866	-0.0136
275	1370	6.87	-0.0096
276	1375	6.8633	-0.0163
277	1380	6.865	-0.0146
278	1385	6.8624	-0.0172
279	1390	6.867	-0.0126
280	1395	6.8655	-0.0141
281	1400	6.8679	-0.0117
282	1405	6.8674	-0.0122
283	1410	6.8612	-0.0184
284	1415	6.8695	-0.0101
285	1420	6.8683	-0.0113
286	1425	6.8626	-0.017
287	1430	6.8686	-0.011
288	1435	6.8681	-0.0115
289	1440	6.8676	-0.012
290	1445	6.8698	-0.0098
291	1450	6.8622	-0.0174
292	1455	6.862	-0.0176
293	1460	6.8714	-0.0082
294	1465	6.8678	-0.0118
295	1470	6.8681	-0.0115
296	1475	6.8717	-0.0079
297	1480	6.868	-0.0116
298	1485	6.8758	-0.0038
299	1490	6.8682	-0.0114
300	1495	6.8695	-0.0101
301	1500	6.8712	-0.0084
302	1505	6.869	-0.0106
303	1510	6.876	-0.0036
304	1515	6.873	-0.0066
305	1520	6.8681	-0.0115
306	1525	6.868	-0.0116
307	1530	6.8764	-0.0032
308	1535	6.8757	-0.0039
309	1540	6.8731	-0.0065

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	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	6.8702	-0.0094
311	1550	6.875	-0.0046
312	1555	6.879	-0.0006
313	1560	6.8764	-0.0032
314	1565	6.872	-0.0076
315	1570	6.8693	-0.0103
316	1575	6.8724	-0.0072
317	1580	6.8652	-0.0144
318	1585	6.8738	-0.0058
319	1590	6.8747	-0.0049
320	1595	6.8782	-0.0014
321	1600	6.8762	-0.0034
322	1605	6.8828	0.0032
323	1610	6.8784	-0.0012
324	1615	6.8818	0.0022
325	1620	6.8766	-0.003
326	1625	6.8822	0.0026
327	1630	6.8758	-0.0038
328	1635	6.8828	0.0032
329	1640	6.8832	0.0036
330	1645	6.8832	0.0036
331	1650	6.8856	0.006
332	1655	6.8862	0.0066
333	1660	6.8849	0.0053
334	1665	6.888	0.0084
335	1670	6.8834	0.0038
336	1675	6.8864	0.0068
337	1680	6.8845	0.0049
338	1685	6.8868	0.0072
339	1690	6.8826	0.003
340	1695	6.8887	0.0091
341	1700	6.8812	0.0016
342	1705	6.8838	0.0042
343	1710	6.8882	0.0086
344	1715	6.887	0.0074
345	1720	6.8936	0.014
346	1725	6.8857	0.0061
347	1730	6.8896	0.01
348	1735	6.8857	0.0061
349	1740	6.8962	0.0166
350	1745	6.8926	0.013
351	1750	6.8983	0.0187
352	1755	6.8909	0.0113
353	1760	6.8934	0.0138
354	1765	6.8952	0.0156
355	1770	6.899	0.0194
356	1775	6.897	0.0174
357	1780	6.8952	0.0156
358	1785	6.8916	0.012
359	1790	6.8995	0.0199
360	1795	6.894	0.0144
361	1800	6.8964	0.0168
362	1805	6.8992	0.0196
363	1810	6.895	0.0154
364	1815	6.8906	0.011
365	1820	6.8919	0.0123
366	1825	6.8945	0.0149
367	1830	6.9043	0.0247
368	1835	6.8997	0.0201
369	1840	6.8988	0.0192
370	1845	6.8959	0.0163
371	1850	6.8957	0.0161
372	1855	6.8955	0.0159

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Pumping Test - Water Level Data

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	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	6.893	0.0134
374	1865	6.8935	0.0139
375	1870	6.9014	0.0218
376	1875	6.8955	0.0159
377	1880	6.9016	0.022
378	1885	6.9002	0.0206
379	1890	6.8958	0.0162
380	1895	6.9009	0.0213
381	1900	6.9023	0.0227
382	1905	6.897	0.0174
383	1910	6.8976	0.018
384	1915	6.9012	0.0216
385	1920	6.895	0.0154
386	1925	6.8932	0.0136
387	1930	6.8932	0.0136
388	1935	6.90	0.0204
389	1940	6.8966	0.017
390	1945	6.8966	0.017
391	1950	6.8893	0.0097
392	1955	6.8974	0.0178
393	1960	6.898	0.0184
394	1965	6.899	0.0194
395	1970	6.8966	0.017
396	1975	6.8945	0.0149
397	1980	6.8938	0.0142
398	1985	6.8946	0.015
399	1990	6.8976	0.018
400	1995	6.8986	0.019
401	2000	6.8924	0.0128
402	2005	6.897	0.0174
403	2010	6.8992	0.0196
404	2015	6.8988	0.0192
405	2020	6.9023	0.0227
406	2025	6.9006	0.021
407	2030	6.9017	0.0221
408	2035	6.8968	0.0172
409	2040	6.895	0.0154
410	2045	6.8926	0.013
411	2050	6.897	0.0174
412	2055	6.8986	0.019
413	2060	6.8984	0.0188
414	2065	6.8966	0.017
415	2070	6.8978	0.0182
416	2075	6.8988	0.0192
417	2080	6.8954	0.0158
418	2085	6.8988	0.0192
419	2090	6.898	0.0184
420	2095	6.896	0.0164
421	2100	6.8998	0.0202
422	2105	6.8997	0.0201
423	2110	6.9004	0.0208
424	2115	6.8955	0.0159
425	2120	6.9088	0.0292
426	2125	6.9026	0.023
427	2130	6.8938	0.0142
428	2135	6.901	0.0214
429	2140	6.9016	0.022
430	2145	6.9007	0.0211
431	2150	6.9075	0.0279
432	2155	6.9006	0.021
433	2160	6.8993	0.0197
434	2165	6.9004	0.0208
435	2170	6.8964	0.0168

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	6.9068	0.0272
437	2180	6.9005	0.0209
438	2185	6.9028	0.0232
439	2190	6.8992	0.0196
440	2195	6.8971	0.0175
441	2200	6.905	0.0254
442	2205	6.9021	0.0225
443	2210	6.9058	0.0262
444	2215	6.9026	0.023
445	2220	6.9072	0.0276
446	2225	6.9056	0.026
447	2230	6.9099	0.0303
448	2235	6.9129	0.0333
449	2240	6.8997	0.0201
450	2245	6.9059	0.0263
451	2250	6.9014	0.0218
452	2255	6.9116	0.032
453	2260	6.9105	0.0309
454	2265	6.9047	0.0251
455	2270	6.9031	0.0235
456	2275	6.9022	0.0226
457	2280	6.9061	0.0265
458	2285	6.9083	0.0287
459	2290	6.9161	0.0365
460	2295	6.9161	0.0365
461	2300	6.9099	0.0303
462	2305	6.9096	0.03
463	2310	6.9146	0.035
464	2315	6.9123	0.0327
465	2320	6.9063	0.0267
466	2325	6.9139	0.0343
467	2330	6.9159	0.0363
468	2335	6.914	0.0344
469	2340	6.917	0.0374
470	2345	6.9147	0.0351
471	2350	6.9121	0.0325
472	2355	6.9156	0.036
473	2360	6.9128	0.0332
474	2365	6.92	0.0404
475	2370	6.917	0.0374
476	2375	6.9204	0.0408
477	2380	6.9149	0.0353
478	2385	6.9145	0.0349
479	2390	6.9161	0.0365
480	2395	6.9145	0.0349
481	2400	6.9134	0.0338
482	2405	6.9151	0.0355
483	2410	6.9153	0.0357
484	2415	6.9104	0.0308
485	2420	6.9196	0.04
486	2425	6.9209	0.0413
487	2430	6.9171	0.0375
488	2435	6.9165	0.0369
489	2440	6.9185	0.0389
490	2445	6.9172	0.0376
491	2450	6.9175	0.0379
492	2455	6.9237	0.0441
493	2460	6.9204	0.0408
494	2465	6.9158	0.0362
495	2470	6.9184	0.0388
496	2475	6.9171	0.0375
497	2480	6.914	0.0344
498	2485	6.9209	0.0413

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	6.9217	0.0421
500	2495	6.9151	0.0355
501	2500	6.9125	0.0329
502	2505	6.9134	0.0338
503	2510	6.9208	0.0412
504	2515	6.9175	0.0379
505	2520	6.9132	0.0336
506	2525	6.9131	0.0335
507	2530	6.9159	0.0363
508	2535	6.9181	0.0385
509	2540	6.9241	0.0445
510	2545	6.9139	0.0343
511	2550	6.9172	0.0376
512	2555	6.9273	0.0477
513	2560	6.9262	0.0466
514	2565	6.9283	0.0487
515	2570	6.926	0.0464
516	2575	6.9187	0.0391
517	2580	6.9189	0.0393
518	2585	6.9233	0.0437
519	2590	6.9157	0.0361
520	2595	6.9271	0.0475
521	2600	6.9252	0.0456
522	2605	6.9258	0.0462
523	2610	6.9235	0.0439
524	2615	6.9298	0.0502
525	2620	6.9333	0.0537
526	2625	6.9405	0.0609
527	2630	6.9296	0.05
528	2635	6.9331	0.0535
529	2640	6.9403	0.0607
530	2645	6.9392	0.0596
531	2650	6.9409	0.0613
532	2655	6.9309	0.0513
533	2660	6.9271	0.0475
534	2665	6.9327	0.0531
535	2670	6.9303	0.0507
536	2675	6.9353	0.0557
537	2680	6.9259	0.0463
538	2685	6.9327	0.0531
539	2690	6.9272	0.0476
540	2695	6.9268	0.0472
541	2700	6.9289	0.0493
542	2705	6.9283	0.0487
543	2710	6.9336	0.054
544	2715	6.9308	0.0512
545	2720	6.9292	0.0496
546	2725	6.926	0.0464
547	2730	6.9325	0.0529
548	2735	6.9362	0.0566
549	2740	6.929	0.0494
550	2745	6.9402	0.0606
551	2750	6.9349	0.0553
552	2755	6.9382	0.0586
553	2760	6.935	0.0554
554	2765	6.9338	0.0542
555	2770	6.9297	0.0501
556	2775	6.9248	0.0452
557	2780	6.9255	0.0459
558	2785	6.9296	0.05
559	2790	6.9255	0.0459
560	2795	6.9337	0.0541
561	2800	6.934	0.0544

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	6.9325	0.0529
563	2810	6.934	0.0544
564	2815	6.9394	0.0598
565	2820	6.9378	0.0582
566	2825	6.9385	0.0589
567	2830	6.9407	0.0611
568	2835	6.9426	0.063
569	2840	6.9464	0.0668
570	2845	6.9409	0.0613
571	2850	6.9425	0.0629
572	2855	6.9388	0.0592
573	2860	6.9476	0.068
574	2865	6.9424	0.0628
575	2870	6.9392	0.0596
576	2875	6.945	0.0654
577	2880	6.9449	0.0653
578	2885	6.942	0.0624
579	2890	6.9405	0.0609
580	2895	6.9464	0.0668
581	2900	6.9462	0.0666
582	2905	6.9483	0.0687
583	2910	6.9529	0.0733
584	2915	6.9443	0.0647
585	2920	6.9453	0.0657
586	2925	6.9441	0.0645
587	2930	6.9489	0.0693
588	2935	6.9547	0.0751
589	2940	6.9549	0.0753
590	2945	6.9535	0.0739
591	2950	6.9514	0.0718
592	2955	6.9578	0.0782
593	2960	6.9539	0.0743
594	2965	6.9547	0.0751
595	2970	6.9537	0.0741
596	2975	6.9591	0.0795
597	2980	6.958	0.0784
598	2985	6.9617	0.0821
599	2990	6.9561	0.0765
600	2995	6.9555	0.0759
601	3000	6.9615	0.0819
602	3005	6.962	0.0824
603	3010	6.9711	0.0915
604	3015	6.9705	0.0909
605	3020	6.9627	0.0831
606	3025	6.9625	0.0829
607	3030	6.9601	0.0805
608	3035	6.9693	0.0897
609	3040	6.9708	0.0912
610	3045	6.9739	0.0943
611	3050	6.9687	0.0891
612	3055	6.9729	0.0933
613	3060	6.9729	0.0933
614	3065	6.9727	0.0931
615	3070	6.9659	0.0863
616	3075	6.9685	0.0889
617	3080	6.9663	0.0867
618	3085	6.968	0.0884
619	3090	6.9718	0.0922
620	3095	6.9758	0.0962
621	3100	6.9759	0.0963
622	3105	6.9699	0.0903
623	3110	6.9761	0.0965
624	3115	6.9739	0.0943

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	6.9751	0.0955
626	3125	6.9794	0.0998
627	3130	6.9827	0.1031
628	3135	6.9779	0.0983
629	3140	6.9775	0.0979
630	3145	6.9801	0.1005
631	3150	6.9858	0.1062
632	3155	6.986	0.1064
633	3160	6.9897	0.1101
634	3165	6.9887	0.1091
635	3170	6.9951	0.1155
636	3175	6.9875	0.1079
637	3180	6.9939	0.1143
638	3185	6.9915	0.1119
639	3190	6.9927	0.1131
640	3195	6.9948	0.1152
641	3200	6.9955	0.1159
642	3205	6.9949	0.1153
643	3210	7.0005	0.1209
644	3215	6.9967	0.1171
645	3220	6.9967	0.1171
646	3225	6.9963	0.1167
647	3230	7.0013	0.1217
648	3235	6.9991	0.1195
649	3240	7.0039	0.1243
650	3245	7.0098	0.1302
651	3250	7.0085	0.1289
652	3255	7.0055	0.1259
653	3260	7.0098	0.1302
654	3265	7.0049	0.1253
655	3270	6.9967	0.1171
656	3275	7.0038	0.1242
657	3280	7.0089	0.1293
658	3285	7.0059	0.1263
659	3290	7.0105	0.1309
660	3295	7.0064	0.1268
661	3300	7.0088	0.1292
662	3305	7.0064	0.1268
663	3310	7.0081	0.1285
664	3315	7.0096	0.13
665	3320	7.0091	0.1295
666	3325	7.0055	0.1259
667	3330	7.0073	0.1277
668	3335	7.0126	0.133
669	3340	7.0129	0.1333
670	3345	7.0086	0.129
671	3350	7.0111	0.1315
672	3355	7.0077	0.1281
673	3360	7.0139	0.1343
674	3365	7.0154	0.1358
675	3370	7.0109	0.1313
676	3375	7.0079	0.1283
677	3380	7.0184	0.1388
678	3385	7.0125	0.1329
679	3390	7.0098	0.1302
680	3395	7.0097	0.1301
681	3400	7.0122	0.1326
682	3405	7.0073	0.1277
683	3410	7.0155	0.1359
684	3415	7.0159	0.1363
685	3420	7.0171	0.1375
686	3425	7.0135	0.1339
687	3430	7.02	0.1404

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	7.0205	0.1409
689	3440	7.0207	0.1411
690	3445	7.0167	0.1371
691	3450	7.0216	0.142
692	3455	7.021	0.1414
693	3460	7.0155	0.1359
694	3465	7.0131	0.1335
695	3470	7.0229	0.1433
696	3475	7.0256	0.146
697	3480	7.026	0.1464
698	3485	7.0237	0.1441
699	3490	7.016	0.1364
700	3495	7.024	0.1444
701	3500	7.025	0.1454
702	3505	7.0278	0.1482
703	3510	7.029	0.1494
704	3515	7.0315	0.1519
705	3520	7.0316	0.152
706	3525	7.0257	0.1461
707	3530	7.0293	0.1497
708	3535	7.0254	0.1458
709	3540	7.0352	0.1556
710	3545	7.0346	0.155
711	3550	7.0257	0.1461
712	3555	7.0267	0.1471
713	3560	7.0235	0.1439
714	3565	7.0289	0.1493
715	3570	7.0294	0.1498
716	3575	7.0229	0.1433
717	3580	7.0289	0.1493
718	3585	7.0271	0.1475
719	3590	7.0277	0.1481
720	3595	7.0246	0.145
721	3600	7.0236	0.144
722	3605	7.0306	0.151
723	3610	7.0303	0.1507
724	3615	7.024	0.1444
725	3620	7.0267	0.1471
726	3625	7.026	0.1464
727	3630	7.0298	0.1502
728	3635	7.0292	0.1496
729	3640	7.0282	0.1486
730	3645	7.0292	0.1496
731	3650	7.0336	0.154
732	3655	7.034	0.1544
733	3660	7.03	0.1504
734	3665	7.0275	0.1479
735	3670	7.035	0.1554
736	3675	7.0277	0.1481
737	3680	7.0346	0.155
738	3685	7.0306	0.151
739	3690	7.0308	0.1512
740	3695	7.0314	0.1518
741	3700	7.0335	0.1539
742	3705	7.0366	0.157
743	3710	7.0294	0.1498
744	3715	7.0342	0.1546
745	3720	7.0376	0.158
746	3725	7.0365	0.1569
747	3730	7.0408	0.1612
748	3735	7.0337	0.1541
749	3740	7.0365	0.1569
750	3745	7.0454	0.1658

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	7.0448	0.1652
752	3755	7.0378	0.1582
753	3760	7.0416	0.162
754	3765	7.0405	0.1609
755	3770	7.0457	0.1661
756	3775	7.0424	0.1628
757	3780	7.0398	0.1602
758	3785	7.0436	0.164
759	3790	7.0367	0.1571
760	3795	7.0441	0.1645
761	3800	7.0381	0.1585
762	3805	7.0489	0.1693
763	3810	7.0424	0.1628
764	3815	7.0457	0.1661
765	3820	7.041	0.1614
766	3825	7.0384	0.1588
767	3830	7.0443	0.1647
768	3835	7.0406	0.161
769	3840	7.041	0.1614
770	3845	7.0381	0.1585
771	3850	7.0384	0.1588
772	3855	7.0413	0.1617
773	3860	7.041	0.1614
774	3865	7.0408	0.1612
775	3870	7.0446	0.165
776	3875	7.0418	0.1622
777	3880	7.0483	0.1687
778	3885	7.058	0.1784
779	3890	7.0495	0.1699
780	3895	7.0536	0.174
781	3900	7.0556	0.176
782	3905	7.0507	0.1711
783	3910	7.0522	0.1726
784	3915	7.0564	0.1768
785	3920	7.0493	0.1697
786	3925	7.0564	0.1768
787	3930	7.0482	0.1686
788	3935	7.0541	0.1745
789	3940	7.0528	0.1732
790	3945	7.0564	0.1768
791	3950	7.059	0.1794
792	3955	7.0579	0.1783
793	3960	7.051	0.1714
794	3965	7.0645	0.1849
795	3970	7.0594	0.1798
796	3975	7.0562	0.1766
797	3980	7.0602	0.1806
798	3985	7.0567	0.1771
799	3990	7.0607	0.1811
800	3995	7.0631	0.1835
801	4000	7.0652	0.1856
802	4005	7.059	0.1794
803	4010	7.0671	0.1875
804	4015	7.0602	0.1806
805	4020	7.0605	0.1809
806	4025	7.0681	0.1885
807	4030	7.058	0.1784
808	4035	7.065	0.1854
809	4040	7.0674	0.1878
810	4045	7.0707	0.1911
811	4050	7.069	0.1894
812	4055	7.0678	0.1882
813	4060	7.0733	0.1937

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	7.0693	0.1897
815	4070	7.0778	0.1982
816	4075	7.0698	0.1902
817	4080	7.077	0.1974
818	4085	7.0681	0.1885
819	4090	7.0762	0.1966
820	4095	7.0769	0.1973
821	4100	7.0754	0.1958
822	4105	7.0792	0.1996
823	4110	7.074	0.1944
824	4115	7.0754	0.1958
825	4120	7.0762	0.1966
826	4125	7.0702	0.1906
827	4130	7.0733	0.1937
828	4135	7.0778	0.1982
829	4140	7.0821	0.2025
830	4145	7.0846	0.205
831	4150	7.0819	0.2023
832	4155	7.076	0.1964
833	4160	7.081	0.2014
834	4165	7.0816	0.202
835	4170	7.0812	0.2016
836	4175	7.0806	0.201
837	4180	7.0776	0.198
838	4185	7.0778	0.1982
839	4190	7.0726	0.193
840	4195	7.0821	0.2025
841	4200	7.0794	0.1998
842	4205	7.0788	0.1992
843	4210	7.0762	0.1966
844	4215	7.0769	0.1973
845	4220	7.081	0.2014
846	4225	7.0802	0.2006
847	4230	7.0824	0.2028
848	4235	7.0818	0.2022
849	4240	7.0804	0.2008
850	4245	7.0772	0.1976
851	4250	7.0776	0.198
852	4255	7.0826	0.203
853	4260	7.0776	0.198
854	4265	7.0864	0.2068
855	4270	7.0826	0.203
856	4275	7.0824	0.2028
857	4280	7.0874	0.2078
858	4285	7.084	0.2044
859	4290	7.089	0.2094
860	4295	7.0778	0.1982
861	4300	7.0826	0.203
862	4305	7.0805	0.2009
863	4310	7.0821	0.2025
864	4315	7.0756	0.196
865	4320	7.0831	0.2035
866	4325	7.0809	0.2013
867	4330	7.0828	0.2032
868	4335	7.0797	0.2001
869	4340	7.0808	0.2012
870	4345	7.072	0.1924
871	4350	7.0807	0.2011
872	4355	7.0808	0.2012
873	4360	7.0788	0.1992
874	4365	7.0802	0.2006
875	4370	7.08	0.2004
876	4375	7.0768	0.1972

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	Project: OBS-853
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	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	7.0747	0.1951
878	4385	7.0834	0.2038
879	4390	7.0776	0.198
880	4395	7.0788	0.1992
881	4400	7.0781	0.1985
882	4405	7.0794	0.1998
883	4410	7.079	0.1994
884	4415	7.074	0.1944
885	4420	7.0752	0.1956
886	4425	7.0882	0.2086
887	4430	7.079	0.1994
888	4435	7.0776	0.198
889	4440	7.0786	0.199
890	4445	7.0833	0.2037
891	4450	7.0831	0.2035
892	4455	7.0802	0.2006
893	4460	7.0892	0.2096
894	4465	7.0772	0.1976
895	4470	7.0818	0.2022
896	4475	7.0821	0.2025
897	4480	7.0817	0.2021
898	4485	7.0836	0.204
899	4490	7.0838	0.2042
900	4495	7.0872	0.2076
901	4500	7.0868	0.2072
902	4505	7.0876	0.208
903	4510	7.093	0.2134
904	4515	7.0885	0.2089
905	4520	7.088	0.2084
906	4525	7.0868	0.2072
907	4530	7.0876	0.208
908	4535	7.0833	0.2037
909	4540	7.089	0.2094
910	4545	7.0876	0.208
911	4550	7.0897	0.2101
912	4555	7.0847	0.2051
913	4560	7.0941	0.2145
914	4565	7.0891	0.2095
915	4570	7.096	0.2164
916	4575	7.0878	0.2082
917	4580	7.086	0.2064
918	4585	7.0967	0.2171
919	4590	7.0869	0.2073
920	4595	7.0836	0.204
921	4600	7.0956	0.216
922	4605	7.0914	0.2118
923	4610	7.0911	0.2115
924	4615	7.0876	0.208
925	4620	7.0883	0.2087
926	4625	7.0893	0.2097
927	4630	7.0885	0.2089
928	4635	7.096	0.2164
929	4640	7.0944	0.2148
930	4645	7.0954	0.2158
931	4650	7.0917	0.2121
932	4655	7.0945	0.2149
933	4660	7.0962	0.2166
934	4665	7.093	0.2134
935	4670	7.0864	0.2068
936	4675	7.0936	0.214
937	4680	7.0947	0.2151
938	4685	7.0994	0.2198
939	4690	7.0994	0.2198

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	7.1059	0.2263
941	4700	7.091	0.2114
942	4705	7.0994	0.2198
943	4710	7.09	0.2104
944	4715	7.1033	0.2237
945	4720	7.1011	0.2215
946	4725	7.102	0.2224
947	4730	7.1089	0.2293
948	4735	7.1077	0.2281
949	4740	7.1121	0.2325
950	4745	7.1071	0.2275
951	4750	7.1066	0.227
952	4755	7.0952	0.2156
953	4760	7.1074	0.2278
954	4765	7.1088	0.2292
955	4770	7.1024	0.2228
956	4775	7.1128	0.2332
957	4780	7.1101	0.2305
958	4785	7.1075	0.2279
959	4790	7.1061	0.2265
960	4795	7.1108	0.2312
961	4800	7.1121	0.2325
962	4805	7.1042	0.2246
963	4810	7.112	0.2324
964	4815	7.1089	0.2293
965	4820	7.1153	0.2357
966	4825	7.1054	0.2258
967	4830	7.1133	0.2337
968	4835	7.1185	0.2389
969	4840	7.1144	0.2348
970	4845	7.1177	0.2381
971	4850	7.1151	0.2355
972	4855	7.1138	0.2342
973	4860	7.1095	0.2299
974	4865	7.115	0.2354
975	4870	7.1088	0.2292
976	4875	7.1058	0.2262
977	4880	7.1081	0.2285
978	4885	7.1112	0.2316
979	4890	7.1141	0.2345
980	4895	7.1199	0.2403
981	4900	7.1115	0.2319
982	4905	7.1111	0.2315
983	4910	7.1153	0.2357
984	4915	7.1135	0.2339
985	4920	7.1094	0.2298
986	4925	7.1124	0.2328
987	4930	7.1184	0.2388
988	4935	7.1129	0.2333
989	4940	7.1088	0.2292
990	4945	7.1135	0.2339
991	4950	7.1165	0.2369
992	4955	7.1167	0.2371
993	4960	7.1193	0.2397
994	4965	7.1155	0.2359
995	4970	7.119	0.2394
996	4975	7.1155	0.2359
997	4980	7.1222	0.2426
998	4985	7.1162	0.2366
999	4990	7.117	0.2374
1000	4995	7.1196	0.24
1001	5000	7.1227	0.2431
1002	5005	7.1189	0.2393

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	7.119	0.2394
1004	5015	7.1121	0.2325
1005	5020	7.1121	0.2325
1006	5025	7.115	0.2354
1007	5030	7.1195	0.2399
1008	5035	7.1187	0.2391
1009	5040	7.1222	0.2426
1010	5045	7.1217	0.2421
1011	5050	7.1229	0.2433
1012	5055	7.1138	0.2342
1013	5060	7.1178	0.2382
1014	5065	7.1061	0.2265
1015	5070	7.1076	0.228
1016	5075	7.1174	0.2378
1017	5080	7.1193	0.2397
1018	5085	7.1134	0.2338
1019	5090	7.1172	0.2376
1020	5095	7.1137	0.2341
1021	5100	7.1185	0.2389
1022	5105	7.1205	0.2409
1023	5110	7.1186	0.239
1024	5115	7.1191	0.2395
1025	5120	7.1139	0.2343
1026	5125	7.1174	0.2378
1027	5130	7.1128	0.2332
1028	5135	7.1133	0.2337
1029	5140	7.1129	0.2333
1030	5145	7.1076	0.228
1031	5150	7.1112	0.2316
1032	5155	7.1163	0.2367
1033	5160	7.1158	0.2362
1034	5165	7.1098	0.2302
1035	5170	7.1143	0.2347
1036	5175	7.1204	0.2408
1037	5180	7.1195	0.2399
1038	5185	7.1157	0.2361
1039	5190	7.1277	0.2481
1040	5195	7.1152	0.2356
1041	5200	7.1192	0.2396
1042	5205	7.1283	0.2487
1043	5210	7.1262	0.2466
1044	5215	7.1205	0.2409
1045	5220	7.1222	0.2426
1046	5225	7.1231	0.2435
1047	5230	7.1274	0.2478
1048	5235	7.1158	0.2362
1049	5240	7.1261	0.2465
1050	5245	7.1259	0.2463
1051	5250	7.1254	0.2458
1052	5255	7.1228	0.2432
1053	5260	7.126	0.2464
1054	5265	7.1311	0.2515
1055	5270	7.1236	0.244
1056	5275	7.1283	0.2487
1057	5280	7.1263	0.2467
1058	5285	7.1261	0.2465
1059	5290	7.125	0.2454
1060	5295	7.1293	0.2497
1061	5300	7.13	0.2504
1062	5305	7.1328	0.2532
1063	5310	7.1349	0.2553
1064	5315	7.134	0.2544
1065	5320	7.1324	0.2528

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	7.1305	0.2509
1067	5330	7.1301	0.2505
1068	5335	7.1317	0.2521
1069	5340	7.1329	0.2533
1070	5345	7.1365	0.2569
1071	5350	7.1397	0.2601
1072	5355	7.1319	0.2523
1073	5360	7.1388	0.2592
1074	5365	7.1411	0.2615
1075	5370	7.1362	0.2566
1076	5375	7.145	0.2654
1077	5380	7.1333	0.2537
1078	5385	7.14	0.2604
1079	5390	7.1395	0.2599
1080	5395	7.1442	0.2646
1081	5400	7.1421	0.2625
1082	5405	7.1441	0.2645
1083	5410	7.1459	0.2663
1084	5415	7.1437	0.2641
1085	5420	7.1476	0.268
1086	5425	7.1453	0.2657
1087	5430	7.1395	0.2599
1088	5435	7.1483	0.2687
1089	5440	7.1413	0.2617
1090	5445	7.1473	0.2677
1091	5450	7.1526	0.273
1092	5455	7.1483	0.2687
1093	5460	7.1439	0.2643
1094	5465	7.1495	0.2699
1095	5470	7.1471	0.2675
1096	5475	7.1493	0.2697
1097	5480	7.1547	0.2751
1098	5485	7.1457	0.2661
1099	5490	7.1513	0.2717
1100	5495	7.1552	0.2756
1101	5500	7.1577	0.2781
1102	5505	7.1602	0.2806
1103	5510	7.1527	0.2731
1104	5515	7.1595	0.2799
1105	5520	7.1601	0.2805
1106	5525	7.1571	0.2775
1107	5530	7.1593	0.2797
1108	5535	7.1631	0.2835
1109	5540	7.1642	0.2846
1110	5545	7.1604	0.2808
1111	5550	7.1687	0.2891
1112	5555	7.1732	0.2936
1113	5560	7.1719	0.2923
1114	5565	7.1687	0.2891
1115	5570	7.1746	0.295
1116	5575	7.1725	0.2929
1117	5580	7.1691	0.2895
1118	5585	7.1771	0.2975
1119	5590	7.1787	0.2991
1120	5595	7.1716	0.292
1121	5600	7.1836	0.304
1122	5605	7.1768	0.2972
1123	5610	7.1834	0.3038
1124	5615	7.1827	0.3031
1125	5620	7.1799	0.3003
1126	5625	7.1863	0.3067
1127	5630	7.1809	0.3013
1128	5635	7.1858	0.3062

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	7.1825	0.3029
1130	5645	7.1787	0.2991
1131	5650	7.1868	0.3072
1132	5655	7.1909	0.3113
1133	5660	7.1866	0.307
1134	5665	7.1899	0.3103
1135	5670	7.192	0.3124
1136	5675	7.1953	0.3157
1137	5680	7.1937	0.3141
1138	5685	7.1905	0.3109
1139	5690	7.1946	0.315
1140	5695	7.1877	0.3081
1141	5700	7.1983	0.3187
1142	5705	7.1937	0.3141
1143	5710	7.1943	0.3147
1144	5715	7.193	0.3134
1145	5720	7.1905	0.3109
1146	5725	7.1943	0.3147
1147	5730	7.1965	0.3169
1148	5735	7.1963	0.3167
1149	5740	7.1997	0.3201
1150	5745	7.198	0.3184
1151	5750	7.2052	0.3256
1152	5755	7.2092	0.3296
1153	5760	7.203	0.3234
1154	5765	7.2031	0.3235
1155	5770	7.2012	0.3216
1156	5775	7.2035	0.3239
1157	5780	7.1982	0.3186
1158	5785	7.2065	0.3269
1159	5790	7.1973	0.3177
1160	5795	7.201	0.3214
1161	5800	7.2053	0.3257
1162	5805	7.2074	0.3278
1163	5810	7.2047	0.3251
1164	5815	7.2048	0.3252
1165	5820	7.2037	0.3241
1166	5825	7.2034	0.3238
1167	5830	7.2053	0.3257
1168	5835	7.2168	0.3372
1169	5840	7.2083	0.3287
1170	5845	7.2132	0.3336
1171	5850	7.2052	0.3256
1172	5855	7.2177	0.3381
1173	5860	7.213	0.3334
1174	5865	7.2162	0.3366
1175	5870	7.2191	0.3395
1176	5875	7.2206	0.341
1177	5880	7.2215	0.3419
1178	5885	7.2208	0.3412
1179	5890	7.2278	0.3482
1180	5895	7.2188	0.3392
1181	5900	7.224	0.3444
1182	5905	7.2211	0.3415
1183	5910	7.2234	0.3438
1184	5915	7.2266	0.347
1185	5920	7.2185	0.3389
1186	5925	7.2239	0.3443
1187	5930	7.227	0.3474
1188	5935	7.2213	0.3417
1189	5940	7.2238	0.3442
1190	5945	7.2235	0.3439
1191	5950	7.2336	0.354

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	7.2355	0.3559
1193	5960	7.2332	0.3536
1194	5965	7.237	0.3574
1195	5970	7.237	0.3574
1196	5975	7.2291	0.3495
1197	5980	7.2364	0.3568
1198	5985	7.2362	0.3566
1199	5990	7.2426	0.363
1200	5995	7.2478	0.3682
1201	6000	7.244	0.3644
1202	6005	7.2442	0.3646
1203	6010	7.2474	0.3678
1204	6015	7.2503	0.3707
1205	6020	7.2458	0.3662
1206	6025	7.247	0.3674
1207	6030	7.2444	0.3648
1208	6035	7.247	0.3674
1209	6040	7.2534	0.3738
1210	6045	7.246	0.3664
1211	6050	7.2491	0.3695
1212	6055	7.2548	0.3752
1213	6060	7.2524	0.3728
1214	6065	7.252	0.3724
1215	6070	7.2539	0.3743
1216	6075	7.2482	0.3686
1217	6080	7.2536	0.374
1218	6085	7.2541	0.3745
1219	6090	7.2524	0.3728
1220	6095	7.2534	0.3738
1221	6100	7.247	0.3674
1222	6105	7.256	0.3764
1223	6110	7.2589	0.3793
1224	6115	7.2606	0.381
1225	6120	7.257	0.3774
1226	6125	7.2596	0.38
1227	6130	7.2672	0.3876
1228	6135	7.2629	0.3833
1229	6140	7.2648	0.3852
1230	6145	7.2682	0.3886
1231	6150	7.2622	0.3826
1232	6155	7.2716	0.392
1233	6160	7.2644	0.3848
1234	6165	7.2612	0.3816
1235	6170	7.2655	0.3859
1236	6175	7.2708	0.3912
1237	6180	7.2702	0.3906
1238	6185	7.2738	0.3942
1239	6190	7.2665	0.3869
1240	6195	7.272	0.3924
1241	6200	7.2754	0.3958
1242	6205	7.2785	0.3989
1243	6210	7.2864	0.4068
1244	6215	7.2724	0.3928
1245	6220	7.2797	0.4001
1246	6225	7.2826	0.403
1247	6230	7.281	0.4014
1248	6235	7.2793	0.3997
1249	6240	7.2822	0.4026
1250	6245	7.2791	0.3995
1251	6250	7.2895	0.4099
1252	6255	7.285	0.4054
1253	6260	7.2898	0.4102
1254	6265	7.2893	0.4097

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	7.2883	0.4087
1256	6275	7.297	0.4174
1257	6280	7.2977	0.4181
1258	6285	7.2999	0.4203
1259	6290	7.2933	0.4137
1260	6295	7.2993	0.4197
1261	6300	7.3027	0.4231
1262	6305	7.3032	0.4236
1263	6310	7.3039	0.4243
1264	6315	7.2963	0.4167
1265	6320	7.3058	0.4262
1266	6325	7.3055	0.4259
1267	6330	7.3077	0.4281
1268	6335	7.3053	0.4257
1269	6340	7.3048	0.4252
1270	6345	7.3089	0.4293
1271	6350	7.3081	0.4285
1272	6355	7.3112	0.4316
1273	6360	7.3089	0.4293
1274	6365	7.3151	0.4355
1275	6370	7.3207	0.4411
1276	6375	7.3183	0.4387
1277	6380	7.3135	0.4339
1278	6385	7.3219	0.4423
1279	6390	7.3237	0.4441
1280	6395	7.3153	0.4357
1281	6400	7.3262	0.4466
1282	6405	7.3217	0.4421
1283	6410	7.3219	0.4423
1284	6415	7.3183	0.4387
1285	6420	7.3211	0.4415
1286	6425	7.3231	0.4435
1287	6430	7.3287	0.4491
1288	6435	7.3243	0.4447
1289	6440	7.3283	0.4487
1290	6445	7.3321	0.4525
1291	6450	7.3271	0.4475
1292	6455	7.3207	0.4411
1293	6460	7.3325	0.4529
1294	6465	7.3287	0.4491
1295	6470	7.3299	0.4503
1296	6475	7.3269	0.4473
1297	6480	7.3231	0.4435
1298	6485	7.3221	0.4425
1299	6490	7.3259	0.4463
1300	6495	7.3255	0.4459
1301	6500	7.3221	0.4425
1302	6505	7.3257	0.4461
1303	6510	7.3231	0.4435
1304	6515	7.3273	0.4477
1305	6520	7.3307	0.4511
1306	6525	7.3326	0.453
1307	6530	7.3269	0.4473
1308	6535	7.3328	0.4532
1309	6540	7.3317	0.4521
1310	6545	7.3343	0.4547
1311	6550	7.3366	0.457
1312	6555	7.3338	0.4542
1313	6560	7.3378	0.4582
1314	6565	7.3393	0.4597
1315	6570	7.3352	0.4556
1316	6575	7.3392	0.4596
1317	6580	7.3295	0.4499

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	7.3281	0.4485
1319	6590	7.3399	0.4603
1320	6595	7.339	0.4594
1321	6600	7.3407	0.4611
1322	6605	7.34	0.4604
1323	6610	7.3329	0.4533
1324	6615	7.3403	0.4607
1325	6620	7.3409	0.4613
1326	6625	7.339	0.4594
1327	6630	7.3407	0.4611
1328	6635	7.3378	0.4582
1329	6640	7.3405	0.4609
1330	6645	7.3469	0.4673
1331	6650	7.3411	0.4615
1332	6655	7.3392	0.4596
1333	6660	7.3425	0.4629
1334	6665	7.3449	0.4653
1335	6670	7.3463	0.4667
1336	6675	7.3454	0.4658
1337	6680	7.3443	0.4647
1338	6685	7.3457	0.4661
1339	6690	7.3438	0.4642
1340	6695	7.3461	0.4665
1341	6700	7.3547	0.4751
1342	6705	7.3545	0.4749
1343	6710	7.3583	0.4787
1344	6715	7.3538	0.4742
1345	6720	7.3493	0.4697
1346	6725	7.3594	0.4798
1347	6730	7.3644	0.4848
1348	6735	7.3571	0.4775
1349	6740	7.3583	0.4787
1350	6745	7.3557	0.4761
1351	6750	7.3543	0.4747
1352	6755	7.3564	0.4768
1353	6760	7.3566	0.477
1354	6765	7.3495	0.4699
1355	6770	7.3542	0.4746
1356	6775	7.3538	0.4742
1357	6780	7.3587	0.4791
1358	6785	7.353	0.4734
1359	6790	7.3509	0.4713
1360	6795	7.3523	0.4727
1361	6800	7.3511	0.4715
1362	6805	7.3605	0.4809
1363	6810	7.3615	0.4819
1364	6815	7.3577	0.4781
1365	6820	7.3654	0.4858
1366	6825	7.3561	0.4765
1367	6830	7.3579	0.4783
1368	6835	7.3629	0.4833
1369	6840	7.3619	0.4823
1370	6845	7.3644	0.4848
1371	6850	7.3635	0.4839
1372	6855	7.371	0.4914
1373	6860	7.3659	0.4863
1374	6865	7.3678	0.4882
1375	6870	7.3747	0.4951
1376	6875	7.3743	0.4947
1377	6880	7.3779	0.4983
1378	6885	7.3744	0.4948
1379	6890	7.3727	0.4931
1380	6895	7.3765	0.4969

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	7.385	0.5054
1382	6905	7.3823	0.5027
1383	6910	7.3824	0.5028
1384	6915	7.3855	0.5059
1385	6920	7.392	0.5124
1386	6925	7.3878	0.5082
1387	6930	7.3956	0.516
1388	6935	7.3908	0.5112
1389	6940	7.3923	0.5127
1390	6945	7.3924	0.5128
1391	6950	7.3926	0.513
1392	6955	7.4014	0.5218
1393	6960	7.407	0.5274
1394	6965	7.4002	0.5206
1395	6970	7.4111	0.5315
1396	6975	7.4126	0.533
1397	6980	7.4033	0.5237
1398	6985	7.4076	0.528
1399	6990	7.419	0.5394
1400	6995	7.4125	0.5329
1401	7000	7.4188	0.5392
1402	7005	7.418	0.5384
1403	7010	7.4248	0.5452
1404	7015	7.4176	0.538
1405	7020	7.4218	0.5422
1406	7025	7.4282	0.5486
1407	7030	7.422	0.5424
1408	7035	7.4306	0.551
1409	7040	7.4294	0.5498
1410	7045	7.4387	0.5591
1411	7050	7.4376	0.558
1412	7055	7.438	0.5584
1413	7060	7.4413	0.5617
1414	7065	7.437	0.5574
1415	7070	7.4438	0.5642
1416	7075	7.4458	0.5662
1417	7080	7.448	0.5684
1418	7085	7.451	0.5714
1419	7090	7.452	0.5724
1420	7095	7.4487	0.5691
1421	7100	7.4513	0.5717
1422	7105	7.4577	0.5781
1423	7110	7.4492	0.5696
1424	7115	7.4599	0.5803
1425	7120	7.4605	0.5809
1426	7125	7.4713	0.5917
1427	7130	7.4685	0.5889
1428	7135	7.4662	0.5866
1429	7140	7.4636	0.584
1430	7145	7.465	0.5854
1431	7150	7.4717	0.5921
1432	7155	7.4713	0.5917
1433	7160	7.4768	0.5972
1434	7165	7.4773	0.5977
1435	7170	7.4767	0.5971
1436	7175	7.5096	0.63
1437	7180	7.4845	0.6049
1438	7185	7.4865	0.6069
1439	7190	7.4841	0.6045
1440	7195	7.4939	0.6143
1441	7200	7.4858	0.6062
1442	7205	7.4971	0.6175
1443	7210	7.4958	0.6162

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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	7.4948	0.6152
1445	7220	7.4881	0.6085
1446	7225	7.4999	0.6203
1447	7230	7.4994	0.6198
1448	7235	7.4891	0.6095
1449	7240	7.5021	0.6225
1450	7245	7.5055	0.6259
1451	7250	7.4991	0.6195
1452	7255	7.5073	0.6277
1453	7260	7.4977	0.6181
1454	7265	7.4977	0.6181
1455	7270	7.5125	0.6329
1456	7275	7.5097	0.6301
1457	7280	7.5113	0.6317
1458	7285	7.5148	0.6352
1459	7290	7.5187	0.6391
1460	7295	7.5103	0.6307
1461	7300	7.5129	0.6333
1462	7305	7.5189	0.6393
1463	7310	7.5205	0.6409
1464	7315	7.5186	0.639
1465	7320	7.5207	0.6411
1466	7325	7.5237	0.6441
1467	7330	7.5195	0.6399
1468	7335	7.5262	0.6466
1469	7340	7.5209	0.6413
1470	7345	7.5331	0.6535
1471	7350	7.5253	0.6457
1472	7355	7.5349	0.6553
1473	7360	7.5279	0.6483
1474	7365	7.5345	0.6549
1475	7370	7.5345	0.6549
1476	7375	7.5359	0.6563
1477	7380	7.5348	0.6552
1478	7385	7.5402	0.6606
1479	7390	7.537	0.6574
1480	7395	7.536	0.6564
1481	7400	7.5461	0.6665
1482	7405	7.5345	0.6549
1483	7410	7.5441	0.6645
1484	7415	7.5393	0.6597
1485	7420	7.5379	0.6583
1486	7425	7.5474	0.6678
1487	7430	7.5487	0.6691
1488	7435	7.5524	0.6728
1489	7440	7.5493	0.6697
1490	7445	7.5472	0.6676
1491	7450	7.5487	0.6691
1492	7455	7.5506	0.671
1493	7460	7.5564	0.6768
1494	7465	7.5636	0.684
1495	7470	7.5581	0.6785
1496	7475	7.5577	0.6781
1497	7480	7.552	0.6724
1498	7485	7.5543	0.6747
1499	7490	7.5591	0.6795
1500	7495	7.566	0.6864
1501	7500	7.5602	0.6806
1502	7505	7.567	0.6874
1503	7510	7.5679	0.6883
1504	7515	7.5656	0.686
1505	7520	7.5702	0.6906
1506	7525	7.5681	0.6885

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	7.5712	0.6916
1508	7535	7.5712	0.6916
1509	7540	7.5772	0.6976
1510	7545	7.5734	0.6938
1511	7550	7.5741	0.6945
1512	7555	7.5732	0.6936
1513	7560	7.5821	0.7025
1514	7565	7.586	0.7064
1515	7570	7.5764	0.6968
1516	7575	7.5902	0.7106
1517	7580	7.5788	0.6992
1518	7585	7.5842	0.7046
1519	7590	7.5876	0.708
1520	7595	7.5845	0.7049
1521	7600	7.5936	0.714
1522	7605	7.5864	0.7068
1523	7610	7.5981	0.7185
1524	7615	7.5912	0.7116
1525	7620	7.5962	0.7166
1526	7625	7.5996	0.72
1527	7630	7.6072	0.7276
1528	7635	7.6085	0.7289
1529	7640	7.6082	0.7286
1530	7645	7.6096	0.73
1531	7650	7.6094	0.7298
1532	7655	7.6092	0.7296
1533	7660	7.6057	0.7261
1534	7665	7.6102	0.7306
1535	7670	7.6123	0.7327
1536	7675	7.6109	0.7313
1537	7680	7.6166	0.737
1538	7685	7.6128	0.7332
1539	7690	7.6112	0.7316
1540	7695	7.6166	0.737
1541	7700	7.6126	0.733
1542	7705	7.6164	0.7368
1543	7710	7.6198	0.7402
1544	7715	7.6208	0.7412
1545	7720	7.6173	0.7377
1546	7725	7.6218	0.7422
1547	7730	7.6256	0.746
1548	7735	7.6261	0.7465
1549	7740	7.6304	0.7508
1550	7745	7.6354	0.7558
1551	7750	7.6323	0.7527
1552	7755	7.6387	0.7591
1553	7760	7.6404	0.7608
1554	7765	7.6372	0.7576
1555	7770	7.6332	0.7536
1556	7775	7.6364	0.7568
1557	7780	7.6388	0.7592
1558	7785	7.6404	0.7608
1559	7790	7.6401	0.7605
1560	7795	7.6423	0.7627
1561	7800	7.6373	0.7577
1562	7805	7.6424	0.7628
1563	7810	7.6428	0.7632
1564	7815	7.6452	0.7656
1565	7820	7.6491	0.7695
1566	7825	7.6515	0.7719
1567	7830	7.6506	0.771
1568	7835	7.6517	0.7721
1569	7840	7.6524	0.7728

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Pumping Test - Water Level Data

Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	7.6556	0.776
1571	7850	7.6549	0.7753
1572	7855	7.6531	0.7735
1573	7860	7.6607	0.7811
1574	7865	7.6619	0.7823
1575	7870	7.6682	0.7886
1576	7875	7.6609	0.7813
1577	7880	7.6611	0.7815
1578	7885	7.6658	0.7862
1579	7890	7.6639	0.7843
1580	7895	7.6635	0.7839
1581	7900	7.6666	0.787
1582	7905	7.6681	0.7885
1583	7910	7.6704	0.7908
1584	7915	7.6697	0.7901
1585	7920	7.6711	0.7915
1586	7925	7.6664	0.7868
1587	7930	7.6658	0.7862
1588	7935	7.6758	0.7962
1589	7940	7.6772	0.7976
1590	7945	7.6801	0.8005
1591	7950	7.6825	0.8029
1592	7955	7.6741	0.7945
1593	7960	7.6706	0.791
1594	7965	7.672	0.7924
1595	7970	7.6742	0.7946
1596	7975	7.6803	0.8007
1597	7980	7.6727	0.7931
1598	7985	7.6807	0.8011
1599	7990	7.6713	0.7917
1600	7995	7.6787	0.7991
1601	8000	7.673	0.7934
1602	8005	7.676	0.7964
1603	8010	7.6796	0.80
1604	8015	7.6798	0.8002
1605	8020	7.6803	0.8007
1606	8025	7.6793	0.7997
1607	8030	7.6739	0.7943
1608	8035	7.6721	0.7925
1609	8040	7.6803	0.8007
1610	8045	7.6832	0.8036
1611	8050	7.667	0.7874
1612	8055	7.6746	0.795
1613	8060	7.6786	0.799
1614	8065	7.6721	0.7925
1615	8070	7.6765	0.7969
1616	8075	7.6784	0.7988
1617	8080	7.678	0.7984
1618	8085	7.6785	0.7989
1619	8090	7.6836	0.804
1620	8095	7.6844	0.8048
1621	8100	7.6836	0.804
1622	8105	7.6734	0.7938
1623	8110	7.6853	0.8057
1624	8115	7.6749	0.7953
1625	8120	7.6839	0.8043
1626	8125	7.6796	0.80
1627	8130	7.6813	0.8017
1628	8135	7.6841	0.8045
1629	8140	7.6741	0.7945
1630	8145	7.6699	0.7903
1631	8150	7.6698	0.7902
1632	8155	7.667	0.7874

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	7.6643	0.7847
1634	8165	7.6638	0.7842
1635	8170	7.6672	0.7876
1636	8175	7.6711	0.7915
1637	8180	7.6704	0.7908
1638	8185	7.6736	0.794
1639	8190	7.6801	0.8005
1640	8195	7.6723	0.7927
1641	8200	7.6773	0.7977
1642	8205	7.6749	0.7953
1643	8210	7.6681	0.7885
1644	8215	7.6585	0.7789
1645	8220	7.6616	0.782
1646	8225	7.6603	0.7807
1647	8230	7.6614	0.7818
1648	8235	7.6536	0.774
1649	8240	7.6578	0.7782
1650	8245	7.6527	0.7731
1651	8250	7.6503	0.7707
1652	8255	7.6551	0.7755
1653	8260	7.6592	0.7796
1654	8265	7.6588	0.7792
1655	8270	7.6632	0.7836
1656	8275	7.6623	0.7827
1657	8280	7.6613	0.7817
1658	8285	7.6685	0.7889
1659	8290	7.6655	0.7859
1660	8295	7.6675	0.7879
1661	8300	7.6707	0.7911
1662	8305	7.6679	0.7883
1663	8310	7.6682	0.7886
1664	8315	7.6633	0.7837
1665	8320	7.6595	0.7799
1666	8325	7.662	0.7824
1667	8330	7.6599	0.7803
1668	8335	7.6633	0.7837
1669	8340	7.6669	0.7873
1670	8345	7.667	0.7874
1671	8350	7.6627	0.7831
1672	8355	7.6661	0.7865
1673	8360	7.667	0.7874
1674	8365	7.6699	0.7903
1675	8370	7.6664	0.7868
1676	8375	7.671	0.7914
1677	8380	7.6727	0.7931
1678	8385	7.6755	0.7959
1679	8390	7.6652	0.7856
1680	8395	7.6825	0.8029
1681	8400	7.6832	0.8036
1682	8405	7.6695	0.7899
1683	8410	7.6732	0.7936
1684	8415	7.6711	0.7915
1685	8420	7.6759	0.7963
1686	8425	7.6817	0.8021
1687	8430	7.6843	0.8047
1688	8435	7.6803	0.8007
1689	8440	7.6756	0.796
1690	8445	7.6757	0.7961
1691	8450	7.6749	0.7953
1692	8455	7.6732	0.7936
1693	8460	7.6827	0.8031
1694	8465	7.6759	0.7963
1695	8470	7.6766	0.797

Friesen Drillers Ltd. **307 PTH 12 N** **Steinbach, MB R5G 1T8**	**Pumping Test - Water Level Data**	
	Project: OBS-853	
	Number: 2014-078-11472	
	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	7.6822	0.8026
1697	8480	7.6849	0.8053
1698	8485	7.6873	0.8077
1699	8490	7.6841	0.8045
1700	8495	7.6837	0.8041
1701	8500	7.6789	0.7993
1702	8505	7.6844	0.8048
1703	8510	7.6879	0.8083
1704	8515	7.6851	0.8055
1705	8520	7.6895	0.8099
1706	8525	7.6845	0.8049
1707	8530	7.6873	0.8077
1708	8535	7.6871	0.8075
1709	8540	7.6868	0.8072
1710	8545	7.6853	0.8057
1711	8550	7.6945	0.8149
1712	8555	7.6995	0.8199
1713	8560	7.6921	0.8125
1714	8565	7.6944	0.8148
1715	8570	7.6941	0.8145
1716	8575	7.692	0.8124
1717	8580	7.6922	0.8126
1718	8585	7.6956	0.816
1719	8590	7.6983	0.8187
1720	8595	7.6958	0.8162
1721	8600	7.6918	0.8122
1722	8605	7.6958	0.8162
1723	8610	7.6863	0.8067
1724	8615	7.6975	0.8179
1725	8620	7.6901	0.8105
1726	8625	7.6947	0.8151
1727	8630	7.6961	0.8165
1728	8635	7.6939	0.8143
1729	8640	7.6889	0.8093
1730	8645	7.6937	0.8141
1731	8650	7.6963	0.8167
1732	8655	7.7017	0.8221
1733	8660	7.6984	0.8188
1734	8665	7.7033	0.8237
1735	8670	7.6975	0.8179
1736	8675	7.6951	0.8155
1737	8680	7.701	0.8214
1738	8685	7.6953	0.8157
1739	8690	7.6967	0.8171
1740	8695	7.6941	0.8145
1741	8700	7.691	0.8114
1742	8705	7.6965	0.8169
1743	8710	7.6945	0.8149
1744	8715	7.7009	0.8213
1745	8720	7.6987	0.8191
1746	8725	7.6977	0.8181
1747	8730	7.6973	0.8177
1748	8735	7.6936	0.814
1749	8740	7.6873	0.8077
1750	8745	7.6941	0.8145
1751	8750	7.6967	0.8171
1752	8755	7.6927	0.8131
1753	8760	7.6944	0.8148
1754	8765	7.7007	0.8211
1755	8770	7.6967	0.8171
1756	8775	7.7013	0.8217
1757	8780	7.6951	0.8155
1758	8785	7.6943	0.8147

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	7.6946	0.815
1760	8795	7.6945	0.8149
1761	8800	7.6953	0.8157
1762	8805	7.6891	0.8095
1763	8810	7.7025	0.8229
1764	8815	7.6973	0.8177
1765	8820	7.7051	0.8255
1766	8825	7.7009	0.8213
1767	8830	7.7058	0.8262
1768	8835	7.6985	0.8189
1769	8840	7.7007	0.8211
1770	8845	7.7033	0.8237
1771	8850	7.7011	0.8215
1772	8855	7.7063	0.8267
1773	8860	7.6997	0.8201
1774	8865	7.7053	0.8257
1775	8870	7.7029	0.8233
1776	8875	7.7041	0.8245
1777	8880	7.7067	0.8271
1778	8885	7.7022	0.8226
1779	8890	7.705	0.8254
1780	8895	7.7015	0.8219
1781	8900	7.7021	0.8225
1782	8905	7.7051	0.8255
1783	8910	7.7029	0.8233
1784	8915	7.7109	0.8313
1785	8920	7.7019	0.8223
1786	8925	7.7155	0.8359
1787	8930	7.7095	0.8299
1788	8935	7.6977	0.8181
1789	8940	7.6991	0.8195
1790	8945	7.7051	0.8255
1791	8950	7.7043	0.8247
1792	8955	7.6993	0.8197
1793	8960	7.6973	0.8177
1794	8965	7.7031	0.8235
1795	8970	7.6956	0.816
1796	8975	7.701	0.8214
1797	8980	7.7022	0.8226
1798	8985	7.7053	0.8257
1799	8990	7.7022	0.8226
1800	8995	7.7055	0.8259
1801	9000	7.7041	0.8245
1802	9005	7.7029	0.8233
1803	9010	7.706	0.8264
1804	9015	7.7033	0.8237
1805	9020	7.7079	0.8283
1806	9025	7.6977	0.8181
1807	9030	7.6984	0.8188
1808	9035	7.7043	0.8247
1809	9040	7.7033	0.8237
1810	9045	7.7037	0.8241
1811	9050	7.7075	0.8279
1812	9055	7.711	0.8314
1813	9060	7.7025	0.8229
1814	9065	7.7015	0.8219
1815	9070	7.7008	0.8212
1816	9075	7.7039	0.8243
1817	9080	7.707	0.8274
1818	9085	7.6937	0.8141
1819	9090	7.7032	0.8236
1820	9095	7.7041	0.8245
1821	9100	7.7051	0.8255

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	7.6967	0.8171
1823	9110	7.7027	0.8231
1824	9115	7.6979	0.8183
1825	9120	7.7055	0.8259
1826	9125	7.7034	0.8238
1827	9130	7.7007	0.8211
1828	9135	7.7015	0.8219
1829	9140	7.7019	0.8223
1830	9145	7.6996	0.82
1831	9150	7.6999	0.8203
1832	9155	7.7025	0.8229
1833	9160	7.7099	0.8303
1834	9165	7.7125	0.8329
1835	9170	7.7041	0.8245
1836	9175	7.7077	0.8281
1837	9180	7.7036	0.824
1838	9185	7.7051	0.8255
1839	9190	7.7065	0.8269
1840	9195	7.7108	0.8312
1841	9200	7.7077	0.8281
1842	9205	7.7072	0.8276
1843	9210	7.707	0.8274
1844	9215	7.7091	0.8295
1845	9220	7.7067	0.8271
1846	9225	7.7108	0.8312
1847	9230	7.6999	0.8203
1848	9235	7.701	0.8214
1849	9240	7.7069	0.8273
1850	9245	7.6975	0.8179
1851	9250	7.7101	0.8305
1852	9255	7.7053	0.8257
1853	9260	7.7117	0.8321
1854	9265	7.7065	0.8269
1855	9270	7.7075	0.8279
1856	9275	7.7063	0.8267
1857	9280	7.7101	0.8305
1858	9285	7.7143	0.8347
1859	9290	7.7067	0.8271
1860	9295	7.7165	0.8369
1861	9300	7.7179	0.8383
1862	9305	7.716	0.8364
1863	9310	7.7136	0.834
1864	9315	7.717	0.8374
1865	9320	7.7203	0.8407
1866	9325	7.7157	0.8361
1867	9330	7.7139	0.8343
1868	9335	7.7148	0.8352
1869	9340	7.72	0.8404
1870	9345	7.7267	0.8471
1871	9350	7.7253	0.8457
1872	9355	7.7291	0.8495
1873	9360	7.7252	0.8456
1874	9365	7.7186	0.839
1875	9370	7.7229	0.8433
1876	9375	7.7296	0.85
1877	9380	7.7257	0.8461
1878	9385	7.7243	0.8447
1879	9390	7.7278	0.8482
1880	9395	7.7212	0.8416
1881	9400	7.7172	0.8376
1882	9405	7.7267	0.8471
1883	9410	7.7199	0.8403
1884	9415	7.721	0.8414

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	7.7195	0.8399
1886	9425	7.7261	0.8465
1887	9430	7.7233	0.8437
1888	9435	7.7225	0.8429
1889	9440	7.7248	0.8452
1890	9445	7.7155	0.8359
1891	9450	7.7148	0.8352
1892	9455	7.7191	0.8395
1893	9460	7.7181	0.8385
1894	9465	7.7191	0.8395
1895	9470	7.7219	0.8423
1896	9475	7.7267	0.8471
1897	9480	7.7257	0.8461
1898	9485	7.7155	0.8359
1899	9490	7.7179	0.8383
1900	9495	7.7188	0.8392
1901	9500	7.7203	0.8407
1902	9505	7.7209	0.8413
1903	9510	7.7188	0.8392
1904	9515	7.717	0.8374
1905	9520	7.7176	0.838
1906	9525	7.7115	0.8319
1907	9530	7.7113	0.8317
1908	9535	7.7101	0.8305
1909	9540	7.7121	0.8325
1910	9545	7.7141	0.8345
1911	9550	7.7055	0.8259
1912	9555	7.7075	0.8279
1913	9560	7.7019	0.8223
1914	9565	7.7003	0.8207
1915	9570	7.7043	0.8247
1916	9575	7.7019	0.8223
1917	9580	7.6969	0.8173
1918	9585	7.7003	0.8207
1919	9590	7.687	0.8074
1920	9595	7.6865	0.8069
1921	9600	7.6911	0.8115
1922	9605	7.6901	0.8105
1923	9610	7.6924	0.8128
1924	9615	7.6859	0.8063
1925	9620	7.6932	0.8136
1926	9625	7.6939	0.8143
1927	9630	7.6893	0.8097
1928	9635	7.6896	0.81
1929	9640	7.6898	0.8102
1930	9645	7.6915	0.8119
1931	9650	7.6841	0.8045
1932	9655	7.6806	0.801
1933	9660	7.6908	0.8112
1934	9665	7.6857	0.8061
1935	9670	7.6817	0.8021
1936	9675	7.6846	0.805
1937	9680	7.6739	0.7943
1938	9685	7.6755	0.7959
1939	9690	7.6794	0.7998
1940	9695	7.6777	0.7981
1941	9700	7.6765	0.7969
1942	9705	7.6777	0.7981
1943	9710	7.6772	0.7976
1944	9715	7.6745	0.7949
1945	9720	7.6754	0.7958
1946	9725	7.6751	0.7955
1947	9730	7.6743	0.7947

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	7.6675	0.7879
1949	9740	7.6765	0.7969
1950	9745	7.6711	0.7915
1951	9750	7.6647	0.7851
1952	9755	7.6739	0.7943
1953	9760	7.6687	0.7891
1954	9765	7.6681	0.7885
1955	9770	7.6707	0.7911
1956	9775	7.6699	0.7903
1957	9780	7.6709	0.7913
1958	9785	7.6687	0.7891
1959	9790	7.6718	0.7922
1960	9795	7.6707	0.7911
1961	9800	7.6706	0.791
1962	9805	7.6711	0.7915
1963	9810	7.6707	0.7911
1964	9815	7.6639	0.7843
1965	9820	7.6611	0.7815
1966	9825	7.6671	0.7875
1967	9830	7.6651	0.7855
1968	9835	7.6607	0.7811
1969	9840	7.6673	0.7877
1970	9845	7.6605	0.7809
1971	9850	7.6626	0.783
1972	9855	7.6649	0.7853
1973	9860	7.6617	0.7821
1974	9865	7.6617	0.7821
1975	9870	7.6649	0.7853
1976	9875	7.6563	0.7767
1977	9880	7.6631	0.7835
1978	9885	7.6582	0.7786
1979	9890	7.6605	0.7809
1980	9895	7.6647	0.7851
1981	9900	7.6643	0.7847
1982	9905	7.6715	0.7919
1983	9910	7.6678	0.7882
1984	9915	7.664	0.7844
1985	9920	7.6685	0.7889
1986	9925	7.6649	0.7853
1987	9930	7.6582	0.7786
1988	9935	7.664	0.7844
1989	9940	7.6652	0.7856
1990	9945	7.6619	0.7823
1991	9950	7.6615	0.7819
1992	9955	7.6553	0.7757
1993	9960	7.6631	0.7835
1994	9965	7.6638	0.7842
1995	9970	7.6626	0.783
1996	9975	7.6643	0.7847
1997	9980	7.6711	0.7915
1998	9985	7.6719	0.7923
1999	9990	7.6735	0.7939
2000	9995	7.6735	0.7939
2001	10000	7.668	0.7884
2002	10005	7.673	0.7934
2003	10010	7.6743	0.7947
2004	10015	7.6739	0.7943
2005	10020	7.6773	0.7977
2006	10025	7.6787	0.7991
2007	10030	7.6719	0.7923
2008	10035	7.6761	0.7965
2009	10040	7.6772	0.7976
2010	10045	7.6775	0.7979

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	7.6779	0.7983
2012	10055	7.6769	0.7973
2013	10060	7.6818	0.8022
2014	10065	7.6793	0.7997
2015	10070	7.6742	0.7946
2016	10075	7.6782	0.7986
2017	10080	7.6853	0.8057
2018	10085	7.6863	0.8067
2019	10090	7.6841	0.8045
2020	10095	7.6761	0.7965
2021	10100	7.6809	0.8013
2022	10105	7.6747	0.7951
2023	10110	7.6743	0.7947
2024	10115	7.6695	0.7899
2025	10120	7.6789	0.7993
2026	10125	7.6782	0.7986
2027	10130	7.6758	0.7962
2028	10135	7.6775	0.7979
2029	10140	7.6711	0.7915
2030	10145	7.6755	0.7959
2031	10150	7.6789	0.7993
2032	10155	7.6758	0.7962
2033	10160	7.6721	0.7925
2034	10165	7.6675	0.7879
2035	10170	7.6711	0.7915
2036	10175	7.6699	0.7903
2037	10180	7.6777	0.7981
2038	10185	7.6739	0.7943
2039	10190	7.6825	0.8029
2040	10195	7.6777	0.7981
2041	10200	7.6706	0.791
2042	10205	7.6687	0.7891
2043	10210	7.6757	0.7961
2044	10215	7.6761	0.7965
2045	10220	7.6751	0.7955
2046	10225	7.672	0.7924
2047	10230	7.6744	0.7948
2048	10235	7.6794	0.7998
2049	10240	7.6717	0.7921
2050	10245	7.6639	0.7843
2051	10250	7.6609	0.7813
2052	10255	7.6668	0.7872
2053	10260	7.6628	0.7832
2054	10265	7.6658	0.7862
2055	10270	7.6669	0.7873
2056	10275	7.664	0.7844
2057	10280	7.6679	0.7883
2058	10285	7.6652	0.7856
2059	10290	7.6681	0.7885
2060	10295	7.6601	0.7805
2061	10300	7.6542	0.7746
2062	10305	7.6635	0.7839
2063	10310	7.6615	0.7819
2064	10315	7.6538	0.7742
2065	10320	7.6566	0.777
2066	10325	7.6575	0.7779
2067	10330	7.6573	0.7777
2068	10335	7.6521	0.7725
2069	10340	7.6577	0.7781
2070	10345	7.6556	0.776
2071	10350	7.6531	0.7735
2072	10355	7.6484	0.7688
2073	10360	7.645	0.7654

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	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	7.6413	0.7617
2075	10370	7.649	0.7694
2076	10375	7.6451	0.7655
2077	10380	7.6431	0.7635
2078	10385	7.643	0.7634
2079	10390	7.6447	0.7651
2080	10395	7.6452	0.7656
2081	10400	7.6408	0.7612
2082	10405	7.639	0.7594
2083	10410	7.6366	0.757
2084	10415	7.6356	0.756
2085	10420	7.632	0.7524
2086	10425	7.6363	0.7567
2087	10430	7.6325	0.7529
2088	10435	7.6314	0.7518
2089	10440	7.6315	0.7519
2090	10445	7.6299	0.7503
2091	10450	7.6299	0.7503
2092	10455	7.6272	0.7476
2093	10460	7.6266	0.747
2094	10465	7.6218	0.7422
2095	10470	7.6245	0.7449
2096	10475	7.6296	0.75
2097	10480	7.6216	0.742
2098	10485	7.6239	0.7443
2099	10490	7.614	0.7344
2100	10495	7.62	0.7404
2101	10500	7.6171	0.7375
2102	10505	7.6188	0.7392
2103	10510	7.6166	0.737
2104	10515	7.6149	0.7353
2105	10520	7.618	0.7384
2106	10525	7.6169	0.7373
2107	10530	7.6168	0.7372
2108	10535	7.6122	0.7326
2109	10540	7.6096	0.73
2110	10545	7.61	0.7304
2111	10550	7.6136	0.734
2112	10555	7.6126	0.733
2113	10560	7.609	0.7294
2114	10565	7.6058	0.7262
2115	10570	7.6057	0.7261
2116	10575	7.608	0.7284
2117	10580	7.605	0.7254
2118	10585	7.6086	0.729
2119	10590	7.6085	0.7289
2120	10595	7.5946	0.715
2121	10600	7.6045	0.7249
2122	10605	7.6038	0.7242
2123	10610	7.6052	0.7256
2124	10615	7.6007	0.7211
2125	10620	7.6016	0.722
2126	10625	7.5976	0.718
2127	10630	7.602	0.7224
2128	10635	7.5996	0.72
2129	10640	7.6009	0.7213
2130	10645	7.596	0.7164
2131	10650	7.5976	0.718
2132	10655	7.5962	0.7166
2133	10660	7.5998	0.7202
2134	10665	7.5904	0.7108
2135	10670	7.5954	0.7158
2136	10675	7.5944	0.7148

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	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	7.5947	0.7151
2138	10685	7.5964	0.7168
2139	10690	7.5888	0.7092
2140	10695	7.589	0.7094
2141	10700	7.5936	0.714
2142	10705	7.5996	0.72
2143	10710	7.592	0.7124
2144	10715	7.5898	0.7102
2145	10720	7.585	0.7054
2146	10725	7.5858	0.7062
2147	10730	7.588	0.7084
2148	10735	7.5843	0.7047
2149	10740	7.5867	0.7071
2150	10745	7.5772	0.6976
2151	10750	7.5717	0.6921
2152	10755	7.5748	0.6952
2153	10760	7.5812	0.7016
2154	10765	7.5786	0.699
2155	10770	7.5776	0.698
2156	10775	7.575	0.6954
2157	10780	7.5729	0.6933
2158	10785	7.5722	0.6926
2159	10790	7.5686	0.689
2160	10795	7.5701	0.6905
2161	10800	7.5683	0.6887
2162	10805	7.5712	0.6916
2163	10810	7.5652	0.6856
2164	10815	7.5662	0.6866
2165	10820	7.5605	0.6809
2166	10825	7.5669	0.6873
2167	10830	7.5679	0.6883
2168	10835	7.5558	0.6762
2169	10840	7.5586	0.679
2170	10845	7.5625	0.6829
2171	10850	7.5663	0.6867
2172	10855	7.5593	0.6797
2173	10860	7.5608	0.6812
2174	10865	7.5564	0.6768
2175	10870	7.559	0.6794
2176	10875	7.5513	0.6717
2177	10880	7.5522	0.6726
2178	10885	7.5537	0.6741
2179	10890	7.5459	0.6663
2180	10895	7.553	0.6734
2181	10900	7.5487	0.6691
2182	10905	7.551	0.6714
2183	10910	7.5505	0.6709
2184	10915	7.5535	0.6739
2185	10920	7.5402	0.6606
2186	10925	7.5421	0.6625
2187	10930	7.543	0.6634
2188	10935	7.5395	0.6599
2189	10940	7.5442	0.6646
2190	10945	7.5436	0.664
2191	10950	7.5404	0.6608
2192	10955	7.5364	0.6568
2193	10960	7.5229	0.6433
2194	10965	7.5312	0.6516
2195	10970	7.5274	0.6478
2196	10975	7.5326	0.653
2197	10980	7.536	0.6564
2198	10985	7.5222	0.6426
2199	10990	7.5286	0.649

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	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	7.5235	0.6439
2201	11000	7.525	0.6454
2202	11005	7.5181	0.6385
2203	11010	7.5149	0.6353
2204	11015	7.5169	0.6373
2205	11020	7.5157	0.6361
2206	11025	7.5095	0.6299
2207	11030	7.5101	0.6305
2208	11035	7.5096	0.63
2209	11040	7.5063	0.6267
2210	11045	7.5095	0.6299
2211	11050	7.5056	0.626
2212	11055	7.5075	0.6279
2213	11060	7.5059	0.6263
2214	11065	7.5061	0.6265
2215	11070	7.4955	0.6159
2216	11075	7.4975	0.6179
2217	11080	7.4901	0.6105
2218	11085	7.4896	0.61
2219	11090	7.4984	0.6188
2220	11095	7.4865	0.6069
2221	11100	7.4865	0.6069
2222	11105	7.4884	0.6088
2223	11110	7.4854	0.6058
2224	11115	7.4863	0.6067
2225	11120	7.4906	0.611
2226	11125	7.4799	0.6003
2227	11130	7.4769	0.5973
2228	11135	7.4749	0.5953
2229	11140	7.4803	0.6007
2230	11145	7.4737	0.5941
2231	11150	7.4775	0.5979
2232	11155	7.4705	0.5909
2233	11160	7.4783	0.5987
2234	11165	7.4615	0.5819
2235	11170	7.4657	0.5861
2236	11175	7.4617	0.5821
2237	11180	7.4598	0.5802
2238	11185	7.4605	0.5809
2239	11190	7.4625	0.5829
2240	11195	7.465	0.5854
2241	11200	7.4581	0.5785
2242	11205	7.4573	0.5777
2243	11210	7.4616	0.582
2244	11215	7.4629	0.5833
2245	11220	7.46	0.5804
2246	11225	7.4563	0.5767
2247	11230	7.4449	0.5653
2248	11235	7.4561	0.5765
2249	11240	7.4496	0.57
2250	11245	7.4514	0.5718
2251	11250	7.4473	0.5677
2252	11255	7.4447	0.5651
2253	11260	7.452	0.5724
2254	11265	7.4504	0.5708
2255	11270	7.4462	0.5666
2256	11275	7.4413	0.5617
2257	11280	7.445	0.5654
2258	11285	7.4376	0.558
2259	11290	7.4398	0.5602
2260	11295	7.4468	0.5672
2261	11300	7.4441	0.5645
2262	11305	7.444	0.5644

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	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	7.4475	0.5679
2264	11315	7.4445	0.5649
2265	11320	7.4423	0.5627
2266	11325	7.4422	0.5626
2267	11330	7.4486	0.569
2268	11335	7.4487	0.5691
2269	11340	7.4395	0.5599
2270	11345	7.4375	0.5579
2271	11350	7.4427	0.5631
2272	11355	7.4362	0.5566
2273	11360	7.4396	0.56
2274	11365	7.439	0.5594
2275	11370	7.4411	0.5615
2276	11375	7.4421	0.5625
2277	11380	7.4397	0.5601
2278	11385	7.441	0.5614
2279	11390	7.443	0.5634
2280	11395	7.4377	0.5581
2281	11400	7.4442	0.5646
2282	11405	7.4418	0.5622
2283	11410	7.4494	0.5698
2284	11415	7.443	0.5634
2285	11420	7.443	0.5634
2286	11425	7.4416	0.562
2287	11430	7.4452	0.5656
2288	11435	7.4473	0.5677
2289	11440	7.4433	0.5637
2290	11445	7.4448	0.5652
2291	11450	7.4434	0.5638
2292	11455	7.4412	0.5616
2293	11460	7.4426	0.563
2294	11465	7.445	0.5654
2295	11470	7.447	0.5674
2296	11475	7.4415	0.5619
2297	11480	7.444	0.5644
2298	11485	7.4475	0.5679
2299	11490	7.4535	0.5739
2300	11495	7.4517	0.5721
2301	11500	7.4561	0.5765
2302	11505	7.4472	0.5676
2303	11510	7.4499	0.5703
2304	11515	7.4477	0.5681
2305	11520	7.4543	0.5747
2306	11525	7.443	0.5634
2307	11530	7.4491	0.5695
2308	11535	7.4453	0.5657
2309	11540	7.4451	0.5655
2310	11545	7.4489	0.5693
2311	11550	7.4527	0.5731
2312	11555	7.4494	0.5698
2313	11560	7.4546	0.575
2314	11565	7.4533	0.5737
2315	11570	7.452	0.5724
2316	11575	7.45	0.5704
2317	11580	7.4502	0.5706
2318	11585	7.4508	0.5712
2319	11590	7.4477	0.5681
2320	11595	7.4528	0.5732
2321	11600	7.4535	0.5739
2322	11605	7.4503	0.5707
2323	11610	7.4451	0.5655
2324	11615	7.4523	0.5727
2325	11620	7.4456	0.566

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	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	7.4503	0.5707
2327	11630	7.4554	0.5758
2328	11635	7.4585	0.5789
2329	11640	7.4551	0.5755
2330	11645	7.4541	0.5745
2331	11650	7.4528	0.5732
2332	11655	7.4441	0.5645
2333	11660	7.4515	0.5719
2334	11665	7.4542	0.5746
2335	11670	7.4484	0.5688
2336	11675	7.4529	0.5733
2337	11680	7.4486	0.569
2338	11685	7.4515	0.5719
2339	11690	7.4533	0.5737
2340	11695	7.4529	0.5733
2341	11700	7.4506	0.571
2342	11705	7.4477	0.5681
2343	11710	7.4544	0.5748
2344	11715	7.4517	0.5721
2345	11720	7.4522	0.5726
2346	11725	7.4554	0.5758
2347	11730	7.4521	0.5725
2348	11735	7.4526	0.573
2349	11740	7.4486	0.569
2350	11745	7.45	0.5704
2351	11750	7.4478	0.5682
2352	11755	7.4499	0.5703
2353	11760	7.4463	0.5667
2354	11765	7.4415	0.5619
2355	11770	7.4382	0.5586
2356	11775	7.4438	0.5642
2357	11780	7.4392	0.5596
2358	11785	7.4447	0.5651
2359	11790	7.4404	0.5608
2360	11795	7.4413	0.5617
2361	11800	7.4394	0.5598
2362	11805	7.4359	0.5563
2363	11810	7.4252	0.5456
2364	11815	7.429	0.5494
2365	11820	7.4357	0.5561
2366	11825	7.433	0.5534
2367	11830	7.4382	0.5586
2368	11835	7.4302	0.5506
2369	11840	7.4354	0.5558
2370	11845	7.428	0.5484
2371	11850	7.4349	0.5553
2372	11855	7.4387	0.5591
2373	11860	7.4369	0.5573
2374	11865	7.4333	0.5537
2375	11870	7.4382	0.5586
2376	11875	7.4325	0.5529
2377	11880	7.4392	0.5596
2378	11885	7.4349	0.5553
2379	11890	7.4323	0.5527
2380	11895	7.431	0.5514
2381	11900	7.4316	0.552
2382	11905	7.4345	0.5549
2383	11910	7.4318	0.5522
2384	11915	7.4264	0.5468
2385	11920	7.434	0.5544
2386	11925	7.4377	0.5581
2387	11930	7.436	0.5564
2388	11935	7.4338	0.5542

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	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	7.4349	0.5553
2390	11945	7.4297	0.5501
2391	11950	7.4324	0.5528
2392	11955	7.4316	0.552
2393	11960	7.4365	0.5569
2394	11965	7.4347	0.5551
2395	11970	7.4256	0.546
2396	11975	7.424	0.5444
2397	11980	7.4287	0.5491
2398	11985	7.4258	0.5462
2399	11990	7.4342	0.5546
2400	11995	7.4338	0.5542
2401	12000	7.4325	0.5529
2402	12005	7.4248	0.5452
2403	12010	7.4314	0.5518
2404	12015	7.4313	0.5517
2405	12020	7.4302	0.5506
2406	12025	7.4364	0.5568
2407	12030	7.4358	0.5562
2408	12035	7.4302	0.5506
2409	12040	7.4307	0.5511
2410	12045	7.4257	0.5461
2411	12050	7.4339	0.5543
2412	12055	7.4319	0.5523
2413	12060	7.4354	0.5558
2414	12065	7.4366	0.557
2415	12070	7.4314	0.5518
2416	12075	7.4372	0.5576
2417	12080	7.4288	0.5492
2418	12085	7.4352	0.5556
2419	12090	7.432	0.5524
2420	12095	7.43	0.5504
2421	12100	7.4331	0.5535
2422	12105	7.4322	0.5526
2423	12110	7.4366	0.557
2424	12115	7.4363	0.5567
2425	12120	7.4314	0.5518
2426	12125	7.4395	0.5599
2427	12130	7.4373	0.5577
2428	12135	7.4407	0.5611
2429	12140	7.435	0.5554
2430	12145	7.4349	0.5553
2431	12150	7.4364	0.5568
2432	12155	7.4316	0.552
2433	12160	7.4351	0.5555
2434	12165	7.4354	0.5558
2435	12170	7.438	0.5584
2436	12175	7.4296	0.55
2437	12180	7.4381	0.5585
2438	12185	7.4365	0.5569
2439	12190	7.4392	0.5596
2440	12195	7.4373	0.5577
2441	12200	7.4323	0.5527
2442	12205	7.4306	0.551
2443	12210	7.4357	0.5561
2444	12215	7.4359	0.5563
2445	12220	7.438	0.5584
2446	12225	7.4359	0.5563
2447	12230	7.434	0.5544
2448	12235	7.4376	0.558
2449	12240	7.4439	0.5643
2450	12245	7.4394	0.5598
2451	12250	7.44	0.5604

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	Time [min]	Water Level [ft]	Drawdown [ft]
2452	12255	7.4376	0.558
2453	12260	7.435	0.5554
2454	12265	7.438	0.5584
2455	12270	7.4434	0.5638
2456	12275	7.4306	0.551
2457	12280	7.4459	0.5663
2458	12285	7.439	0.5594
2459	12290	7.44	0.5604
2460	12295	7.4465	0.5669
2461	12300	7.4483	0.5687
2462	12305	7.4448	0.5652
2463	12310	7.4451	0.5655
2464	12315	7.4411	0.5615
2465	12320	7.4458	0.5662
2466	12325	7.4444	0.5648
2467	12330	7.4472	0.5676
2468	12335	7.4446	0.565
2469	12340	7.44	0.5604
2470	12345	7.4403	0.5607
2471	12350	7.4392	0.5596
2472	12355	7.4441	0.5645
2473	12360	7.438	0.5584
2474	12365	7.4478	0.5682
2475	12370	7.4424	0.5628
2476	12375	7.4374	0.5578
2477	12380	7.4382	0.5586
2478	12385	7.4365	0.5569
2479	12390	7.44	0.5604
2480	12395	7.436	0.5564
2481	12400	7.4374	0.5578
2482	12405	7.4394	0.5598
2483	12410	7.4467	0.5671
2484	12415	7.4403	0.5607
2485	12420	7.4351	0.5555
2486	12425	7.4335	0.5539
2487	12430	7.4351	0.5555
2488	12435	7.4392	0.5596
2489	12440	7.436	0.5564
2490	12445	7.4351	0.5555
2491	12450	7.4324	0.5528
2492	12455	7.439	0.5594
2493	12460	7.4304	0.5508
2494	12465	7.432	0.5524
2495	12470	7.4345	0.5549
2496	12475	7.434	0.5544
2497	12480	7.4358	0.5562
2498	12485	7.426	0.5464
2499	12490	7.4334	0.5538
2500	12495	7.4321	0.5525
2501	12500	7.4307	0.5511
2502	12505	7.4318	0.5522
2503	12510	7.429	0.5494
2504	12515	7.4348	0.5552
2505	12520	7.4321	0.5525
2506	12525	7.429	0.5494
2507	12530	7.4226	0.543
2508	12535	7.4224	0.5428
2509	12540	7.4269	0.5473
2510	12545	7.4254	0.5458
2511	12550	7.421	0.5414
2512	12555	7.4202	0.5406
2513	12560	7.4145	0.5349
2514	12565	7.4226	0.543

	Time [min]	Water Level [ft]	Drawdown [ft]
2515	12570	7.4181	0.5385
2516	12575	7.417	0.5374
2517	12580	7.419	0.5394
2518	12585	7.4126	0.533
2519	12590	7.415	0.5354
2520	12595	7.4166	0.537
2521	12600	7.4181	0.5385
2522	12605	7.4142	0.5346
2523	12610	7.4105	0.5309
2524	12615	7.4083	0.5287
2525	12620	7.409	0.5294
2526	12625	7.4083	0.5287
2527	12630	7.406	0.5264
2528	12635	7.4138	0.5342
2529	12640	7.4118	0.5322
2530	12645	7.4095	0.5299
2531	12650	7.404	0.5244
2532	12655	7.4124	0.5328
2533	12660	7.415	0.5354
2534	12665	7.4018	0.5222
2535	12670	7.4106	0.531
2536	12675	7.4045	0.5249
2537	12680	7.4054	0.5258
2538	12685	7.4045	0.5249
2539	12690	7.4067	0.5271
2540	12695	7.4014	0.5218
2541	12700	7.4026	0.523
2542	12705	7.4054	0.5258
2543	12710	7.406	0.5264
2544	12715	7.4066	0.527
2545	12720	7.4136	0.534
2546	12725	7.4069	0.5273
2547	12730	7.4082	0.5286
2548	12735	7.402	0.5224
2549	12740	7.4074	0.5278
2550	12745	7.4074	0.5278
2551	12750	7.4098	0.5302
2552	12755	7.4068	0.5272
2553	12760	7.4043	0.5247
2554	12765	7.4026	0.523
2555	12770	7.406	0.5264
2556	12775	7.4036	0.524
2557	12780	7.4044	0.5248
2558	12785	7.4093	0.5297
2559	12790	7.4071	0.5275
2560	12795	7.4084	0.5288
2561	12800	7.4002	0.5206
2562	12805	7.3991	0.5195
2563	12810	7.4006	0.521
2564	12815	7.4078	0.5282
2565	12820	7.3991	0.5195
2566	12825	7.4026	0.523
2567	12830	7.4074	0.5278
2568	12835	7.4046	0.525
2569	12840	7.4031	0.5235
2570	12845	7.4074	0.5278
2571	12850	7.4144	0.5348
2572	12855	7.4056	0.526
2573	12860	7.4062	0.5266
2574	12865	7.4043	0.5247
2575	12870	7.4074	0.5278
2576	12875	7.4157	0.5361
2577	12880	7.4138	0.5342

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	Time [min]	Water Level [ft]	Drawdown [ft]
2578	12885	7.414	0.5344
2579	12890	7.4167	0.5371
2580	12895	7.4182	0.5386
2581	12900	7.4169	0.5373
2582	12905	7.424	0.5444
2583	12910	7.4168	0.5372
2584	12915	7.4174	0.5378
2585	12920	7.4208	0.5412
2586	12925	7.4105	0.5309
2587	12930	7.4138	0.5342
2588	12935	7.4178	0.5382
2589	12940	7.4136	0.534
2590	12945	7.4162	0.5366
2591	12950	7.4081	0.5285
2592	12955	7.4136	0.534
2593	12960	7.4146	0.535
2594	12965	7.4152	0.5356
2595	12970	7.4102	0.5306
2596	12975	7.412	0.5324
2597	12980	7.4114	0.5318
2598	12985	7.4064	0.5268
2599	12990	7.4154	0.5358
2600	12995	7.419	0.5394
2601	13000	7.4164	0.5368
2602	13005	7.415	0.5354
2603	13010	7.4183	0.5387
2604	13015	7.4212	0.5416
2605	13020	7.4122	0.5326
2606	13025	7.4176	0.538
2607	13030	7.421	0.5414
2608	13035	7.4193	0.5397
2609	13040	7.4261	0.5465
2610	13045	7.4162	0.5366
2611	13050	7.4232	0.5436
2612	13055	7.4159	0.5363
2613	13060	7.4185	0.5389

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Pumping Test - Water Level Data	
Project: OBS-853	
Number: 2014-078-11472	
Client: City of Selkirk/MWSB	

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: G05OJ050	Static Water Level [ft]: 12.90	Radial Distance to PW [ft]: 18165

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	12.9033	0.0003
2	10	12.8989	-0.0041
3	20	12.9062	0.0032
4	30	12.9088	0.0058
5	40	12.9102	0.0072
6	50	12.9124	0.0094
7	60	12.9163	0.0133
8	70	12.9164	0.0134
9	80	12.9142	0.0112
10	90	12.9131	0.0101
11	100	12.9148	0.0118
12	110	12.9138	0.0108
13	120	12.913	0.01
14	130	12.8746	-0.0284
15	140	12.8295	-0.0735
16	150	12.7953	-0.1077
17	160	12.7631	-0.1399
18	170	12.7388	-0.1642
19	180	12.7181	-0.1849
20	190	12.698	-0.205
21	200	12.6895	-0.2135
22	210	12.6735	-0.2295
23	220	12.6679	-0.2351
24	230	12.6586	-0.2444
25	240	12.6546	-0.2484
26	250	12.6405	-0.2625
27	260	12.6345	-0.2685
28	270	12.6248	-0.2782
29	280	12.6195	-0.2835
30	290	12.6113	-0.2917
31	300	12.6044	-0.2986
32	310	12.5982	-0.3048
33	320	12.5851	-0.3179
34	330	12.5807	-0.3223
35	340	12.5757	-0.3273
36	350	12.5646	-0.3384
37	360	12.5566	-0.3464
38	370	12.5582	-0.3448
39	380	12.5526	-0.3504
40	390	12.5477	-0.3553
41	400	12.5339	-0.3691
42	410	12.5309	-0.3721
43	420	12.5216	-0.3814
44	430	12.5118	-0.3912
45	440	12.5069	-0.3961
46	450	12.51	-0.393
47	460	12.4999	-0.4031
48	470	12.4993	-0.4037
49	480	12.4923	-0.4107
50	490	12.4862	-0.4168
51	500	12.4828	-0.4202
52	510	12.4782	-0.4248
53	520	12.4762	-0.4268
54	530	12.474	-0.429
55	540	12.4667	-0.4363
56	550	12.4629	-0.4401
57	560	12.4682	-0.4348

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	Time [min]	Water Level [ft]	Drawdown [ft]
58	570	12.4624	-0.4406
59	580	12.4555	-0.4475
60	590	12.4535	-0.4495
61	600	12.4474	-0.4556
62	610	12.4458	-0.4572
63	620	12.4447	-0.4583
64	630	12.4419	-0.4611
65	640	12.4445	-0.4585
66	650	12.4407	-0.4623
67	660	12.441	-0.462
68	670	12.436	-0.467
69	680	12.4344	-0.4686
70	690	12.4331	-0.4699
71	700	12.4317	-0.4713
72	710	12.4331	-0.4699
73	720	12.4329	-0.4701
74	730	12.4276	-0.4754
75	740	12.4195	-0.4835
76	750	12.4234	-0.4796
77	760	12.4172	-0.4858
78	770	12.4203	-0.4827
79	780	12.4191	-0.4839
80	790	12.4151	-0.4879
81	800	12.4113	-0.4917
82	810	12.4143	-0.4887
83	820	12.413	-0.49
84	830	12.4133	-0.4897
85	840	12.4034	-0.4996
86	850	12.4051	-0.4979
87	860	12.4071	-0.4959
88	870	12.4024	-0.5006
89	880	12.3977	-0.5053
90	890	12.4001	-0.5029
91	900	12.3952	-0.5078
92	910	12.4015	-0.5015
93	920	12.4001	-0.5029
94	930	12.3997	-0.5033
95	940	12.391	-0.512
96	950	12.3932	-0.5098
97	960	12.3869	-0.5161
98	970	12.3861	-0.5169
99	980	12.3822	-0.5208
100	990	12.3834	-0.5196
101	1000	12.3861	-0.5169
102	1010	12.3826	-0.5204
103	1020	12.3816	-0.5214
104	1030	12.3766	-0.5264
105	1040	12.3645	-0.5385
106	1050	12.37	-0.533
107	1060	12.3701	-0.5329
108	1070	12.3613	-0.5417
109	1080	12.3562	-0.5468
110	1090	12.3502	-0.5528
111	1100	12.3516	-0.5514
112	1110	12.3404	-0.5626
113	1120	12.3406	-0.5624
114	1130	12.348	-0.555
115	1140	12.3478	-0.5552
116	1150	12.3515	-0.5515
117	1160	12.3635	-0.5395
118	1170	12.3606	-0.5424
119	1180	12.3688	-0.5342
120	1190	12.3652	-0.5378

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	1200	12.373	-0.53
122	1210	12.3736	-0.5294
123	1220	12.3671	-0.5359
124	1230	12.3702	-0.5328
125	1240	12.3948	-0.5082
126	1250	12.4288	-0.4742
127	1260	12.4741	-0.4289
128	1270	12.5143	-0.3887
129	1280	12.5463	-0.3567
130	1290	12.5793	-0.3237
131	1300	12.5964	-0.3066
132	1310	12.6227	-0.2803
133	1320	12.6415	-0.2615
134	1330	12.6813	-0.2217
135	1340	12.6899	-0.2131
136	1350	12.7025	-0.2005
137	1360	12.7172	-0.1858
138	1370	12.733	-0.17
139	1380	12.7558	-0.1472
140	1390	12.7658	-0.1372
141	1400	12.7774	-0.1256
142	1410	12.7748	-0.1282
143	1420	12.8022	-0.1008
144	1430	12.80	-0.103
145	1440	12.8077	-0.0953
146	1450	12.8101	-0.0929
147	1460	12.8184	-0.0846
148	1470	12.8276	-0.0754
149	1480	12.8343	-0.0687
150	1490	12.8367	-0.0663
151	1500	12.8437	-0.0593
152	1510	12.8488	-0.0542
153	1520	12.8515	-0.0515
154	1530	12.8578	-0.0452
155	1540	12.8655	-0.0375
156	1550	12.8687	-0.0343
157	1560	12.8735	-0.0295
158	1570	12.8293	-0.0737
159	1580	12.7786	-0.1244
160	1590	12.7413	-0.1617
161	1600	12.7207	-0.1823
162	1610	12.6829	-0.2201
163	1620	12.6615	-0.2415
164	1630	12.633	-0.27
165	1640	12.6174	-0.2856
166	1650	12.5999	-0.3031
167	1660	12.577	-0.326
168	1670	12.5733	-0.3297
169	1680	12.5561	-0.3469
170	1690	12.5358	-0.3672
171	1700	12.5313	-0.3717
172	1710	12.5174	-0.3856
173	1720	12.5124	-0.3906
174	1730	12.498	-0.405
175	1740	12.4983	-0.4047
176	1750	12.4848	-0.4182
177	1760	12.4869	-0.4161
178	1770	12.4824	-0.4206
179	1780	12.4636	-0.4394
180	1790	12.4552	-0.4478
181	1800	12.4524	-0.4506
182	1810	12.4424	-0.4606
183	1820	12.4293	-0.4737

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	1830	12.4337	-0.4693
185	1840	12.4191	-0.4839
186	1850	12.4155	-0.4875
187	1860	12.4028	-0.5002
188	1870	12.3989	-0.5041
189	1880	12.3985	-0.5045
190	1890	12.3943	-0.5087
191	1900	12.3906	-0.5124
192	1910	12.3838	-0.5192
193	1920	12.3721	-0.5309
194	1930	12.3747	-0.5283
195	1940	12.3672	-0.5358
196	1950	12.359	-0.544
197	1960	12.3597	-0.5433
198	1970	12.3499	-0.5531
199	1980	12.3454	-0.5576
200	1990	12.3466	-0.5564
201	2000	12.3387	-0.5643
202	2010	12.3395	-0.5635
203	2020	12.3323	-0.5707
204	2030	12.3284	-0.5746
205	2040	12.3323	-0.5707
206	2050	12.323	-0.58
207	2060	12.3211	-0.5819
208	2070	12.3148	-0.5882
209	2080	12.3172	-0.5858
210	2090	12.3159	-0.5871
211	2100	12.3102	-0.5928
212	2110	12.304	-0.599
213	2120	12.2948	-0.6082
214	2130	12.2906	-0.6124
215	2140	12.2926	-0.6104
216	2150	12.2931	-0.6099
217	2160	12.2885	-0.6145
218	2170	12.2838	-0.6192
219	2180	12.2804	-0.6226
220	2190	12.2807	-0.6223
221	2200	12.2837	-0.6193
222	2210	12.283	-0.62
223	2220	12.2789	-0.6241
224	2230	12.2755	-0.6275
225	2240	12.2717	-0.6313
226	2250	12.2716	-0.6314
227	2260	12.2733	-0.6297
228	2270	12.2684	-0.6346
229	2280	12.2664	-0.6366
230	2290	12.2693	-0.6337
231	2300	12.2681	-0.6349
232	2310	12.2612	-0.6418
233	2320	12.2573	-0.6457
234	2330	12.2579	-0.6451
235	2340	12.261	-0.642
236	2350	12.2591	-0.6439
237	2360	12.256	-0.647
238	2370	12.2576	-0.6454
239	2380	12.2491	-0.6539
240	2390	12.2478	-0.6552
241	2400	12.241	-0.662
242	2410	12.2457	-0.6573
243	2420	12.2503	-0.6527
244	2430	12.2406	-0.6624
245	2440	12.2395	-0.6635
246	2450	12.2404	-0.6626

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	2460	12.2417	-0.6613
248	2470	12.2439	-0.6591
249	2480	12.2369	-0.6661
250	2490	12.236	-0.667
251	2500	12.2365	-0.6665
252	2510	12.2417	-0.6613
253	2520	12.2501	-0.6529
254	2530	12.2449	-0.6581
255	2540	12.2408	-0.6622
256	2550	12.2418	-0.6612
257	2560	12.2402	-0.6628
258	2570	12.2441	-0.6589
259	2580	12.2381	-0.6649
260	2590	12.2385	-0.6645
261	2600	12.2399	-0.6631
262	2610	12.2405	-0.6625
263	2620	12.2351	-0.6679
264	2630	12.2407	-0.6623
265	2640	12.2472	-0.6558
266	2650	12.2342	-0.6688
267	2660	12.2348	-0.6682
268	2670	12.2301	-0.6729
269	2680	12.2577	-0.6453
270	2690	12.293	-0.61
271	2700	12.3308	-0.5722
272	2710	12.363	-0.54
273	2720	12.3725	-0.5305
274	2730	12.3914	-0.5116
275	2740	12.4137	-0.4893
276	2750	12.4291	-0.4739
277	2760	12.437	-0.466
278	2770	12.4436	-0.4594
279	2780	12.4517	-0.4513
280	2790	12.4629	-0.4401
281	2800	12.4704	-0.4326
282	2810	12.4789	-0.4241
283	2820	12.4866	-0.4164
284	2830	12.4988	-0.4042
285	2840	12.4937	-0.4093
286	2850	12.4964	-0.4066
287	2860	12.4991	-0.4039
288	2870	12.5054	-0.3976
289	2880	12.5059	-0.3971
290	2890	12.5153	-0.3877
291	2900	12.5155	-0.3875
292	2910	12.5152	-0.3878
293	2920	12.528	-0.375
294	2930	12.5262	-0.3768
295	2940	12.5219	-0.3811
296	2950	12.528	-0.375
297	2960	12.5321	-0.3709
298	2970	12.5308	-0.3722
299	2980	12.5322	-0.3708
300	2990	12.5331	-0.3699
301	3000	12.5376	-0.3654
302	3010	12.5351	-0.3679
303	3020	12.5344	-0.3686
304	3030	12.5184	-0.3846
305	3040	12.4741	-0.4289
306	3050	12.4397	-0.4633
307	3060	12.4135	-0.4895
308	3070	12.3859	-0.5171
309	3080	12.3653	-0.5377

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Project: OBS-853

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	3090	12.3516	-0.5514
311	3100	12.3339	-0.5691
312	3110	12.3302	-0.5728
313	3120	12.3164	-0.5866
314	3130	12.3054	-0.5976
315	3140	12.3047	-0.5983
316	3150	12.3061	-0.5969
317	3160	12.3049	-0.5981
318	3170	12.2985	-0.6045
319	3180	12.2952	-0.6078
320	3190	12.2868	-0.6162
321	3200	12.2781	-0.6249
322	3210	12.2864	-0.6166
323	3220	12.2772	-0.6258
324	3230	12.2826	-0.6204
325	3240	12.2787	-0.6243
326	3250	12.2795	-0.6235
327	3260	12.2772	-0.6258
328	3270	12.2701	-0.6329
329	3280	12.2706	-0.6324
330	3290	12.2668	-0.6362
331	3300	12.2628	-0.6402
332	3310	12.2597	-0.6433
333	3320	12.2521	-0.6509
334	3330	12.2506	-0.6524
335	3340	12.2597	-0.6433
336	3350	12.2577	-0.6453
337	3360	12.256	-0.647
338	3370	12.2535	-0.6495
339	3380	12.2497	-0.6533
340	3390	12.2464	-0.6566
341	3400	12.2461	-0.6569
342	3410	12.2438	-0.6592
343	3420	12.2455	-0.6575
344	3430	12.2469	-0.6561
345	3440	12.2504	-0.6526
346	3450	12.2497	-0.6533
347	3460	12.2478	-0.6552
348	3470	12.2515	-0.6515
349	3480	12.2491	-0.6539
350	3490	12.2437	-0.6593
351	3500	12.2449	-0.6581
352	3510	12.2449	-0.6581
353	3520	12.2453	-0.6577
354	3530	12.2403	-0.6627
355	3540	12.2375	-0.6655
356	3550	12.2353	-0.6677
357	3560	12.2441	-0.6589
358	3570	12.2405	-0.6625
359	3580	12.2369	-0.6661
360	3590	12.234	-0.669
361	3600	12.2247	-0.6783
362	3610	12.2272	-0.6758
363	3620	12.2251	-0.6779
364	3630	12.2233	-0.6797
365	3640	12.2239	-0.6791
366	3650	12.2232	-0.6798
367	3660	12.2218	-0.6812
368	3670	12.2246	-0.6784
369	3680	12.2247	-0.6783
370	3690	12.2208	-0.6822
371	3700	12.2183	-0.6847
372	3710	12.2241	-0.6789

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	Time [min]	Water Level [ft]	Drawdown [ft]
373	3720	12.217	-0.686
374	3730	12.2177	-0.6853
375	3740	12.2173	-0.6857
376	3750	12.2177	-0.6853
377	3760	12.2217	-0.6813
378	3770	12.2272	-0.6758
379	3780	12.2243	-0.6787
380	3790	12.2158	-0.6872
381	3800	12.2284	-0.6746
382	3810	12.2155	-0.6875
383	3820	12.2109	-0.6921
384	3830	12.2175	-0.6855
385	3840	12.2191	-0.6839
386	3850	12.2177	-0.6853
387	3860	12.2134	-0.6896
388	3870	12.2201	-0.6829
389	3880	12.2268	-0.6762
390	3890	12.2245	-0.6785
391	3900	12.2222	-0.6808
392	3910	12.2251	-0.6779
393	3920	12.2255	-0.6775
394	3930	12.2291	-0.6739
395	3940	12.2247	-0.6783
396	3950	12.234	-0.669
397	3960	12.2342	-0.6688
398	3970	12.2326	-0.6704
399	3980	12.2575	-0.6455
400	3990	12.3079	-0.5951
401	4000	12.3647	-0.5383
402	4010	12.4119	-0.4911
403	4020	12.4372	-0.4658
404	4030	12.471	-0.432
405	4040	12.5042	-0.3988
406	4050	12.5244	-0.3786
407	4060	12.5489	-0.3541
408	4070	12.5807	-0.3223
409	4080	12.5915	-0.3115
410	4090	12.6172	-0.2858
411	4100	12.6281	-0.2749
412	4110	12.6455	-0.2575
413	4120	12.6547	-0.2483
414	4130	12.6671	-0.2359
415	4140	12.681	-0.222
416	4150	12.6952	-0.2078
417	4160	12.705	-0.198
418	4170	12.7223	-0.1807
419	4180	12.734	-0.169
420	4190	12.7419	-0.1611
421	4200	12.7466	-0.1564
422	4210	12.7534	-0.1496
423	4220	12.7802	-0.1228
424	4230	12.7697	-0.1333
425	4240	12.7767	-0.1263
426	4250	12.7777	-0.1253
427	4260	12.7778	-0.1252
428	4270	12.7816	-0.1214
429	4280	12.7862	-0.1168
430	4290	12.7823	-0.1207
431	4300	12.7898	-0.1132
432	4310	12.7936	-0.1094
433	4320	12.7942	-0.1088
434	4330	12.786	-0.117
435	4340	12.8009	-0.1021

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	Time [min]	Water Level [ft]	Drawdown [ft]
436	4350	12.8098	-0.0932
437	4360	12.8165	-0.0865
438	4370	12.8231	-0.0799
439	4380	12.8204	-0.0826
440	4390	12.8173	-0.0857
441	4400	12.8406	-0.0624
442	4410	12.8392	-0.0638
443	4420	12.8396	-0.0634
444	4430	12.8485	-0.0545
445	4440	12.8529	-0.0501
446	4450	12.8196	-0.0834
447	4460	12.7687	-0.1343
448	4470	12.7241	-0.1789
449	4480	12.6844	-0.2186
450	4490	12.6588	-0.2442
451	4500	12.6314	-0.2716
452	4510	12.6084	-0.2946
453	4520	12.5961	-0.3069
454	4530	12.5739	-0.3291
455	4540	12.558	-0.345
456	4550	12.5442	-0.3588
457	4560	12.5442	-0.3588
458	4570	12.5231	-0.3799
459	4580	12.5104	-0.3926
460	4590	12.5028	-0.4002
461	4600	12.4842	-0.4188
462	4610	12.4772	-0.4258
463	4620	12.469	-0.434
464	4630	12.465	-0.438
465	4640	12.4522	-0.4508
466	4650	12.4434	-0.4596
467	4660	12.4434	-0.4596
468	4670	12.4372	-0.4658
469	4680	12.4316	-0.4714
470	4690	12.4216	-0.4814
471	4700	12.4291	-0.4739
472	4710	12.4172	-0.4858
473	4720	12.4115	-0.4915
474	4730	12.4123	-0.4907
475	4740	12.4085	-0.4945
476	4750	12.4034	-0.4996
477	4760	12.4045	-0.4985
478	4770	12.3958	-0.5072
479	4780	12.396	-0.507
480	4790	12.3918	-0.5112
481	4800	12.3905	-0.5125
482	4810	12.3851	-0.5179
483	4820	12.3824	-0.5206
484	4830	12.3943	-0.5087
485	4840	12.383	-0.52
486	4850	12.3715	-0.5315
487	4860	12.3756	-0.5274
488	4870	12.3743	-0.5287
489	4880	12.3658	-0.5372
490	4890	12.3615	-0.5415
491	4900	12.3624	-0.5406
492	4910	12.3545	-0.5485
493	4920	12.3539	-0.5491
494	4930	12.3537	-0.5493
495	4940	12.3461	-0.5569
496	4950	12.3458	-0.5572
497	4960	12.3473	-0.5557
498	4970	12.3423	-0.5607

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	Time [min]	Water Level [ft]	Drawdown [ft]
499	4980	12.3438	-0.5592
500	4990	12.337	-0.566
501	5000	12.3348	-0.5682
502	5010	12.3305	-0.5725
503	5020	12.3287	-0.5743
504	5030	12.3292	-0.5738
505	5040	12.3208	-0.5822
506	5050	12.3201	-0.5829
507	5060	12.3133	-0.5897
508	5070	12.3177	-0.5853
509	5080	12.3114	-0.5916
510	5090	12.3106	-0.5924
511	5100	12.3097	-0.5933
512	5110	12.3045	-0.5985
513	5120	12.3047	-0.5983
514	5130	12.3045	-0.5985
515	5140	12.2997	-0.6033
516	5150	12.301	-0.602
517	5160	12.2999	-0.6031
518	5170	12.296	-0.607
519	5180	12.2979	-0.6051
520	5190	12.2913	-0.6117
521	5200	12.2927	-0.6103
522	5210	12.2954	-0.6076
523	5220	12.2921	-0.6109
524	5230	12.2896	-0.6134
525	5240	12.2892	-0.6138
526	5250	12.2923	-0.6107
527	5260	12.2935	-0.6095
528	5270	12.2892	-0.6138
529	5280	12.288	-0.615
530	5290	12.2902	-0.6128
531	5300	12.2921	-0.6109
532	5310	12.2969	-0.6061
533	5320	12.2857	-0.6173
534	5330	12.2913	-0.6117
535	5340	12.296	-0.607
536	5350	12.2903	-0.6127
537	5360	12.3023	-0.6007
538	5370	12.2961	-0.6069
539	5380	12.3024	-0.6006
540	5390	12.2997	-0.6033
541	5400	12.3183	-0.5847
542	5410	12.3156	-0.5874
543	5420	12.3334	-0.5696
544	5430	12.3361	-0.5669
545	5440	12.3347	-0.5683
546	5450	12.3748	-0.5282
547	5460	12.422	-0.481
548	5470	12.4572	-0.4458
549	5480	12.4849	-0.4181
550	5490	12.5116	-0.3914
551	5500	12.5345	-0.3685
552	5510	12.5556	-0.3474
553	5520	12.5793	-0.3237
554	5530	12.5979	-0.3051
555	5540	12.6151	-0.2879
556	5550	12.6324	-0.2706
557	5560	12.6454	-0.2576
558	5570	12.6457	-0.2573
559	5580	12.6626	-0.2404
560	5590	12.6737	-0.2293
561	5600	12.6847	-0.2183

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	Time [min]	Water Level [ft]	Drawdown [ft]
562	5610	12.6939	-0.2091
563	5620	12.7031	-0.1999
564	5630	12.7124	-0.1906
565	5640	12.7204	-0.1826
566	5650	12.7281	-0.1749
567	5660	12.7272	-0.1758
568	5670	12.7376	-0.1654
569	5680	12.7314	-0.1716
570	5690	12.7404	-0.1626
571	5700	12.7487	-0.1543
572	5710	12.7549	-0.1481
573	5720	12.7586	-0.1444
574	5730	12.7653	-0.1377
575	5740	12.7681	-0.1349
576	5750	12.7715	-0.1315
577	5760	12.7785	-0.1245
578	5770	12.7756	-0.1274
579	5780	12.7746	-0.1284
580	5790	12.7776	-0.1254
581	5800	12.7834	-0.1196
582	5810	12.7837	-0.1193
583	5820	12.7888	-0.1142
584	5830	12.7953	-0.1077
585	5840	12.7912	-0.1118
586	5850	12.7936	-0.1094
587	5860	12.7967	-0.1063
588	5870	12.7965	-0.1065
589	5880	12.8012	-0.1018
590	5890	12.771	-0.132
591	5900	12.7217	-0.1813
592	5910	12.6928	-0.2102
593	5920	12.6621	-0.2409
594	5930	12.6407	-0.2623
595	5940	12.6217	-0.2813
596	5950	12.6093	-0.2937
597	5960	12.5972	-0.3058
598	5970	12.5953	-0.3077
599	5980	12.5762	-0.3268
600	5990	12.5691	-0.3339
601	6000	12.5615	-0.3415
602	6010	12.5557	-0.3473
603	6020	12.5485	-0.3545
604	6030	12.5533	-0.3497
605	6040	12.545	-0.358
606	6050	12.5492	-0.3538
607	6060	12.5378	-0.3652
608	6070	12.5368	-0.3662
609	6080	12.529	-0.374
610	6090	12.5209	-0.3821
611	6100	12.5182	-0.3848
612	6110	12.5153	-0.3877
613	6120	12.5202	-0.3828
614	6130	12.5141	-0.3889
615	6140	12.5125	-0.3905
616	6150	12.5153	-0.3877
617	6160	12.5166	-0.3864
618	6170	12.5203	-0.3827
619	6180	12.5137	-0.3893
620	6190	12.5173	-0.3857
621	6200	12.5237	-0.3793
622	6210	12.517	-0.386
623	6220	12.5171	-0.3859
624	6230	12.5218	-0.3812

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	Time [min]	Water Level [ft]	Drawdown [ft]
625	6240	12.5249	-0.3781
626	6250	12.5261	-0.3769
627	6260	12.5275	-0.3755
628	6270	12.5277	-0.3753
629	6280	12.5258	-0.3772
630	6290	12.5306	-0.3724
631	6300	12.5335	-0.3695
632	6310	12.5337	-0.3693
633	6320	12.5339	-0.3691
634	6330	12.5275	-0.3755
635	6340	12.5304	-0.3726
636	6350	12.5296	-0.3734
637	6360	12.5389	-0.3641
638	6370	12.5382	-0.3648
639	6380	12.5312	-0.3718
640	6390	12.5409	-0.3621
641	6400	12.5405	-0.3625
642	6410	12.5374	-0.3656
643	6420	12.5326	-0.3704
644	6430	12.5368	-0.3662
645	6440	12.5354	-0.3676
646	6450	12.5409	-0.3621
647	6460	12.5733	-0.3297
648	6470	12.5915	-0.3115
649	6480	12.5755	-0.3275
650	6490	12.5576	-0.3454
651	6500	12.5485	-0.3545
652	6510	12.5465	-0.3565
653	6520	12.5438	-0.3592
654	6530	12.5438	-0.3592
655	6540	12.5471	-0.3559
656	6550	12.5448	-0.3582
657	6560	12.5701	-0.3329
658	6570	12.5949	-0.3081
659	6580	12.6011	-0.3019
660	6590	12.572	-0.331
661	6600	12.5594	-0.3436
662	6610	12.5547	-0.3483
663	6620	12.5498	-0.3532
664	6630	12.5455	-0.3575
665	6640	12.5456	-0.3574
666	6650	12.5411	-0.3619
667	6660	12.5409	-0.3621
668	6670	12.5366	-0.3664
669	6680	12.5389	-0.3641
670	6690	12.5428	-0.3602
671	6700	12.5419	-0.3611
672	6710	12.5424	-0.3606
673	6720	12.5415	-0.3615
674	6730	12.5403	-0.3627
675	6740	12.5404	-0.3626
676	6750	12.5415	-0.3615
677	6760	12.5405	-0.3625
678	6770	12.5434	-0.3596
679	6780	12.5422	-0.3608
680	6790	12.5446	-0.3584
681	6800	12.548	-0.355
682	6810	12.5487	-0.3543
683	6820	12.5491	-0.3539
684	6830	12.5532	-0.3498
685	6840	12.5617	-0.3413
686	6850	12.5601	-0.3429
687	6860	12.5658	-0.3372

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	Time [min]	Water Level [ft]	Drawdown [ft]
688	6870	12.5662	-0.3368
689	6880	12.5693	-0.3337
690	6890	12.5749	-0.3281
691	6900	12.5826	-0.3204
692	6910	12.5844	-0.3186
693	6920	12.5953	-0.3077
694	6930	12.6033	-0.2997
695	6940	12.6037	-0.2993
696	6950	12.6081	-0.2949
697	6960	12.6062	-0.2968
698	6970	12.6178	-0.2852
699	6980	12.6153	-0.2877
700	6990	12.6227	-0.2803
701	7000	12.6322	-0.2708
702	7010	12.6312	-0.2718
703	7020	12.6343	-0.2687
704	7030	12.6405	-0.2625
705	7040	12.6412	-0.2618
706	7050	12.639	-0.264
707	7060	12.6483	-0.2547
708	7070	12.6522	-0.2508
709	7080	12.6539	-0.2491
710	7090	12.6592	-0.2438
711	7100	12.6669	-0.2361
712	7110	12.6606	-0.2424
713	7120	12.6871	-0.2159
714	7130	12.6792	-0.2238
715	7140	12.6768	-0.2262
716	7150	12.6759	-0.2271
717	7160	12.6829	-0.2201
718	7170	12.6774	-0.2256
719	7180	12.6797	-0.2233
720	7190	12.6864	-0.2166
721	7200	12.6885	-0.2145
722	7210	12.6895	-0.2135
723	7220	12.6903	-0.2127
724	7230	12.695	-0.208
725	7240	12.6928	-0.2102
726	7250	12.6936	-0.2094
727	7260	12.6964	-0.2066
728	7270	12.6967	-0.2063
729	7280	12.6947	-0.2083
730	7290	12.697	-0.206
731	7300	12.6945	-0.2085
732	7310	12.7033	-0.1997
733	7320	12.7008	-0.2022
734	7330	12.7011	-0.2019
735	7340	12.7044	-0.1986
736	7350	12.7037	-0.1993
737	7360	12.7074	-0.1956
738	7370	12.7039	-0.1991
739	7380	12.7066	-0.1964
740	7390	12.7021	-0.2009
741	7400	12.7044	-0.1986
742	7410	12.7107	-0.1923
743	7420	12.7047	-0.1983
744	7430	12.7105	-0.1925
745	7440	12.7054	-0.1976
746	7450	12.7077	-0.1953
747	7460	12.7079	-0.1951
748	7470	12.7099	-0.1931
749	7480	12.7056	-0.1974
750	7490	12.714	-0.189

	Time [min]	Water Level [ft]	Drawdown [ft]
751	7500	12.7068	-0.1962
752	7510	12.7147	-0.1883
753	7520	12.7126	-0.1904
754	7530	12.7221	-0.1809
755	7540	12.7264	-0.1766
756	7550	12.7262	-0.1768
757	7560	12.7356	-0.1674
758	7570	12.7375	-0.1655
759	7580	12.7402	-0.1628
760	7590	12.7429	-0.1601
761	7600	12.7425	-0.1605
762	7610	12.7491	-0.1539
763	7620	12.7551	-0.1479
764	7630	12.7602	-0.1428
765	7640	12.7602	-0.1428
766	7650	12.7637	-0.1393
767	7660	12.7658	-0.1372
768	7670	12.7703	-0.1327
769	7680	12.7641	-0.1389
770	7690	12.7736	-0.1294
771	7700	12.7728	-0.1302
772	7710	12.7712	-0.1318
773	7720	12.7767	-0.1263
774	7730	12.7834	-0.1196
775	7740	12.7903	-0.1127
776	7750	12.7885	-0.1145
777	7760	12.7938	-0.1092
778	7770	12.7934	-0.1096
779	7780	12.80	-0.103
780	7790	12.8056	-0.0974
781	7800	12.80	-0.103
782	7810	12.8127	-0.0903
783	7820	12.8143	-0.0887
784	7830	12.8129	-0.0901
785	7840	12.8182	-0.0848
786	7850	12.8165	-0.0865
787	7860	12.8187	-0.0843
788	7870	12.8196	-0.0834
789	7880	12.8181	-0.0849
790	7890	12.8183	-0.0847
791	7900	12.8146	-0.0884
792	7910	12.8198	-0.0832
793	7920	12.8209	-0.0821
794	7930	12.8254	-0.0776
795	7940	12.8114	-0.0916
796	7950	12.8167	-0.0863
797	7960	12.8155	-0.0875
798	7970	12.8111	-0.0919
799	7980	12.8068	-0.0962
800	7990	12.8087	-0.0943
801	8000	12.8056	-0.0974
802	8010	12.8103	-0.0927
803	8020	12.8109	-0.0921
804	8030	12.8074	-0.0956
805	8040	12.8058	-0.0972
806	8050	12.8017	-0.1013
807	8060	12.805	-0.098
808	8070	12.8058	-0.0972
809	8080	12.7898	-0.1132
810	8090	12.792	-0.111
811	8100	12.8084	-0.0946
812	8110	12.8009	-0.1021
813	8120	12.7958	-0.1072

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	Time [min]	Water Level [ft]	Drawdown [ft]
814	8130	12.7979	-0.1051
815	8140	12.7862	-0.1168
816	8150	12.7746	-0.1284
817	8160	12.7685	-0.1345
818	8170	12.7653	-0.1377
819	8180	12.7737	-0.1293
820	8190	12.7734	-0.1296
821	8200	12.7633	-0.1397
822	8210	12.7568	-0.1462
823	8220	12.745	-0.158
824	8230	12.7357	-0.1673
825	8240	12.7431	-0.1599
826	8250	12.7452	-0.1578
827	8260	12.7473	-0.1557
828	8270	12.7551	-0.1479
829	8280	12.7522	-0.1508
830	8290	12.7594	-0.1436
831	8300	12.7571	-0.1459
832	8310	12.7674	-0.1356
833	8320	12.7474	-0.1556
834	8330	12.7466	-0.1564
835	8340	12.7534	-0.1496
836	8350	12.7589	-0.1441
837	8360	12.7676	-0.1354
838	8370	12.7732	-0.1298
839	8380	12.7614	-0.1416
840	8390	12.7779	-0.1251
841	8400	12.7829	-0.1201
842	8410	12.7592	-0.1438
843	8420	12.7698	-0.1332
844	8430	12.7754	-0.1276
845	8440	12.7746	-0.1284
846	8450	12.7693	-0.1337
847	8460	12.7779	-0.1251
848	8470	12.7805	-0.1225
849	8480	12.7863	-0.1167
850	8490	12.8101	-0.0929
851	8500	12.8021	-0.1009
852	8510	12.8007	-0.1023
853	8520	12.7948	-0.1082
854	8530	12.7917	-0.1113
855	8540	12.8024	-0.1006
856	8550	12.8019	-0.1011
857	8560	12.7971	-0.1059
858	8570	12.8018	-0.1012
859	8580	12.7958	-0.1072
860	8590	12.7856	-0.1174
861	8600	12.7911	-0.1119
862	8610	12.792	-0.111
863	8620	12.7884	-0.1146
864	8630	12.786	-0.117
865	8640	12.7878	-0.1152
866	8650	12.7913	-0.1117
867	8660	12.7872	-0.1158
868	8670	12.7853	-0.1177
869	8680	12.7878	-0.1152
870	8690	12.7864	-0.1166
871	8700	12.778	-0.125
872	8710	12.7816	-0.1214
873	8720	12.7833	-0.1197
874	8730	12.7851	-0.1179
875	8740	12.7928	-0.1102
876	8750	12.7833	-0.1197

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	Time [min]	Water Level [ft]	Drawdown [ft]
877	8760	12.777	-0.126
878	8770	12.7825	-0.1205
879	8780	12.7747	-0.1283
880	8790	12.7866	-0.1164
881	8800	12.7993	-0.1037
882	8810	12.7884	-0.1146
883	8820	12.787	-0.116
884	8830	12.7812	-0.1218
885	8840	12.7757	-0.1273
886	8850	12.7784	-0.1246
887	8860	12.7737	-0.1293
888	8870	12.7713	-0.1317
889	8880	12.766	-0.137
890	8890	12.7651	-0.1379
891	8900	12.7643	-0.1387
892	8910	12.7689	-0.1341
893	8920	12.7701	-0.1329
894	8930	12.7652	-0.1378
895	8940	12.7646	-0.1384
896	8950	12.7625	-0.1405
897	8960	12.759	-0.144
898	8970	12.7718	-0.1312
899	8980	12.7637	-0.1393
900	8990	12.7684	-0.1346
901	9000	12.7701	-0.1329
902	9010	12.7729	-0.1301
903	9020	12.7715	-0.1315
904	9030	12.767	-0.136
905	9040	12.7658	-0.1372
906	9050	12.7701	-0.1329
907	9060	12.761	-0.142
908	9070	12.767	-0.136
909	9080	12.7687	-0.1343
910	9090	12.7621	-0.1409
911	9100	12.7664	-0.1366
912	9110	12.7742	-0.1288
913	9120	12.7694	-0.1336
914	9130	12.7705	-0.1325
915	9140	12.7687	-0.1343
916	9150	12.7722	-0.1308
917	9160	12.7701	-0.1329
918	9170	12.773	-0.13
919	9180	12.7822	-0.1208
920	9190	12.7763	-0.1267
921	9200	12.7813	-0.1217
922	9210	12.7808	-0.1222
923	9220	12.782	-0.121
924	9230	12.7895	-0.1135
925	9240	12.7881	-0.1149
926	9250	12.7951	-0.1079
927	9260	12.7931	-0.1099
928	9270	12.7918	-0.1112
929	9280	12.7951	-0.1079
930	9290	12.807	-0.096
931	9300	12.7983	-0.1047
932	9310	12.8003	-0.1027
933	9320	12.806	-0.097
934	9330	12.8026	-0.1004
935	9340	12.8014	-0.1016
936	9350	12.8008	-0.1022
937	9360	12.8038	-0.0992
938	9370	12.8027	-0.1003
939	9380	12.8084	-0.0946

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	Time [min]	Water Level [ft]	Drawdown [ft]
940	9390	12.8029	-0.1001
941	9400	12.7975	-0.1055
942	9410	12.8008	-0.1022
943	9420	12.7881	-0.1149
944	9430	12.7928	-0.1102
945	9440	12.7856	-0.1174
946	9450	12.788	-0.115
947	9460	12.7823	-0.1207
948	9470	12.7783	-0.1247
949	9480	12.7807	-0.1223
950	9490	12.7792	-0.1238
951	9500	12.7755	-0.1275
952	9510	12.7691	-0.1339
953	9520	12.7687	-0.1343
954	9530	12.7627	-0.1403
955	9540	12.7607	-0.1423
956	9550	12.753	-0.15
957	9560	12.7452	-0.1578
958	9570	12.7434	-0.1596
959	9580	12.7399	-0.1631
960	9590	12.7349	-0.1681
961	9600	12.7228	-0.1802
962	9610	12.7231	-0.1799
963	9620	12.719	-0.184
964	9630	12.7184	-0.1846
965	9640	12.712	-0.191
966	9650	12.7054	-0.1976
967	9660	12.7044	-0.1986
968	9670	12.699	-0.204
969	9680	12.7222	-0.1808
970	9690	12.7686	-0.1344
971	9700	12.8091	-0.0939
972	9710	12.8485	-0.0545
973	9720	12.8871	-0.0159
974	9730	12.9116	0.0086
975	9740	12.9529	0.0499
976	9750	12.9649	0.0619
977	9760	12.9768	0.0738
978	9770	12.9991	0.0961
979	9780	13.0156	0.1126
980	9790	13.0236	0.1206
981	9800	13.0372	0.1342
982	9810	13.0476	0.1446
983	9820	13.0587	0.1557
984	9830	13.077	0.174
985	9840	13.0921	0.1891
986	9850	13.1012	0.1982
987	9860	13.1148	0.2118
988	9870	13.116	0.213
989	9880	13.1271	0.2241
990	9890	13.137	0.234
991	9900	13.1532	0.2502
992	9910	13.1551	0.2521
993	9920	13.1649	0.2619
994	9930	13.1746	0.2716
995	9940	13.1843	0.2813
996	9950	13.192	0.289
997	9960	13.197	0.294
998	9970	13.2084	0.3054
999	9980	13.2093	0.3063
1000	9990	13.2174	0.3144
1001	10000	13.2313	0.3283
1002	10010	13.2378	0.3348

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**	
	Project: OBS-853	
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	Client: City of Selkirk/MWSB	

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	10020	13.2449	0.3419
1004	10030	13.2511	0.3481
1005	10040	13.258	0.355
1006	10050	13.2614	0.3584
1007	10060	13.2623	0.3593
1008	10070	13.2733	0.3703
1009	10080	13.2768	0.3738
1010	10090	13.2814	0.3784
1011	10100	13.2786	0.3756
1012	10110	13.2814	0.3784
1013	10120	13.2809	0.3779
1014	10130	13.2954	0.3924
1015	10140	13.298	0.395
1016	10150	13.3036	0.4006
1017	10160	13.3053	0.4023
1018	10170	13.3039	0.4009
1019	10180	13.3049	0.4019
1020	10190	13.3075	0.4045
1021	10200	13.3062	0.4032
1022	10210	13.3082	0.4052
1023	10220	13.2675	0.3645
1024	10230	13.2129	0.3099
1025	10240	13.1657	0.2627
1026	10250	13.1385	0.2355
1027	10260	13.1013	0.1983
1028	10270	13.0823	0.1793
1029	10280	13.0535	0.1505
1030	10290	13.0345	0.1315
1031	10300	13.0184	0.1154
1032	10310	13.0012	0.0982
1033	10320	12.9843	0.0813
1034	10330	12.9676	0.0646
1035	10340	12.9513	0.0483
1036	10350	12.9404	0.0374
1037	10360	12.9284	0.0254
1038	10370	12.9169	0.0139
1039	10380	12.9093	0.0063
1040	10390	12.8966	-0.0064
1041	10400	12.8837	-0.0193
1042	10410	12.8859	-0.0171
1043	10420	12.8659	-0.0371
1044	10430	12.8642	-0.0388
1045	10440	12.8604	-0.0426
1046	10450	12.8495	-0.0535
1047	10460	12.8412	-0.0618
1048	10470	12.8435	-0.0595
1049	10480	12.8324	-0.0706
1050	10490	12.8314	-0.0716
1051	10500	12.8295	-0.0735
1052	10510	12.8286	-0.0744
1053	10520	12.8206	-0.0824
1054	10530	12.8236	-0.0794
1055	10540	12.8257	-0.0773
1056	10550	12.8247	-0.0783
1057	10560	12.8209	-0.0821
1058	10570	12.8091	-0.0939
1059	10580	12.8111	-0.0919
1060	10590	12.8138	-0.0892
1061	10600	12.8083	-0.0947
1062	10610	12.8074	-0.0956
1063	10620	12.8056	-0.0974
1064	10630	12.8025	-0.1005
1065	10640	12.8033	-0.0997

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	Time [min]	Water Level [ft]	Drawdown [ft]
1066	10650	12.8005	-0.1025
1067	10660	12.8048	-0.0982
1068	10670	12.805	-0.098
1069	10680	12.807	-0.096
1070	10690	12.8071	-0.0959
1071	10700	12.8008	-0.1022
1072	10710	12.7941	-0.1089
1073	10720	12.798	-0.105
1074	10730	12.7956	-0.1074
1075	10740	12.7926	-0.1104
1076	10750	12.7926	-0.1104
1077	10760	12.7886	-0.1144
1078	10770	12.7872	-0.1158
1079	10780	12.7831	-0.1199
1080	10790	12.78	-0.123
1081	10800	12.7829	-0.1201
1082	10810	12.78	-0.123
1083	10820	12.7796	-0.1234
1084	10830	12.7689	-0.1341
1085	10840	12.7769	-0.1261
1086	10850	12.7741	-0.1289
1087	10860	12.7701	-0.1329
1088	10870	12.7653	-0.1377
1089	10880	12.7583	-0.1447
1090	10890	12.7608	-0.1422
1091	10900	12.7538	-0.1492
1092	10910	12.751	-0.152
1093	10920	12.7529	-0.1501
1094	10930	12.7501	-0.1529
1095	10940	12.7485	-0.1545
1096	10950	12.7441	-0.1589
1097	10960	12.7401	-0.1629
1098	10970	12.7383	-0.1647
1099	10980	12.7389	-0.1641
1100	10990	12.732	-0.171
1101	11000	12.7246	-0.1784
1102	11010	12.7219	-0.1811
1103	11020	12.7163	-0.1867
1104	11030	12.7118	-0.1912
1105	11040	12.7099	-0.1931
1106	11050	12.7023	-0.2007
1107	11060	12.6992	-0.2038
1108	11070	12.6968	-0.2062
1109	11080	12.6963	-0.2067
1110	11090	12.6875	-0.2155
1111	11100	12.6796	-0.2234
1112	11110	12.6815	-0.2215
1113	11120	12.674	-0.229
1114	11130	12.6794	-0.2236
1115	11140	12.6774	-0.2256
1116	11150	12.6749	-0.2281
1117	11160	12.6714	-0.2316
1118	11170	12.6656	-0.2374
1119	11180	12.6662	-0.2368
1120	11190	12.6754	-0.2276
1121	11200	12.6705	-0.2325
1122	11210	12.6642	-0.2388
1123	11220	12.6685	-0.2345
1124	11230	12.666	-0.237
1125	11240	12.672	-0.231
1126	11250	12.6672	-0.2358
1127	11260	12.665	-0.238
1128	11270	12.6743	-0.2287

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	Time [min]	Water Level [ft]	Drawdown [ft]
1129	11280	12.6664	-0.2366
1130	11290	12.6741	-0.2289
1131	11300	12.6773	-0.2257
1132	11310	12.6805	-0.2225
1133	11320	12.6899	-0.2131
1134	11330	12.6915	-0.2115
1135	11340	12.6942	-0.2088
1136	11350	12.6943	-0.2087
1137	11360	12.6899	-0.2131
1138	11370	12.7004	-0.2026
1139	11380	12.7025	-0.2005
1140	11390	12.7099	-0.1931
1141	11400	12.7141	-0.1889
1142	11410	12.7184	-0.1846
1143	11420	12.7204	-0.1826
1144	11430	12.7187	-0.1843
1145	11440	12.7272	-0.1758
1146	11450	12.7285	-0.1745
1147	11460	12.7342	-0.1688
1148	11470	12.7368	-0.1662
1149	11480	12.7483	-0.1547
1150	11490	12.7427	-0.1603
1151	11500	12.7511	-0.1519
1152	11510	12.7501	-0.1529
1153	11520	12.7553	-0.1477
1154	11530	12.7635	-0.1395
1155	11540	12.7639	-0.1391
1156	11550	12.7639	-0.1391
1157	11560	12.7701	-0.1329
1158	11570	12.7726	-0.1304
1159	11580	12.7769	-0.1261
1160	11590	12.7895	-0.1135
1161	11600	12.7919	-0.1111
1162	11610	12.8041	-0.0989
1163	11620	12.8037	-0.0993
1164	11630	12.8009	-0.1021
1165	11640	12.802	-0.101
1166	11650	12.8076	-0.0954
1167	11660	12.8081	-0.0949
1168	11670	12.8038	-0.0992
1169	11680	12.8031	-0.0999
1170	11690	12.8118	-0.0912
1171	11700	12.8127	-0.0903
1172	11710	12.8127	-0.0903
1173	11720	12.8105	-0.0925
1174	11730	12.8131	-0.0899
1175	11740	12.814	-0.089
1176	11750	12.8166	-0.0864
1177	11760	12.8119	-0.0911
1178	11770	12.8103	-0.0927
1179	11780	12.8227	-0.0803
1180	11790	12.8231	-0.0799
1181	11800	12.8229	-0.0801
1182	11810	12.8281	-0.0749
1183	11820	12.8243	-0.0787
1184	11830	12.8291	-0.0739
1185	11840	12.825	-0.078
1186	11850	12.8365	-0.0665
1187	11860	12.8349	-0.0681
1188	11870	12.8371	-0.0659
1189	11880	12.8382	-0.0648
1190	11890	12.8377	-0.0653
1191	11900	12.8369	-0.0661

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	Time [min]	Water Level [ft]	Drawdown [ft]
1192	11910	12.8421	-0.0609
1193	11920	12.84	-0.063
1194	11930	12.8402	-0.0628
1195	11940	12.8393	-0.0637
1196	11950	12.8357	-0.0673
1197	11960	12.8422	-0.0608
1198	11970	12.8404	-0.0626
1199	11980	12.8385	-0.0645
1200	11990	12.8402	-0.0628
1201	12000	12.834	-0.069
1202	12010	12.8416	-0.0614
1203	12020	12.8484	-0.0546
1204	12030	12.8534	-0.0496
1205	12040	12.8453	-0.0577
1206	12050	12.8504	-0.0526
1207	12060	12.8431	-0.0599
1208	12070	12.8478	-0.0552
1209	12080	12.8437	-0.0593
1210	12090	12.8429	-0.0601
1211	12100	12.8458	-0.0572
1212	12110	12.8514	-0.0516
1213	12120	12.8471	-0.0559
1214	12130	12.8504	-0.0526
1215	12140	12.8489	-0.0541
1216	12150	12.8492	-0.0538
1217	12160	12.8492	-0.0538
1218	12170	12.8513	-0.0517
1219	12180	12.85	-0.053
1220	12190	12.8532	-0.0498
1221	12200	12.8561	-0.0469
1222	12210	12.8534	-0.0496
1223	12220	12.8562	-0.0468
1224	12230	12.8556	-0.0474
1225	12240	12.8542	-0.0488
1226	12250	12.8549	-0.0481
1227	12260	12.8592	-0.0438
1228	12270	12.8501	-0.0529
1229	12280	12.8545	-0.0485
1230	12290	12.8554	-0.0476
1231	12300	12.8559	-0.0471
1232	12310	12.8598	-0.0432
1233	12320	12.8558	-0.0472
1234	12330	12.8584	-0.0446
1235	12340	12.8548	-0.0482
1236	12350	12.8489	-0.0541
1237	12360	12.8521	-0.0509
1238	12370	12.8466	-0.0564
1239	12380	12.8492	-0.0538
1240	12390	12.8468	-0.0562
1241	12400	12.8464	-0.0566
1242	12410	12.8482	-0.0548
1243	12420	12.8474	-0.0556
1244	12430	12.8485	-0.0545
1245	12440	12.8426	-0.0604
1246	12450	12.8455	-0.0575
1247	12460	12.839	-0.064
1248	12470	12.8402	-0.0628
1249	12480	12.8414	-0.0616
1250	12490	12.8318	-0.0712
1251	12500	12.8317	-0.0713
1252	12510	12.8282	-0.0748
1253	12520	12.8269	-0.0761
1254	12530	12.8196	-0.0834

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	Time [min]	Water Level [ft]	Drawdown [ft]
1255	12540	12.8155	-0.0875
1256	12550	12.8169	-0.0861
1257	12560	12.8091	-0.0939
1258	12570	12.808	-0.095
1259	12580	12.8053	-0.0977
1260	12590	12.8072	-0.0958
1261	12600	12.8058	-0.0972
1262	12610	12.8009	-0.1021
1263	12620	12.7989	-0.1041
1264	12630	12.8018	-0.1012
1265	12640	12.8038	-0.0992
1266	12650	12.7952	-0.1078
1267	12660	12.8056	-0.0974
1268	12670	12.8081	-0.0949
1269	12680	12.8057	-0.0973
1270	12690	12.8111	-0.0919
1271	12700	12.8078	-0.0952
1272	12710	12.8122	-0.0908
1273	12720	12.8109	-0.0921
1274	12730	12.8133	-0.0897
1275	12740	12.8161	-0.0869
1276	12750	12.8138	-0.0892
1277	12760	12.8173	-0.0857
1278	12770	12.8171	-0.0859
1279	12780	12.8231	-0.0799

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: OBS-ND1	Static Water Level [ft]: 8.93	Radial Distance to PW [ft]: 10910

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	8.9256	0.00
2	5	8.9279	0.0023
3	10	8.9338	0.0082
4	15	8.9421	0.0165
5	20	8.9459	0.0203
6	25	8.9552	0.0296
7	30	8.9616	0.036
8	35	8.9701	0.0445
9	40	8.9823	0.0567
10	45	8.9898	0.0642
11	50	8.9997	0.0741
12	55	9.0059	0.0803
13	60	9.0166	0.091
14	65	9.028	0.1024
15	70	9.0328	0.1072
16	75	9.0435	0.1179
17	80	9.0465	0.1209
18	85	9.0572	0.1316
19	90	9.0603	0.1347
20	95	9.0742	0.1486
21	100	9.0791	0.1535
22	105	9.085	0.1594
23	110	9.0889	0.1633
24	115	9.0986	0.173
25	120	9.1048	0.1792
26	125	9.1136	0.188
27	130	9.1184	0.1928
28	135	9.1201	0.1945
29	140	9.1319	0.2063
30	145	9.1343	0.2087
31	150	9.1397	0.2141
32	155	9.1483	0.2227
33	160	9.1509	0.2253
34	165	9.1547	0.2291
35	170	9.158	0.2324
36	175	9.164	0.2384
37	180	9.169	0.2434
38	185	9.1754	0.2498
39	190	9.1774	0.2518
40	195	9.1846	0.259
41	200	9.1895	0.2639
42	205	9.1947	0.2691
43	210	9.1984	0.2728
44	215	9.205	0.2794
45	220	9.2089	0.2833
46	225	9.214	0.2884
47	230	9.2171	0.2915
48	235	9.2172	0.2916
49	240	9.2239	0.2983
50	245	9.2242	0.2986
51	250	9.229	0.3034
52	255	9.2306	0.305
53	260	9.2334	0.3078
54	265	9.2371	0.3115
55	270	9.252	0.3264
56	275	9.2511	0.3255
57	280	9.2543	0.3287

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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
58	285	9.2538	0.3282
59	290	9.2548	0.3292
60	295	9.2597	0.3341
61	300	9.2631	0.3375
62	305	9.2653	0.3397
63	310	9.2706	0.345
64	315	9.2731	0.3475
65	320	9.2712	0.3456
66	325	9.2782	0.3526
67	330	9.2817	0.3561
68	335	9.2831	0.3575
69	340	9.2851	0.3595
70	345	9.2858	0.3602
71	350	9.2885	0.3629
72	355	9.2936	0.368
73	360	9.2933	0.3677
74	365	9.2967	0.3711
75	370	9.3006	0.375
76	375	9.3045	0.3789
77	380	9.3038	0.3782
78	385	9.308	0.3824
79	390	9.3102	0.3846
80	395	9.3112	0.3856
81	400	9.3136	0.388
82	405	9.3148	0.3892
83	410	9.3136	0.388
84	415	9.3174	0.3918
85	420	9.3183	0.3927
86	425	9.3207	0.3951
87	430	9.3229	0.3973
88	435	9.3261	0.4005
89	440	9.3271	0.4015
90	445	9.3304	0.4048
91	450	9.3306	0.405
92	455	9.3369	0.4113
93	460	9.3342	0.4086
94	465	9.3371	0.4115
95	470	9.3389	0.4133
96	475	9.3413	0.4157
97	480	9.3415	0.4159
98	485	9.3454	0.4198
99	490	9.3492	0.4236
100	495	9.3466	0.421
101	500	9.3462	0.4206
102	505	9.3494	0.4238
103	510	9.349	0.4234
104	515	9.3522	0.4266
105	520	9.3523	0.4267
106	525	9.3538	0.4282
107	530	9.3545	0.4289
108	535	9.3566	0.431
109	540	9.3614	0.4358
110	545	9.3613	0.4357
111	550	9.3632	0.4376
112	555	9.3629	0.4373
113	560	9.3667	0.4411
114	565	9.3664	0.4408
115	570	9.3689	0.4433
116	575	9.371	0.4454
117	580	9.3724	0.4468
118	585	9.3724	0.4468
119	590	9.3773	0.4517
120	595	9.3735	0.4479

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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
121	600	9.4985	0.5729
122	605	9.3776	0.452
123	610	9.3784	0.4528
124	615	9.3813	0.4557
125	620	9.383	0.4574
126	625	9.3813	0.4557
127	630	9.389	0.4634
128	635	9.3893	0.4637
129	640	9.3916	0.466
130	645	9.3935	0.4679
131	650	9.396	0.4704
132	655	9.394	0.4684
133	660	9.3969	0.4713
134	665	9.3956	0.47
135	670	9.4003	0.4747
136	675	9.4022	0.4766
137	680	9.4035	0.4779
138	685	9.4058	0.4802
139	690	9.4063	0.4807
140	695	9.4093	0.4837
141	700	9.4112	0.4856
142	705	9.4122	0.4866
143	710	9.4139	0.4883
144	715	9.4144	0.4888
145	720	9.4154	0.4898
146	725	9.4169	0.4913
147	730	9.4179	0.4923
148	735	9.4169	0.4913
149	740	9.4223	0.4967
150	745	9.4237	0.4981
151	750	9.4258	0.5002
152	755	9.4251	0.4995
153	760	9.427	0.5014
154	765	9.4257	0.5001
155	770	9.4304	0.5048
156	775	9.4299	0.5043
157	780	9.4318	0.5062
158	785	9.4322	0.5066
159	790	9.4331	0.5075
160	795	9.4344	0.5088
161	800	9.437	0.5114
162	805	9.4368	0.5112
163	810	9.44	0.5144
164	815	9.4405	0.5149
165	820	9.4422	0.5166
166	825	9.4425	0.5169
167	830	9.4437	0.5181
168	835	9.4434	0.5178
169	840	9.4459	0.5203
170	845	9.4489	0.5233
171	850	9.4496	0.524
172	855	9.452	0.5264
173	860	9.4538	0.5282
174	865	9.4544	0.5288
175	870	9.4533	0.5277
176	875	9.4527	0.5271
177	880	9.4546	0.529
178	885	9.4577	0.5321
179	890	9.4553	0.5297
180	895	9.4575	0.5319
181	900	9.4604	0.5348
182	905	9.4625	0.5369
183	910	9.4633	0.5377

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	Pumping Test - Water Level Data
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
184	915	9.4637	0.5381
185	920	9.464	0.5384
186	925	9.4646	0.539
187	930	9.4639	0.5383
188	935	9.4647	0.5391
189	940	9.4664	0.5408
190	945	9.4681	0.5425
191	950	9.469	0.5434
192	955	9.4667	0.5411
193	960	9.469	0.5434
194	965	9.4705	0.5449
195	970	9.4699	0.5443
196	975	9.4729	0.5473
197	980	9.4705	0.5449
198	985	9.4739	0.5483
199	990	9.4708	0.5452
200	995	10.4707	1.5451
201	1000	12.3902	3.4646
202	1005	10.0664	1.1408
203	1010	9.4792	0.5536
204	1015	9.479	0.5534
205	1020	9.4786	0.553
206	1025	9.4778	0.5522
207	1030	9.4775	0.5519
208	1035	9.4869	0.5613
209	1040	9.4786	0.553
210	1045	9.9681	1.0425
211	1050	9.4847	0.5591
212	1055	9.4759	0.5503
213	1060	9.4773	0.5517
214	1065	9.475	0.5494
215	1070	9.4752	0.5496
216	1075	9.478	0.5524
217	1080	9.4749	0.5493
218	1085	9.4798	0.5542
219	1090	9.4782	0.5526
220	1095	11.1957	2.2701
221	1100	9.4765	0.5509
222	1105	9.4748	0.5492
223	1110	9.4731	0.5475
224	1115	9.4726	0.547
225	1120	9.4757	0.5501
226	1125	9.4736	0.548
227	1130	9.4818	0.5562
228	1135	9.4736	0.548
229	1140	9.4764	0.5508
230	1145	9.4778	0.5522
231	1150	9.479	0.5534
232	1155	9.4795	0.5539
233	1160	9.481	0.5554
234	1165	9.4786	0.553
235	1170	9.479	0.5534
236	1175	9.4793	0.5537
237	1180	9.4826	0.557
238	1185	9.4824	0.5568
239	1190	9.4807	0.5551
240	1195	9.4816	0.556
241	1200	9.4814	0.5558
242	1205	9.4846	0.559
243	1210	9.4797	0.5541
244	1215	9.4839	0.5583
245	1220	9.4837	0.5581
246	1225	9.4843	0.5587

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
247	1230	9.4809	0.5553
248	1235	9.4814	0.5558
249	1240	9.4797	0.5541
250	1245	9.4771	0.5515
251	1250	9.4797	0.5541
252	1255	9.4831	0.5575
253	1260	9.4793	0.5537
254	1265	9.4826	0.557
255	1270	9.4823	0.5567
256	1275	9.4821	0.5565
257	1280	9.4827	0.5571
258	1285	9.4838	0.5582
259	1290	9.4843	0.5587
260	1295	9.4846	0.559
261	1300	9.4861	0.5605
262	1305	9.4845	0.5589
263	1310	9.4848	0.5592
264	1315	9.4841	0.5585
265	1320	9.4933	0.5677
266	1325	9.4878	0.5622
267	1330	9.4913	0.5657
268	1335	9.4898	0.5642
269	1340	9.4914	0.5658
270	1345	9.4911	0.5655
271	1350	9.4943	0.5687
272	1355	9.4948	0.5692
273	1360	9.4955	0.5699
274	1365	9.4968	0.5712
275	1370	9.4921	0.5665
276	1375	9.4994	0.5738
277	1380	9.4997	0.5741
278	1385	9.4974	0.5718
279	1390	9.4995	0.5739
280	1395	9.5014	0.5758
281	1400	9.5011	0.5755
282	1405	9.5024	0.5768
283	1410	9.5042	0.5786
284	1415	9.5036	0.578
285	1420	9.5042	0.5786
286	1425	9.5048	0.5792
287	1430	9.5081	0.5825
288	1435	9.5054	0.5798
289	1440	9.5055	0.5799
290	1445	9.5069	0.5813
291	1450	9.5087	0.5831
292	1455	9.5094	0.5838
293	1460	9.5101	0.5845
294	1465	9.5138	0.5882
295	1470	9.5118	0.5862
296	1475	9.5152	0.5896
297	1480	9.5164	0.5908
298	1485	9.5201	0.5945
299	1490	9.519	0.5934
300	1495	9.5233	0.5977
301	1500	9.5214	0.5958
302	1505	9.5262	0.6006
303	1510	9.5252	0.5996
304	1515	9.5239	0.5983
305	1520	9.5285	0.6029
306	1525	9.5303	0.6047
307	1530	9.5312	0.6056
308	1535	9.5307	0.6051
309	1540	9.5333	0.6077

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
310	1545	9.5352	0.6096
311	1550	9.5353	0.6097
312	1555	9.5399	0.6143
313	1560	9.5394	0.6138
314	1565	9.5385	0.6129
315	1570	9.5404	0.6148
316	1575	9.5433	0.6177
317	1580	9.5431	0.6175
318	1585	9.545	0.6194
319	1590	9.5446	0.619
320	1595	9.5513	0.6257
321	1600	9.5739	0.6483
322	1605	9.5535	0.6279
323	1610	9.5535	0.6279
324	1615	9.5575	0.6319
325	1620	9.5579	0.6323
326	1625	9.5583	0.6327
327	1630	9.5614	0.6358
328	1635	9.5596	0.634
329	1640	9.5606	0.635
330	1645	9.5606	0.635
331	1650	9.5642	0.6386
332	1655	9.5632	0.6376
333	1660	10.0057	1.0801
334	1665	9.5674	0.6418
335	1670	9.568	0.6424
336	1675	9.5677	0.6421
337	1680	9.5711	0.6455
338	1685	9.5704	0.6448
339	1690	9.5725	0.6469
340	1695	9.575	0.6494
341	1700	9.5749	0.6493
342	1705	9.5708	0.6452
343	1710	9.5731	0.6475
344	1715	9.5726	0.647
345	1720	9.5756	0.65
346	1725	9.5766	0.651
347	1730	9.5773	0.6517
348	1735	9.5801	0.6545
349	1740	9.576	0.6504
350	1745	11.9572	3.0316
351	1750	10.146	1.2204
352	1755	9.5829	0.6573
353	1760	9.5827	0.6571
354	1765	9.5871	0.6615
355	1770	9.5869	0.6613
356	1775	9.5911	0.6655
357	1780	9.5861	0.6605
358	1785	9.5884	0.6628
359	1790	9.5903	0.6647
360	1795	9.5981	0.6725
361	1800	9.5893	0.6637
362	1805	9.5909	0.6653
363	1810	9.5896	0.664
364	1815	9.592	0.6664
365	1820	9.5917	0.6661
366	1825	9.5904	0.6648
367	1830	9.5916	0.666
368	1835	9.5921	0.6665
369	1840	9.5923	0.6667
370	1845	9.5906	0.665
371	1850	9.5924	0.6668
372	1855	9.5915	0.6659

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Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
373	1860	9.5917	0.6661
374	1865	9.5944	0.6688
375	1870	9.5927	0.6671
376	1875	9.5955	0.6699
377	1880	9.5972	0.6716
378	1885	9.5965	0.6709
379	1890	9.5971	0.6715
380	1895	9.597	0.6714
381	1900	9.5948	0.6692
382	1905	9.5961	0.6705
383	1910	9.5956	0.67
384	1915	9.5972	0.6716
385	1920	9.5943	0.6687
386	1925	9.5941	0.6685
387	1930	9.5998	0.6742
388	1935	9.5954	0.6698
389	1940	9.5961	0.6705
390	1945	9.5963	0.6707
391	1950	9.5958	0.6702
392	1955	9.5964	0.6708
393	1960	9.5961	0.6705
394	1965	9.5981	0.6725
395	1970	9.5999	0.6743
396	1975	9.6048	0.6792
397	1980	9.6027	0.6771
398	1985	9.6049	0.6793
399	1990	9.6008	0.6752
400	1995	10.5738	1.6482
401	2000	9.603	0.6774
402	2005	9.6036	0.678
403	2010	9.6022	0.6766
404	2015	9.6032	0.6776
405	2020	9.6005	0.6749
406	2025	9.601	0.6754
407	2030	9.6015	0.6759
408	2035	9.6032	0.6776
409	2040	9.6032	0.6776
410	2045	9.6046	0.679
411	2050	9.6026	0.677
412	2055	9.6039	0.6783
413	2060	9.6068	0.6812
414	2065	9.6039	0.6783
415	2070	9.6054	0.6798
416	2075	9.6075	0.6819
417	2080	9.6044	0.6788
418	2085	9.6096	0.684
419	2090	9.6123	0.6867
420	2095	9.608	0.6824
421	2100	9.6078	0.6822
422	2105	9.6097	0.6841
423	2110	9.607	0.6814
424	2115	9.6075	0.6819
425	2120	9.608	0.6824
426	2125	9.6095	0.6839
427	2130	9.6094	0.6838
428	2135	9.611	0.6854
429	2140	9.609	0.6834
430	2145	9.612	0.6864
431	2150	9.6074	0.6818
432	2155	9.6108	0.6852
433	2160	9.6119	0.6863
434	2165	9.6125	0.6869
435	2170	9.6134	0.6878

Friesen Drillers Ltd.
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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
436	2175	9.6123	0.6867
437	2180	9.6152	0.6896
438	2185	9.6129	0.6873
439	2190	9.6141	0.6885
440	2195	9.6146	0.689
441	2200	9.6127	0.6871
442	2205	9.6152	0.6896
443	2210	9.6172	0.6916
444	2215	9.6169	0.6913
445	2220	9.6227	0.6971
446	2225	9.6195	0.6939
447	2230	9.6206	0.695
448	2235	9.6204	0.6948
449	2240	9.6173	0.6917
450	2245	9.6293	0.7037
451	2250	9.6659	0.7403
452	2255	9.6264	0.7008
453	2260	9.6238	0.6982
454	2265	9.6255	0.6999
455	2270	9.626	0.7004
456	2275	9.6264	0.7008
457	2280	9.6302	0.7046
458	2285	9.6251	0.6995
459	2290	9.6308	0.7052
460	2295	9.6255	0.6999
461	2300	9.6396	0.714
462	2305	9.6325	0.7069
463	2310	9.6872	0.7616
464	2315	9.6309	0.7053
465	2320	9.6318	0.7062
466	2325	9.6292	0.7036
467	2330	9.6294	0.7038
468	2335	9.6335	0.7079
469	2340	9.634	0.7084
470	2345	9.6328	0.7072
471	2350	9.6324	0.7068
472	2355	9.6328	0.7072
473	2360	9.6345	0.7089
474	2365	9.6336	0.708
475	2370	9.6346	0.709
476	2375	9.6343	0.7087
477	2380	9.6338	0.7082
478	2385	9.637	0.7114
479	2390	9.6301	0.7045
480	2395	9.6367	0.7111
481	2400	9.6338	0.7082
482	2405	9.6331	0.7075
483	2410	9.6349	0.7093
484	2415	9.6323	0.7067
485	2420	9.6324	0.7068
486	2425	9.6334	0.7078
487	2430	9.638	0.7124
488	2435	9.6343	0.7087
489	2440	9.7194	0.7938
490	2445	9.6571	0.7315
491	2450	9.6503	0.7247
492	2455	9.6397	0.7141
493	2460	9.6407	0.7151
494	2465	9.6417	0.7161
495	2470	9.6408	0.7152
496	2475	9.6385	0.7129
497	2480	9.64	0.7144
498	2485	9.6377	0.7121

	Time [min]	Water Level [ft]	Drawdown [ft]
499	2490	9.6382	0.7126
500	2495	9.6398	0.7142
501	2500	9.6406	0.715
502	2505	9.6424	0.7168
503	2510	9.6428	0.7172
504	2515	9.6442	0.7186
505	2520	9.6432	0.7176
506	2525	9.6428	0.7172
507	2530	9.6426	0.717
508	2535	9.6429	0.7173
509	2540	9.6444	0.7188
510	2545	9.6454	0.7198
511	2550	9.6433	0.7177
512	2555	9.6478	0.7222
513	2560	9.6471	0.7215
514	2565	9.6473	0.7217
515	2570	9.6551	0.7295
516	2575	9.6504	0.7248
517	2580	9.652	0.7264
518	2585	9.6513	0.7257
519	2590	9.6489	0.7233
520	2595	9.6485	0.7229
521	2600	9.6495	0.7239
522	2605	9.6513	0.7257
523	2610	9.6526	0.727
524	2615	9.6537	0.7281
525	2620	9.6565	0.7309
526	2625	9.6552	0.7296
527	2630	9.6561	0.7305
528	2635	9.6576	0.732
529	2640	9.6572	0.7316
530	2645	9.6581	0.7325
531	2650	9.6585	0.7329
532	2655	9.6559	0.7303
533	2660	9.6593	0.7337
534	2665	9.6564	0.7308
535	2670	9.6587	0.7331
536	2675	9.661	0.7354
537	2680	9.6617	0.7361
538	2685	9.6627	0.7371
539	2690	9.6621	0.7365
540	2695	9.6624	0.7368
541	2700	9.6742	0.7486
542	2705	9.6663	0.7407
543	2710	9.6696	0.744
544	2715	9.6698	0.7442
545	2720	9.6691	0.7435
546	2725	9.6691	0.7435
547	2730	9.671	0.7454
548	2735	9.6719	0.7463
549	2740	9.6763	0.7507
550	2745	9.6736	0.748
551	2750	9.6733	0.7477
552	2755	9.6744	0.7488
553	2760	9.6756	0.75
554	2765	9.6779	0.7523
555	2770	9.6787	0.7531
556	2775	9.6813	0.7557
557	2780	9.6814	0.7558
558	2785	9.6829	0.7573
559	2790	9.6871	0.7615
560	2795	9.6869	0.7613
561	2800	9.6871	0.7615

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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
562	2805	9.6912	0.7656
563	2810	9.6928	0.7672
564	2815	9.692	0.7664
565	2820	9.6953	0.7697
566	2825	9.6963	0.7707
567	2830	9.6985	0.7729
568	2835	9.699	0.7734
569	2840	9.7003	0.7747
570	2845	9.7009	0.7753
571	2850	9.702	0.7764
572	2855	9.7063	0.7807
573	2860	9.7043	0.7787
574	2865	9.7059	0.7803
575	2870	9.7078	0.7822
576	2875	9.7106	0.785
577	2880	9.7133	0.7877
578	2885	9.712	0.7864
579	2890	9.717	0.7914
580	2895	9.7141	0.7885
581	2900	9.7164	0.7908
582	2905	9.7216	0.796
583	2910	9.7231	0.7975
584	2915	9.7269	0.8013
585	2920	9.7257	0.8001
586	2925	9.7231	0.7975
587	2930	9.7273	0.8017
588	2935	9.7319	0.8063
589	2940	9.7327	0.8071
590	2945	9.7329	0.8073
591	2950	9.7355	0.8099
592	2955	9.7376	0.812
593	2960	9.7368	0.8112
594	2965	9.7388	0.8132
595	2970	9.7403	0.8147
596	2975	9.7426	0.817
597	2980	9.7473	0.8217
598	2985	9.7669	0.8413
599	2990	9.7511	0.8255
600	2995	9.7505	0.8249
601	3000	9.7511	0.8255
602	3005	9.7555	0.8299
603	3010	9.7585	0.8329
604	3015	9.7546	0.829
605	3020	9.7573	0.8317
606	3025	9.7639	0.8383
607	3030	9.7633	0.8377
608	3035	9.7641	0.8385
609	3040	9.7643	0.8387
610	3045	9.7638	0.8382
611	3050	9.767	0.8414
612	3055	9.7652	0.8396
613	3060	9.7706	0.845
614	3065	9.7696	0.844
615	3070	9.7674	0.8418
616	3075	9.7704	0.8448
617	3080	9.7727	0.8471
618	3085	9.7734	0.8478
619	3090	9.7757	0.8501
620	3095	9.777	0.8514
621	3100	9.7741	0.8485
622	3105	9.7761	0.8505
623	3110	9.7857	0.8601
624	3115	9.7812	0.8556

Friesen Drillers Ltd.
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Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
625	3120	9.781	0.8554
626	3125	9.7827	0.8571
627	3130	9.7914	0.8658
628	3135	9.7886	0.863
629	3140	9.7915	0.8659
630	3145	9.7929	0.8673
631	3150	9.7949	0.8693
632	3155	9.8032	0.8776
633	3160	9.7989	0.8733
634	3165	9.8026	0.877
635	3170	9.8049	0.8793
636	3175	9.8042	0.8786
637	3180	9.8068	0.8812
638	3185	9.8063	0.8807
639	3190	10.4825	1.5569
640	3195	9.8133	0.8877
641	3200	9.9514	1.0258
642	3205	9.8292	0.9036
643	3210	9.8342	0.9086
644	3215	9.8234	0.8978
645	3220	9.8196	0.894
646	3225	9.8208	0.8952
647	3230	9.8241	0.8985
648	3235	9.8289	0.9033
649	3240	9.8249	0.8993
650	3245	9.8262	0.9006
651	3250	9.8287	0.9031
652	3255	9.8321	0.9065
653	3260	9.8299	0.9043
654	3265	9.8289	0.9033
655	3270	9.8302	0.9046
656	3275	9.8345	0.9089
657	3280	9.8361	0.9105
658	3285	9.8365	0.9109
659	3290	9.8385	0.9129
660	3295	9.8394	0.9138
661	3300	9.8353	0.9097
662	3305	9.8385	0.9129
663	3310	9.8398	0.9142
664	3315	9.8355	0.9099
665	3320	9.8399	0.9143
666	3325	9.8412	0.9156
667	3330	9.8388	0.9132
668	3335	9.8393	0.9137
669	3340	9.8437	0.9181
670	3345	9.8493	0.9237
671	3350	10.2493	1.3237
672	3355	9.8482	0.9226
673	3360	9.8475	0.9219
674	3365	9.8466	0.921
675	3370	9.8496	0.924
676	3375	9.8475	0.9219
677	3380	9.8482	0.9226
678	3385	9.8499	0.9243
679	3390	9.8492	0.9236
680	3395	9.8473	0.9217
681	3400	9.8504	0.9248
682	3405	9.8484	0.9228
683	3410	9.8554	0.9298
684	3415	9.8559	0.9303
685	3420	9.8569	0.9313
686	3425	9.857	0.9314
687	3430	9.8577	0.9321

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
688	3435	9.859	0.9334
689	3440	9.8619	0.9363
690	3445	9.8623	0.9367
691	3450	9.8631	0.9375
692	3455	9.8673	0.9417
693	3460	9.8653	0.9397
694	3465	9.8662	0.9406
695	3470	9.8685	0.9429
696	3475	9.8666	0.941
697	3480	9.8711	0.9455
698	3485	9.8658	0.9402
699	3490	9.8688	0.9432
700	3495	9.872	0.9464
701	3500	9.8759	0.9503
702	3505	9.8749	0.9493
703	3510	9.8741	0.9485
704	3515	9.8753	0.9497
705	3520	9.8738	0.9482
706	3525	9.8783	0.9527
707	3530	9.878	0.9524
708	3535	9.8813	0.9557
709	3540	9.8787	0.9531
710	3545	9.881	0.9554
711	3550	9.8787	0.9531
712	3555	9.8808	0.9552
713	3560	9.8828	0.9572
714	3565	9.8832	0.9576
715	3570	9.8859	0.9603
716	3575	9.8827	0.9571
717	3580	9.8844	0.9588
718	3585	9.8815	0.9559
719	3590	9.8869	0.9613
720	3595	9.8844	0.9588
721	3600	9.879	0.9534
722	3605	9.8865	0.9609
723	3610	9.8878	0.9622
724	3615	9.8826	0.957
725	3620	9.885	0.9594
726	3625	9.8864	0.9608
727	3630	9.8905	0.9649
728	3635	9.8919	0.9663
729	3640	9.8919	0.9663
730	3645	9.8876	0.962
731	3650	9.8912	0.9656
732	3655	9.8947	0.9691
733	3660	9.8931	0.9675
734	3665	9.8955	0.9699
735	3670	9.8947	0.9691
736	3675	9.8945	0.9689
737	3680	9.8961	0.9705
738	3685	9.8942	0.9686
739	3690	9.8941	0.9685
740	3695	9.896	0.9704
741	3700	9.898	0.9724
742	3705	9.9017	0.9761
743	3710	9.8991	0.9735
744	3715	9.8989	0.9733
745	3720	9.8988	0.9732
746	3725	9.899	0.9734
747	3730	9.9022	0.9766
748	3735	9.9064	0.9808
749	3740	9.9047	0.9791
750	3745	9.9088	0.9832

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
751	3750	9.9093	0.9837
752	3755	9.9119	0.9863
753	3760	9.9117	0.9861
754	3765	9.9115	0.9859
755	3770	9.9119	0.9863
756	3775	9.9145	0.9889
757	3780	9.9108	0.9852
758	3785	9.9083	0.9827
759	3790	9.9101	0.9845
760	3795	9.9123	0.9867
761	3800	9.9129	0.9873
762	3805	9.914	0.9884
763	3810	9.9103	0.9847
764	3815	9.9126	0.987
765	3820	9.9148	0.9892
766	3825	9.9142	0.9886
767	3830	9.9127	0.9871
768	3835	9.9147	0.9891
769	3840	9.9156	0.99
770	3845	9.9118	0.9862
771	3850	9.9126	0.987
772	3855	9.9139	0.9883
773	3860	9.9181	0.9925
774	3865	9.9204	0.9948
775	3870	9.9206	0.995
776	3875	11.8518	2.9262
777	3880	12.782	3.8564
778	3885	9.9243	0.9987
779	3890	9.9242	0.9986
780	3895	9.9323	1.0067
781	3900	9.9234	0.9978
782	3905	9.9234	0.9978
783	3910	9.9253	0.9997
784	3915	9.9251	0.9995
785	3920	9.9248	0.9992
786	3925	9.9252	0.9996
787	3930	9.9294	1.0038
788	3935	9.9279	1.0023
789	3940	9.9314	1.0058
790	3945	9.9265	1.0009
791	3950	9.927	1.0014
792	3955	9.9269	1.0013
793	3960	9.9273	1.0017
794	3965	9.9272	1.0016
795	3970	9.9293	1.0037
796	3975	9.9275	1.0019
797	3980	9.9303	1.0047
798	3985	13.7609	4.8353
799	3990	9.9336	1.008
800	3995	9.9346	1.009
801	4000	9.935	1.0094
802	4005	9.9385	1.0129
803	4010	9.9354	1.0098
804	4015	9.9379	1.0123
805	4020	9.9384	1.0128
806	4025	9.9409	1.0153
807	4030	9.9432	1.0176
808	4035	9.9441	1.0185
809	4040	9.9444	1.0188
810	4045	9.9443	1.0187
811	4050	9.9477	1.0221
812	4055	9.945	1.0194
813	4060	9.9503	1.0247

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
814	4065	9.953	1.0274
815	4070	9.9541	1.0285
816	4075	9.9519	1.0263
817	4080	9.9564	1.0308
818	4085	9.9543	1.0287
819	4090	9.9576	1.032
820	4095	9.9569	1.0313
821	4100	9.9556	1.03
822	4105	9.9561	1.0305
823	4110	9.9575	1.0319
824	4115	9.9588	1.0332
825	4120	9.9584	1.0328
826	4125	9.9587	1.0331
827	4130	9.9592	1.0336
828	4135	9.9625	1.0369
829	4140	9.9623	1.0367
830	4145	9.9641	1.0385
831	4150	9.9627	1.0371
832	4155	9.9637	1.0381
833	4160	9.9643	1.0387
834	4165	9.9662	1.0406
835	4170	9.9663	1.0407
836	4175	9.9687	1.0431
837	4180	9.9698	1.0442
838	4185	9.9696	1.044
839	4190	9.9687	1.0431
840	4195	9.972	1.0464
841	4200	9.969	1.0434
842	4205	9.9708	1.0452
843	4210	9.9712	1.0456
844	4215	9.9736	1.048
845	4220	9.9755	1.0499
846	4225	9.9737	1.0481
847	4230	9.976	1.0504
848	4235	9.9774	1.0518
849	4240	9.9709	1.0453
850	4245	9.9784	1.0528
851	4250	9.9764	1.0508
852	4255	9.9763	1.0507
853	4260	9.9758	1.0502
854	4265	9.9777	1.0521
855	4270	9.9803	1.0547
856	4275	9.9787	1.0531
857	4280	9.9787	1.0531
858	4285	9.9776	1.052
859	4290	9.9787	1.0531
860	4295	9.978	1.0524
861	4300	9.9838	1.0582
862	4305	9.9823	1.0567
863	4310	9.9817	1.0561
864	4315	9.9848	1.0592
865	4320	9.9804	1.0548
866	4325	9.9828	1.0572
867	4330	9.9833	1.0577
868	4335	9.9824	1.0568
869	4340	9.9798	1.0542
870	4345	9.9872	1.0616
871	4350	9.9852	1.0596
872	4355	9.988	1.0624
873	4360	9.9864	1.0608
874	4365	9.9871	1.0615
875	4370	9.9886	1.063
876	4375	9.9895	1.0639

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
877	4380	9.988	1.0624
878	4385	9.9898	1.0642
879	4390	9.9908	1.0652
880	4395	9.9913	1.0657
881	4400	9.9906	1.065
882	4405	9.9937	1.0681
883	4410	9.9922	1.0666
884	4415	9.9936	1.068
885	4420	9.9954	1.0698
886	4425	9.9989	1.0733
887	4430	9.9952	1.0696
888	4435	10.001	1.0754
889	4440	10.0008	1.0752
890	4445	10.0029	1.0773
891	4450	10.0032	1.0776
892	4455	10.0044	1.0788
893	4460	10.0057	1.0801
894	4465	10.0037	1.0781
895	4470	10.0053	1.0797
896	4475	10.0073	1.0817
897	4480	10.0071	1.0815
898	4485	10.0083	1.0827
899	4490	10.0049	1.0793
900	4495	10.2222	1.2966
901	4500	10.0087	1.0831
902	4505	10.0092	1.0836
903	4510	10.0118	1.0862
904	4515	10.0124	1.0868
905	4520	10.0136	1.088
906	4525	10.0129	1.0873
907	4530	10.0149	1.0893
908	4535	10.0376	1.112
909	4540	10.0157	1.0901
910	4545	10.0166	1.091
911	4550	10.0224	1.0968
912	4555	10.0212	1.0956
913	4560	10.0158	1.0902
914	4565	10.0186	1.093
915	4570	10.0229	1.0973
916	4575	10.022	1.0964
917	4580	10.0205	1.0949
918	4585	10.0243	1.0987
919	4590	10.0246	1.099
920	4595	13.1621	4.2365
921	4600	10.026	1.1004
922	4605	10.0391	1.1135
923	4610	10.0286	1.103
924	4615	10.026	1.1004
925	4620	10.0259	1.1003
926	4625	10.0267	1.1011
927	4630	10.0267	1.1011
928	4635	10.0293	1.1037
929	4640	10.063	1.1374
930	4645	13.7466	4.821
931	4650	10.0341	1.1085
932	4655	10.031	1.1054
933	4660	10.0341	1.1085
934	4665	10.0347	1.1091
935	4670	10.033	1.1074
936	4675	10.0327	1.1071
937	4680	10.0345	1.1089
938	4685	10.0337	1.1081
939	4690	10.0371	1.1115

	Time [min]	Water Level [ft]	Drawdown [ft]
940	4695	13.7363	4.8107
941	4700	10.0384	1.1128
942	4705	10.0385	1.1129
943	4710	10.0401	1.1145
944	4715	10.0538	1.1282
945	4720	10.0442	1.1186
946	4725	10.0403	1.1147
947	4730	10.0384	1.1128
948	4735	10.1021	1.1765
949	4740	10.2858	1.3602
950	4745	10.0431	1.1175
951	4750	10.0411	1.1155
952	4755	10.0422	1.1166
953	4760	11.3254	2.3998
954	4765	10.0501	1.1245
955	4770	10.0449	1.1193
956	4775	10.0433	1.1177
957	4780	10.0447	1.1191
958	4785	10.5165	1.5909
959	4790	10.0474	1.1218
960	4795	10.0479	1.1223
961	4800	10.0475	1.1219
962	4805	10.0496	1.124
963	4810	10.0501	1.1245
964	4815	10.0418	1.1162
965	4820	10.0465	1.1209
966	4825	10.046	1.1204
967	4830	10.0478	1.1222
968	4835	10.0486	1.123
969	4840	10.0466	1.121
970	4845	10.0463	1.1207
971	4850	10.0464	1.1208
972	4855	10.0442	1.1186
973	4860	10.0459	1.1203
974	4865	10.0482	1.1226
975	4870	10.0485	1.1229
976	4875	10.0474	1.1218
977	4880	10.047	1.1214
978	4885	10.0521	1.1265
979	4890	10.0502	1.1246
980	4895	10.0514	1.1258
981	4900	10.0466	1.121
982	4905	10.0492	1.1236
983	4910	10.0487	1.1231
984	4915	10.0509	1.1253
985	4920	10.0503	1.1247
986	4925	10.0509	1.1253
987	4930	10.0504	1.1248
988	4935	10.0499	1.1243
989	4940	10.0481	1.1225
990	4945	10.0535	1.1279
991	4950	10.0532	1.1276
992	4955	10.0539	1.1283
993	4960	10.0511	1.1255
994	4965	10.0543	1.1287
995	4970	10.0564	1.1308
996	4975	10.0557	1.1301
997	4980	10.0545	1.1289
998	4985	10.058	1.1324
999	4990	10.0568	1.1312
1000	4995	10.0557	1.1301
1001	5000	10.0585	1.1329
1002	5005	10.0568	1.1312

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data**
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1003	5010	10.0559	1.1303
1004	5015	10.055	1.1294
1005	5020	10.055	1.1294
1006	5025	10.0583	1.1327
1007	5030	10.0575	1.1319
1008	5035	10.0575	1.1319
1009	5040	10.0588	1.1332
1010	5045	10.057	1.1314
1011	5050	10.055	1.1294
1012	5055	10.056	1.1304
1013	5060	10.0566	1.131
1014	5065	10.0579	1.1323
1015	5070	10.0585	1.1329
1016	5075	10.0588	1.1332
1017	5080	10.0612	1.1356
1018	5085	10.0593	1.1337
1019	5090	10.06	1.1344
1020	5095	10.0587	1.1331
1021	5100	10.059	1.1334
1022	5105	10.0614	1.1358
1023	5110	10.06	1.1344
1024	5115	10.0643	1.1387
1025	5120	10.062	1.1364
1026	5125	10.0623	1.1367
1027	5130	10.065	1.1394
1028	5135	10.0645	1.1389
1029	5140	10.064	1.1384
1030	5145	10.0658	1.1402
1031	5150	10.0619	1.1363
1032	5155	10.0683	1.1427
1033	5160	10.0647	1.1391
1034	5165	10.0695	1.1439
1035	5170	10.0679	1.1423
1036	5175	10.0716	1.146
1037	5180	10.067	1.1414
1038	5185	10.0706	1.145
1039	5190	10.0712	1.1456
1040	5195	10.0691	1.1435
1041	5200	10.071	1.1454
1042	5205	10.0719	1.1463
1043	5210	10.0739	1.1483
1044	5215	10.0742	1.1486
1045	5220	10.074	1.1484
1046	5225	10.0751	1.1495
1047	5230	10.0733	1.1477
1048	5235	10.0767	1.1511
1049	5240	10.0781	1.1525
1050	5245	10.0766	1.151
1051	5250	10.0762	1.1506
1052	5255	10.0778	1.1522
1053	5260	10.0777	1.1521
1054	5265	10.0809	1.1553
1055	5270	10.0769	1.1513
1056	5275	10.0816	1.156
1057	5280	10.0796	1.154
1058	5285	10.0809	1.1553
1059	5290	10.0832	1.1576
1060	5295	10.0829	1.1573
1061	5300	10.0859	1.1603
1062	5305	10.0907	1.1651
1063	5310	10.0857	1.1601
1064	5315	10.0908	1.1652
1065	5320	12.9567	4.0311

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1066	5325	11.4544	2.5288
1067	5330	10.2358	1.3102
1068	5335	10.0886	1.163
1069	5340	10.0907	1.1651
1070	5345	10.0913	1.1657
1071	5350	10.0896	1.164
1072	5355	10.0961	1.1705
1073	5360	10.0925	1.1669
1074	5365	10.0928	1.1672
1075	5370	10.1278	1.2022
1076	5375	10.1144	1.1888
1077	5380	10.0956	1.17
1078	5385	10.0946	1.169
1079	5390	10.0955	1.1699
1080	5395	10.096	1.1704
1081	5400	10.0954	1.1698
1082	5405	10.0953	1.1697
1083	5410	10.1001	1.1745
1084	5415	10.1012	1.1756
1085	5420	10.1002	1.1746
1086	5425	10.1003	1.1747
1087	5430	10.1008	1.1752
1088	5435	10.1043	1.1787
1089	5440	10.1014	1.1758
1090	5445	10.1037	1.1781
1091	5450	10.1041	1.1785
1092	5455	10.1061	1.1805
1093	5460	10.1111	1.1855
1094	5465	10.6862	1.7606
1095	5470	10.1098	1.1842
1096	5475	10.1086	1.183
1097	5480	10.1109	1.1853
1098	5485	10.1127	1.1871
1099	5490	10.1144	1.1888
1100	5495	10.1166	1.191
1101	5500	10.1127	1.1871
1102	5505	10.1154	1.1898
1103	5510	10.119	1.1934
1104	5515	10.1175	1.1919
1105	5520	10.1194	1.1938
1106	5525	10.1238	1.1982
1107	5530	10.1211	1.1955
1108	5535	10.1231	1.1975
1109	5540	10.1239	1.1983
1110	5545	10.1237	1.1981
1111	5550	10.1265	1.2009
1112	5555	10.1228	1.1972
1113	5560	10.1274	1.2018
1114	5565	10.1285	1.2029
1115	5570	10.1301	1.2045
1116	5575	10.1296	1.204
1117	5580	10.1315	1.2059
1118	5585	10.1333	1.2077
1119	5590	10.133	1.2074
1120	5595	10.1352	1.2096
1121	5600	10.1363	1.2107
1122	5605	10.1365	1.2109
1123	5610	10.1399	1.2143
1124	5615	10.14	1.2144
1125	5620	10.1399	1.2143
1126	5625	10.1435	1.2179
1127	5630	10.1415	1.2159
1128	5635	10.1473	1.2217

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1129	5640	10.1447	1.2191
1130	5645	10.1492	1.2236
1131	5650	10.153	1.2274
1132	5655	10.1496	1.224
1133	5660	10.1503	1.2247
1134	5665	10.1524	1.2268
1135	5670	10.1546	1.229
1136	5675	10.1556	1.23
1137	5680	10.1592	1.2336
1138	5685	10.1594	1.2338
1139	5690	10.1575	1.2319
1140	5695	10.1578	1.2322
1141	5700	10.1617	1.2361
1142	5705	10.1653	1.2397
1143	5710	10.1649	1.2393
1144	5715	10.1708	1.2452
1145	5720	10.1711	1.2455
1146	5725	10.1698	1.2442
1147	5730	10.1728	1.2472
1148	5735	10.1718	1.2462
1149	5740	10.1759	1.2503
1150	5745	10.1769	1.2513
1151	5750	10.1789	1.2533
1152	5755	10.1815	1.2559
1153	5760	10.1813	1.2557
1154	5765	10.1808	1.2552
1155	5770	10.1841	1.2585
1156	5775	10.1822	1.2566
1157	5780	10.187	1.2614
1158	5785	10.1914	1.2658
1159	5790	10.1902	1.2646
1160	5795	10.1896	1.264
1161	5800	10.1911	1.2655
1162	5805	10.1915	1.2659
1163	5810	10.1961	1.2705
1164	5815	10.1968	1.2712
1165	5820	10.1999	1.2743
1166	5825	10.2029	1.2773
1167	5830	10.2047	1.2791
1168	5835	10.2056	1.28
1169	5840	10.2089	1.2833
1170	5845	10.2098	1.2842
1171	5850	10.2124	1.2868
1172	5855	10.216	1.2904
1173	5860	10.2158	1.2902
1174	5865	10.2184	1.2928
1175	5870	10.2217	1.2961
1176	5875	10.2242	1.2986
1177	5880	10.2205	1.2949
1178	5885	10.2265	1.3009
1179	5890	10.2284	1.3028
1180	5895	10.2288	1.3032
1181	5900	10.2296	1.304
1182	5905	10.2329	1.3073
1183	5910	10.2398	1.3142
1184	5915	10.2355	1.3099
1185	5920	10.2376	1.312
1186	5925	10.2379	1.3123
1187	5930	10.2434	1.3178
1188	5935	10.2513	1.3257
1189	5940	10.2439	1.3183
1190	5945	10.2503	1.3247
1191	5950	10.2534	1.3278

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1192	5955	10.2525	1.3269
1193	5960	10.2557	1.3301
1194	5965	10.2573	1.3317
1195	5970	10.2593	1.3337
1196	5975	10.2592	1.3336
1197	5980	10.2632	1.3376
1198	5985	10.2602	1.3346
1199	5990	10.264	1.3384
1200	5995	10.2686	1.343
1201	6000	10.2648	1.3392
1202	6005	10.2672	1.3416
1203	6010	10.2693	1.3437
1204	6015	10.2734	1.3478
1205	6020	10.2685	1.3429
1206	6025	10.2719	1.3463
1207	6030	10.275	1.3494
1208	6035	10.2727	1.3471
1209	6040	10.2812	1.3556
1210	6045	10.2799	1.3543
1211	6050	10.2783	1.3527
1212	6055	10.2795	1.3539
1213	6060	10.2835	1.3579
1214	6065	10.2848	1.3592
1215	6070	10.2878	1.3622
1216	6075	10.2843	1.3587
1217	6080	10.2942	1.3686
1218	6085	10.2851	1.3595
1219	6090	10.2924	1.3668
1220	6095	10.2927	1.3671
1221	6100	13.4368	4.5112
1222	6105	10.303	1.3774
1223	6110	10.3014	1.3758
1224	6115	10.2991	1.3735
1225	6120	10.3039	1.3783
1226	6125	10.2996	1.374
1227	6130	10.3003	1.3747
1228	6135	10.3006	1.375
1229	6140	10.3067	1.3811
1230	6145	10.3067	1.3811
1231	6150	10.3041	1.3785
1232	6155	10.3072	1.3816
1233	6160	10.3088	1.3832
1234	6165	10.3096	1.384
1235	6170	10.3138	1.3882
1236	6175	10.3151	1.3895
1237	6180	10.3165	1.3909
1238	6185	10.3156	1.39
1239	6190	10.3209	1.3953
1240	6195	10.3235	1.3979
1241	6200	10.3251	1.3995
1242	6205	10.3218	1.3962
1243	6210	10.3241	1.3985
1244	6215	10.3222	1.3966
1245	6220	10.3256	1.40
1246	6225	10.332	1.4064
1247	6230	10.328	1.4024
1248	6235	10.3354	1.4098
1249	6240	10.3298	1.4042
1250	6245	10.3392	1.4136
1251	6250	10.3341	1.4085
1252	6255	10.3363	1.4107
1253	6260	10.3384	1.4128
1254	6265	10.3379	1.4123

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1255	6270	10.3391	1.4135
1256	6275	10.3481	1.4225
1257	6280	10.3545	1.4289
1258	6285	10.3507	1.4251
1259	6290	10.3482	1.4226
1260	6295	10.3554	1.4298
1261	6300	10.3503	1.4247
1262	6305	10.3501	1.4245
1263	6310	10.3489	1.4233
1264	6315	10.3495	1.4239
1265	6320	10.3529	1.4273
1266	6325	10.3517	1.4261
1267	6330	10.352	1.4264
1268	6335	10.3562	1.4306
1269	6340	10.3593	1.4337
1270	6345	10.3566	1.431
1271	6350	10.3603	1.4347
1272	6355	10.3621	1.4365
1273	6360	10.3617	1.4361
1274	6365	10.3651	1.4395
1275	6370	10.3655	1.4399
1276	6375	10.3663	1.4407
1277	6380	10.3664	1.4408
1278	6385	10.3679	1.4423
1279	6390	10.3694	1.4438
1280	6395	10.3689	1.4433
1281	6400	10.3686	1.443
1282	6405	10.371	1.4454
1283	6410	10.3739	1.4483
1284	6415	10.372	1.4464
1285	6420	10.3734	1.4478
1286	6425	10.3777	1.4521
1287	6430	10.376	1.4504
1288	6435	10.3777	1.4521
1289	6440	10.3815	1.4559
1290	6445	10.3792	1.4536
1291	6450	10.3827	1.4571
1292	6455	10.3803	1.4547
1293	6460	10.3853	1.4597
1294	6465	10.383	1.4574
1295	6470	10.3831	1.4575
1296	6475	10.3855	1.4599
1297	6480	10.3848	1.4592
1298	6485	10.3843	1.4587
1299	6490	10.3868	1.4612
1300	6495	10.387	1.4614
1301	6500	10.3868	1.4612
1302	6505	10.3877	1.4621
1303	6510	10.3873	1.4617
1304	6515	10.3878	1.4622
1305	6520	10.3876	1.462
1306	6525	10.3879	1.4623
1307	6530	10.3908	1.4652
1308	6535	10.3923	1.4667
1309	6540	10.3903	1.4647
1310	6545	10.3931	1.4675
1311	6550	10.3941	1.4685
1312	6555	10.3912	1.4656
1313	6560	10.6397	1.7141
1314	6565	11.4897	2.5641
1315	6570	14.3407	5.4151
1316	6575	10.4021	1.4765
1317	6580	10.4018	1.4762

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Water Level Data** Project: OBS-853 Number: 2014-078-11472 Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1318	6585	10.3986	1.473
1319	6590	10.4003	1.4747
1320	6595	10.4013	1.4757
1321	6600	10.4049	1.4793
1322	6605	10.4051	1.4795
1323	6610	10.4068	1.4812
1324	6615	10.4105	1.4849
1325	6620	10.4073	1.4817
1326	6625	10.4147	1.4891
1327	6630	10.4112	1.4856
1328	6635	10.4155	1.4899
1329	6640	10.4094	1.4838
1330	6645	10.4104	1.4848
1331	6650	10.414	1.4884
1332	6655	11.159	2.2334
1333	6660	10.4161	1.4905
1334	6665	10.4169	1.4913
1335	6670	10.4156	1.49
1336	6675	10.4195	1.4939
1337	6680	10.4201	1.4945
1338	6685	10.4185	1.4929
1339	6690	10.4198	1.4942
1340	6695	10.42	1.4944
1341	6700	10.4222	1.4966
1342	6705	10.4223	1.4967
1343	6710	10.4254	1.4998
1344	6715	10.4255	1.4999
1345	6720	10.4257	1.5001
1346	6725	10.4268	1.5012
1347	6730	10.4286	1.503
1348	6735	10.4299	1.5043
1349	6740	10.4307	1.5051
1350	6745	10.4323	1.5067
1351	6750	10.4299	1.5043
1352	6755	10.4345	1.5089
1353	6760	10.4332	1.5076
1354	6765	10.4361	1.5105
1355	6770	10.4375	1.5119
1356	6775	10.4372	1.5116
1357	6780	10.4378	1.5122
1358	6785	10.44	1.5144
1359	6790	10.4402	1.5146
1360	6795	10.4388	1.5132
1361	6800	10.4407	1.5151
1362	6805	10.4461	1.5205
1363	6810	10.607	1.6814
1364	6815	10.4485	1.5229
1365	6820	10.4466	1.521
1366	6825	10.4512	1.5256
1367	6830	10.4517	1.5261
1368	6835	10.4525	1.5269
1369	6840	10.4509	1.5253
1370	6845	10.4539	1.5283
1371	6850	10.4577	1.5321
1372	6855	10.4586	1.533
1373	6860	10.4578	1.5322
1374	6865	10.4634	1.5378
1375	6870	10.4607	1.5351
1376	6875	10.4629	1.5373
1377	6880	10.4718	1.5462
1378	6885	10.469	1.5434
1379	6890	10.4709	1.5453
1380	6895	10.4713	1.5457

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1381	6900	10.4764	1.5508
1382	6905	10.4764	1.5508
1383	6910	10.4808	1.5552
1384	6915	14.7246	5.799
1385	6920	10.482	1.5564
1386	6925	10.4842	1.5586
1387	6930	10.4878	1.5622
1388	6935	10.4978	1.5722
1389	6940	10.495	1.5694
1390	6945	10.4948	1.5692
1391	6950	10.4918	1.5662
1392	6955	10.4958	1.5702
1393	6960	10.5122	1.5866
1394	6965	10.5013	1.5757
1395	6970	10.5021	1.5765
1396	6975	10.5031	1.5775
1397	6980	10.7403	1.8147
1398	6985	10.5078	1.5822
1399	6990	10.5098	1.5842
1400	6995	10.517	1.5914
1401	7000	10.5109	1.5853
1402	7005	10.5145	1.5889
1403	7010	10.5177	1.5921
1404	7015	10.5238	1.5982
1405	7020	10.5214	1.5958
1406	7025	10.5217	1.5961
1407	7030	10.5263	1.6007
1408	7035	10.5263	1.6007
1409	7040	10.53	1.6044
1410	7045	10.5333	1.6077
1411	7050	10.5395	1.6139
1412	7055	10.5408	1.6152
1413	7060	10.5407	1.6151
1414	7065	10.54	1.6144
1415	7070	10.5441	1.6185
1416	7075	10.5487	1.6231
1417	7080	10.5477	1.6221
1418	7085	10.5491	1.6235
1419	7090	10.5526	1.627
1420	7095	10.5575	1.6319
1421	7100	10.5592	1.6336
1422	7105	13.5139	4.5883
1423	7110	10.5663	1.6407
1424	7115	10.5734	1.6478
1425	7120	10.5709	1.6453
1426	7125	10.6016	1.676
1427	7130	10.5784	1.6528
1428	7135	10.579	1.6534
1429	7140	10.5823	1.6567
1430	7145	10.582	1.6564
1431	7150	10.5908	1.6652
1432	7155	10.5873	1.6617
1433	7160	10.597	1.6714
1434	7165	10.5901	1.6645
1435	7170	10.5945	1.6689
1436	7175	10.5996	1.674
1437	7180	10.6016	1.676
1438	7185	10.6048	1.6792
1439	7190	10.6098	1.6842
1440	7195	10.6121	1.6865
1441	7200	10.6118	1.6862
1442	7205	10.6214	1.6958
1443	7210	10.6216	1.696

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1444	7215	10.62	1.6944
1445	7220	10.6252	1.6996
1446	7225	10.6302	1.7046
1447	7230	10.7832	1.8576
1448	7235	10.6292	1.7036
1449	7240	10.6358	1.7102
1450	7245	10.6364	1.7108
1451	7250	10.6444	1.7188
1452	7255	10.6375	1.7119
1453	7260	10.6383	1.7127
1454	7265	10.6423	1.7167
1455	7270	10.6441	1.7185
1456	7275	10.6486	1.723
1457	7280	10.6521	1.7265
1458	7285	10.659	1.7334
1459	7290	10.6585	1.7329
1460	7295	10.6604	1.7348
1461	7300	10.6695	1.7439
1462	7305	10.6604	1.7348
1463	7310	10.6782	1.7526
1464	7315	12.0116	3.086
1465	7320	10.6798	1.7542
1466	7325	10.9203	1.9947
1467	7330	10.6907	1.7651
1468	7335	12.7479	3.8223
1469	7340	11.2538	2.3282
1470	7345	10.74	1.8144
1471	7350	10.718	1.7924
1472	7355	10.7161	1.7905
1473	7360	10.9716	2.046
1474	7365	10.7131	1.7875
1475	7370	14.1594	5.2338
1476	7375	10.7575	1.8319
1477	7380	10.7094	1.7838
1478	7385	11.2764	2.3508
1479	7390	10.716	1.7904
1480	7395	10.7175	1.7919
1481	7400	10.7118	1.7862
1482	7405	10.7169	1.7913
1483	7410	10.7173	1.7917
1484	7415	10.7202	1.7946
1485	7420	10.7259	1.8003
1486	7425	10.7269	1.8013
1487	7430	10.7333	1.8077
1488	7435	10.7293	1.8037
1489	7440	10.7352	1.8096
1490	7445	10.7331	1.8075
1491	7450	10.7355	1.8099
1492	7455	10.735	1.8094
1493	7460	10.7399	1.8143
1494	7465	10.7412	1.8156
1495	7470	10.7466	1.821
1496	7475	10.745	1.8194
1497	7480	10.7486	1.823
1498	7485	10.7483	1.8227
1499	7490	10.7501	1.8245
1500	7495	10.7513	1.8257
1501	7500	10.7545	1.8289
1502	7505	10.7528	1.8272
1503	7510	10.7553	1.8297
1504	7515	10.7585	1.8329
1505	7520	10.7628	1.8372
1506	7525	10.764	1.8384

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1507	7530	10.7658	1.8402
1508	7535	10.7683	1.8427
1509	7540	10.7679	1.8423
1510	7545	10.7724	1.8468
1511	7550	10.774	1.8484
1512	7555	10.7744	1.8488
1513	7560	10.7781	1.8525
1514	7565	10.776	1.8504
1515	7570	10.7763	1.8507
1516	7575	10.7757	1.8501
1517	7580	10.7826	1.857
1518	7585	10.8996	1.974
1519	7590	14.1753	5.2497
1520	7595	10.7896	1.864
1521	7600	10.7884	1.8628
1522	7605	10.793	1.8674
1523	7610	10.7985	1.8729
1524	7615	10.794	1.8684
1525	7620	10.7986	1.873
1526	7625	10.8016	1.876
1527	7630	10.8009	1.8753
1528	7635	10.797	1.8714
1529	7640	10.8049	1.8793
1530	7645	10.8031	1.8775
1531	7650	10.8018	1.8762
1532	7655	10.8122	1.8866
1533	7660	10.8176	1.892
1534	7665	10.811	1.8854
1535	7670	10.8783	1.9527
1536	7675	10.8151	1.8895
1537	7680	10.8166	1.891
1538	7685	10.8146	1.889
1539	7690	13.197	4.2714
1540	7695	10.8293	1.9037
1541	7700	10.8228	1.8972
1542	7705	10.8237	1.8981
1543	7710	10.8265	1.9009
1544	7715	10.8235	1.8979
1545	7720	10.8222	1.8966
1546	7725	10.8258	1.9002
1547	7730	10.8261	1.9005
1548	7735	10.829	1.9034
1549	7740	10.8325	1.9069
1550	7745	10.8369	1.9113
1551	7750	10.8356	1.91
1552	7755	10.8356	1.91
1553	7760	10.8403	1.9147
1554	7765	10.8415	1.9159
1555	7770	10.8405	1.9149
1556	7775	10.8453	1.9197
1557	7780	10.8453	1.9197
1558	7785	10.8497	1.9241
1559	7790	10.8492	1.9236
1560	7795	10.8513	1.9257
1561	7800	10.8529	1.9273
1562	7805	10.8537	1.9281
1563	7810	10.8579	1.9323
1564	7815	10.8599	1.9343
1565	7820	10.8615	1.9359
1566	7825	10.8622	1.9366
1567	7830	10.8651	1.9395
1568	7835	10.8664	1.9408
1569	7840	10.8679	1.9423

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1570	7845	10.8693	1.9437
1571	7850	10.8711	1.9455
1572	7855	10.8692	1.9436
1573	7860	10.8739	1.9483
1574	7865	10.8761	1.9505
1575	7870	10.877	1.9514
1576	7875	10.8768	1.9512
1577	7880	10.8814	1.9558
1578	7885	10.8822	1.9566
1579	7890	10.8792	1.9536
1580	7895	10.8851	1.9595
1581	7900	10.8832	1.9576
1582	7905	10.8863	1.9607
1583	7910	10.8879	1.9623
1584	7915	10.8874	1.9618
1585	7920	10.8874	1.9618
1586	7925	10.8861	1.9605
1587	7930	10.8895	1.9639
1588	7935	10.8931	1.9675
1589	7940	10.8949	1.9693
1590	7945	10.896	1.9704
1591	7950	10.8982	1.9726
1592	7955	10.8971	1.9715
1593	7960	10.8969	1.9713
1594	7965	10.8993	1.9737
1595	7970	10.902	1.9764
1596	7975	10.8956	1.97
1597	7980	10.9007	1.9751
1598	7985	10.9057	1.9801
1599	7990	10.9006	1.975
1600	7995	10.8999	1.9743
1601	8000	10.9008	1.9752
1602	8005	10.9017	1.9761
1603	8010	10.9052	1.9796
1604	8015	10.9065	1.9809
1605	8020	10.9058	1.9802
1606	8025	10.9066	1.981
1607	8030	10.9072	1.9816
1608	8035	10.9061	1.9805
1609	8040	10.9077	1.9821
1610	8045	10.9082	1.9826
1611	8050	10.9075	1.9819
1612	8055	10.9068	1.9812
1613	8060	10.9044	1.9788
1614	8065	10.9068	1.9812
1615	8070	10.906	1.9804
1616	8075	10.9051	1.9795
1617	8080	10.9064	1.9808
1618	8085	10.9141	1.9885
1619	8090	10.9168	1.9912
1620	8095	10.9124	1.9868
1621	8100	10.9138	1.9882
1622	8105	10.9109	1.9853
1623	8110	10.9146	1.989
1624	8115	10.9135	1.9879
1625	8120	10.9177	1.9921
1626	8125	10.9201	1.9945
1627	8130	10.9134	1.9878
1628	8135	10.9133	1.9877
1629	8140	10.9134	1.9878
1630	8145	10.9576	2.032
1631	8150	10.9062	1.9806
1632	8155	10.905	1.9794

	Time [min]	Water Level [ft]	Drawdown [ft]
1633	8160	10.9018	1.9762
1634	8165	10.9019	1.9763
1635	8170	10.9039	1.9783
1636	8175	10.9038	1.9782
1637	8180	10.9027	1.9771
1638	8185	10.9039	1.9783
1639	8190	10.9097	1.9841
1640	8195	10.8997	1.9741
1641	8200	10.9033	1.9777
1642	8205	10.9001	1.9745
1643	8210	10.898	1.9724
1644	8215	10.897	1.9714
1645	8220	10.8932	1.9676
1646	8225	10.8878	1.9622
1647	8230	10.8843	1.9587
1648	8235	10.8824	1.9568
1649	8240	10.8821	1.9565
1650	8245	10.88	1.9544
1651	8250	10.884	1.9584
1652	8255	10.8807	1.9551
1653	8260	10.8846	1.959
1654	8265	10.8847	1.9591
1655	8270	10.887	1.9614
1656	8275	10.8903	1.9647
1657	8280	10.8868	1.9612
1658	8285	10.8886	1.963
1659	8290	10.887	1.9614
1660	8295	10.8903	1.9647
1661	8300	10.8934	1.9678
1662	8305	10.8931	1.9675
1663	8310	10.8878	1.9622
1664	8315	10.882	1.9564
1665	8320	10.8868	1.9612
1666	8325	10.8843	1.9587
1667	8330	10.886	1.9604
1668	8335	10.8868	1.9612
1669	8340	10.8869	1.9613
1670	8345	10.8879	1.9623
1671	8350	10.8887	1.9631
1672	8355	10.8963	1.9707
1673	8360	10.8928	1.9672
1674	8365	10.9089	1.9833
1675	8370	10.8945	1.9689
1676	8375	10.8826	1.957
1677	8380	10.8929	1.9673
1678	8385	10.8937	1.9681
1679	8390	10.8982	1.9726
1680	8395	10.9014	1.9758
1681	8400	10.9025	1.9769
1682	8405	10.895	1.9694
1683	8410	10.8869	1.9613
1684	8415	10.892	1.9664
1685	8420	10.8875	1.9619
1686	8425	10.8965	1.9709
1687	8430	10.8966	1.971
1688	8435	10.8921	1.9665
1689	8440	10.8894	1.9638
1690	8445	10.8952	1.9696
1691	8450	10.8891	1.9635
1692	8455	10.895	1.9694
1693	8460	10.9041	1.9785
1694	8465	10.8952	1.9696
1695	8470	10.8993	1.9737

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1696	8475	10.8987	1.9731
1697	8480	10.897	1.9714
1698	8485	10.8995	1.9739
1699	8490	10.8982	1.9726
1700	8495	10.896	1.9704
1701	8500	10.9039	1.9783
1702	8505	10.8998	1.9742
1703	8510	10.9006	1.975
1704	8515	10.9016	1.976
1705	8520	10.9023	1.9767
1706	8525	10.8989	1.9733
1707	8530	10.8978	1.9722
1708	8535	10.8976	1.972
1709	8540	10.8951	1.9695
1710	8545	10.8939	1.9683
1711	8550	10.8929	1.9673
1712	8555	10.8908	1.9652
1713	8560	10.8968	1.9712
1714	8565	10.8949	1.9693
1715	8570	10.8968	1.9712
1716	8575	10.8979	1.9723
1717	8580	10.8944	1.9688
1718	8585	10.893	1.9674
1719	8590	10.8925	1.9669
1720	8595	10.8932	1.9676
1721	8600	10.8995	1.9739
1722	8605	10.8955	1.9699
1723	8610	10.8931	1.9675
1724	8615	10.8999	1.9743
1725	8620	10.8988	1.9732
1726	8625	10.893	1.9674
1727	8630	10.8949	1.9693
1728	8635	10.8956	1.97
1729	8640	10.893	1.9674
1730	8645	10.9001	1.9745
1731	8650	10.8975	1.9719
1732	8655	10.8942	1.9686
1733	8660	10.8979	1.9723
1734	8665	10.8952	1.9696
1735	8670	10.8949	1.9693
1736	8675	10.8941	1.9685
1737	8680	10.8981	1.9725
1738	8685	10.9011	1.9755
1739	8690	10.9023	1.9767
1740	8695	10.9014	1.9758
1741	8700	10.9011	1.9755
1742	8705	10.8997	1.9741
1743	8710	10.8998	1.9742
1744	8715	10.90	1.9744
1745	8720	10.9015	1.9759
1746	8725	10.8966	1.971
1747	8730	10.9007	1.9751
1748	8735	10.8994	1.9738
1749	8740	10.9033	1.9777
1750	8745	10.9002	1.9746
1751	8750	10.9032	1.9776
1752	8755	10.8978	1.9722
1753	8760	10.9039	1.9783
1754	8765	10.9032	1.9776
1755	8770	10.9028	1.9772
1756	8775	10.9009	1.9753
1757	8780	10.9022	1.9766
1758	8785	10.9006	1.975

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1759	8790	10.9072	1.9816
1760	8795	10.9048	1.9792
1761	8800	10.9086	1.983
1762	8805	10.9047	1.9791
1763	8810	10.9108	1.9852
1764	8815	10.911	1.9854
1765	8820	10.9115	1.9859
1766	8825	10.9111	1.9855
1767	8830	10.9147	1.9891
1768	8835	10.912	1.9864
1769	8840	10.911	1.9854
1770	8845	10.9119	1.9863
1771	8850	10.9124	1.9868
1772	8855	10.9096	1.984
1773	8860	10.9149	1.9893
1774	8865	10.9116	1.986
1775	8870	10.9144	1.9888
1776	8875	10.9192	1.9936
1777	8880	10.915	1.9894
1778	8885	10.9168	1.9912
1779	8890	10.9149	1.9893
1780	8895	10.9174	1.9918
1781	8900	10.9184	1.9928
1782	8905	10.9187	1.9931
1783	8910	10.9205	1.9949
1784	8915	10.9184	1.9928
1785	8920	10.9196	1.994
1786	8925	10.9195	1.9939
1787	8930	10.9188	1.9932
1788	8935	10.924	1.9984
1789	8940	10.9189	1.9933
1790	8945	10.92	1.9944
1791	8950	13.7241	4.7985
1792	8955	10.9415	2.0159
1793	8960	10.9265	2.0009
1794	8965	10.9281	2.0025
1795	8970	10.9258	2.0002
1796	8975	10.93	2.0044
1797	8980	10.9339	2.0083
1798	8985	10.9306	2.005
1799	8990	10.9297	2.0041
1800	8995	10.9293	2.0037
1801	9000	10.9288	2.0032
1802	9005	10.9262	2.0006
1803	9010	10.9289	2.0033
1804	9015	10.93	2.0044
1805	9020	10.9272	2.0016
1806	9025	10.9289	2.0033
1807	9030	10.9284	2.0028
1808	9035	10.9289	2.0033
1809	9040	10.925	1.9994
1810	9045	10.9256	2.00
1811	9050	10.9272	2.0016
1812	9055	10.927	2.0014
1813	9060	10.9237	1.9981
1814	9065	10.9234	1.9978
1815	9070	10.9265	2.0009
1816	9075	10.9225	1.9969
1817	9080	10.9237	1.9981
1818	9085	10.9227	1.9971
1819	9090	10.921	1.9954
1820	9095	13.489	4.5634
1821	9100	10.924	1.9984

	Time [min]	Water Level [ft]	Drawdown [ft]
1822	9105	10.9212	1.9956
1823	9110	10.9232	1.9976
1824	9115	10.9226	1.997
1825	9120	10.9229	1.9973
1826	9125	10.92	1.9944
1827	9130	10.9227	1.9971
1828	9135	10.9218	1.9962
1829	9140	10.9194	1.9938
1830	9145	10.9218	1.9962
1831	9150	10.9195	1.9939
1832	9155	10.9187	1.9931
1833	9160	10.9206	1.995
1834	9165	10.9191	1.9935
1835	9170	10.9198	1.9942
1836	9175	10.9239	1.9983
1837	9180	10.919	1.9934
1838	9185	10.9216	1.996
1839	9190	10.9218	1.9962
1840	9195	10.9203	1.9947
1841	9200	10.9203	1.9947
1842	9205	10.9235	1.9979
1843	9210	10.9218	1.9962
1844	9215	10.9241	1.9985
1845	9220	10.9199	1.9943
1846	9225	10.9189	1.9933
1847	9230	10.9203	1.9947
1848	9235	10.9205	1.9949
1849	9240	10.9223	1.9967
1850	9245	10.9208	1.9952
1851	9250	10.9212	1.9956
1852	9255	10.9224	1.9968
1853	9260	10.9241	1.9985
1854	9265	10.9254	1.9998
1855	9270	10.9214	1.9958
1856	9275	10.9223	1.9967
1857	9280	10.9213	1.9957
1858	9285	10.9213	1.9957
1859	9290	10.9225	1.9969
1860	9295	10.9248	1.9992
1861	9300	10.925	1.9994
1862	9305	10.9261	2.0005
1863	9310	10.9248	1.9992
1864	9315	10.9276	2.002
1865	9320	10.9261	2.0005
1866	9325	10.9275	2.0019
1867	9330	10.9261	2.0005
1868	9335	10.9248	1.9992
1869	9340	10.9279	2.0023
1870	9345	10.9284	2.0028
1871	9350	10.928	2.0024
1872	9355	10.9279	2.0023
1873	9360	10.931	2.0054
1874	9365	10.9265	2.0009
1875	9370	10.9287	2.0031
1876	9375	10.929	2.0034
1877	9380	10.9275	2.0019
1878	9385	10.9256	2.00
1879	9390	10.9282	2.0026
1880	9395	10.9299	2.0043
1881	9400	10.9272	2.0016
1882	9405	10.9263	2.0007
1883	9410	10.925	1.9994
1884	9415	10.9221	1.9965

	Time [min]	Water Level [ft]	Drawdown [ft]
1885	9420	10.9258	2.0002
1886	9425	10.9222	1.9966
1887	9430	10.923	1.9974
1888	9435	10.9207	1.9951
1889	9440	10.922	1.9964
1890	9445	10.9221	1.9965
1891	9450	10.9193	1.9937
1892	9455	10.9191	1.9935
1893	9460	10.9169	1.9913
1894	9465	10.9182	1.9926
1895	9470	10.9181	1.9925
1896	9475	10.9207	1.9951
1897	9480	10.9198	1.9942
1898	9485	10.9184	1.9928
1899	9490	10.9177	1.9921
1900	9495	10.918	1.9924
1901	9500	10.9172	1.9916
1902	9505	10.9157	1.9901
1903	9510	10.9161	1.9905
1904	9515	10.9149	1.9893
1905	9520	10.9145	1.9889
1906	9525	10.9122	1.9866
1907	9530	10.908	1.9824
1908	9535	10.9098	1.9842
1909	9540	10.9099	1.9843
1910	9545	10.9051	1.9795
1911	9550	10.9064	1.9808
1912	9555	10.9032	1.9776
1913	9560	10.9011	1.9755
1914	9565	10.9016	1.976
1915	9570	10.8989	1.9733
1916	9575	10.9013	1.9757
1917	9580	10.8977	1.9721
1918	9585	10.8968	1.9712
1919	9590	10.8935	1.9679
1920	9595	10.8923	1.9667
1921	9600	10.8863	1.9607
1922	9605	10.888	1.9624
1923	9610	10.8904	1.9648
1924	9615	10.8894	1.9638
1925	9620	10.8845	1.9589
1926	9625	14.2482	5.3226
1927	9630	12.4417	3.5161
1928	9635	11.2799	2.3543
1929	9640	10.8812	1.9556
1930	9645	10.8781	1.9525
1931	9650	10.8794	1.9538
1932	9655	10.8751	1.9495
1933	9660	10.8725	1.9469
1934	9665	10.8729	1.9473
1935	9670	10.8725	1.9469
1936	9675	10.8699	1.9443
1937	9680	10.8691	1.9435
1938	9685	10.8695	1.9439
1939	9690	10.868	1.9424
1940	9695	10.8677	1.9421
1941	9700	10.8664	1.9408
1942	9705	10.8682	1.9426
1943	9710	10.8639	1.9383
1944	9715	10.8637	1.9381
1945	9720	10.8606	1.935
1946	9725	10.8596	1.934
1947	9730	10.8599	1.9343

Friesen Drillers Ltd.
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Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
1948	9735	10.8599	1.9343
1949	9740	10.8563	1.9307
1950	9745	10.855	1.9294
1951	9750	10.8564	1.9308
1952	9755	10.8537	1.9281
1953	9760	10.8508	1.9252
1954	9765	10.8497	1.9241
1955	9770	10.8539	1.9283
1956	9775	10.8515	1.9259
1957	9780	10.851	1.9254
1958	9785	10.8482	1.9226
1959	9790	10.848	1.9224
1960	9795	10.8476	1.922
1961	9800	10.8464	1.9208
1962	9805	10.8465	1.9209
1963	9810	10.8443	1.9187
1964	9815	10.8459	1.9203
1965	9820	10.8459	1.9203
1966	9825	10.8423	1.9167
1967	9830	10.8404	1.9148
1968	9835	10.8406	1.915
1969	9840	10.8387	1.9131
1970	9845	10.8393	1.9137
1971	9850	10.8352	1.9096
1972	9855	10.835	1.9094
1973	9860	10.8369	1.9113
1974	9865	10.8354	1.9098
1975	9870	10.8383	1.9127
1976	9875	10.8362	1.9106
1977	9880	10.8391	1.9135
1978	9885	10.8349	1.9093
1979	9890	10.8334	1.9078
1980	9895	10.8352	1.9096
1981	9900	10.8334	1.9078
1982	9905	10.8361	1.9105
1983	9910	10.8356	1.91
1984	9915	10.8357	1.9101
1985	9920	10.8374	1.9118
1986	9925	10.8352	1.9096
1987	9930	10.8356	1.91
1988	9935	10.8345	1.9089
1989	9940	10.8323	1.9067
1990	9945	10.8352	1.9096
1991	9950	10.8349	1.9093
1992	9955	10.837	1.9114
1993	9960	10.8345	1.9089
1994	9965	10.8372	1.9116
1995	9970	10.8348	1.9092
1996	9975	10.8345	1.9089
1997	9980	10.8373	1.9117
1998	9985	10.833	1.9074
1999	9990	10.8336	1.908
2000	9995	10.837	1.9114
2001	10000	10.8423	1.9167
2002	10005	10.8419	1.9163
2003	10010	10.8413	1.9157
2004	10015	10.8415	1.9159
2005	10020	10.8426	1.917
2006	10025	10.8423	1.9167
2007	10030	10.8407	1.9151
2008	10035	10.8442	1.9186
2009	10040	10.8452	1.9196
2010	10045	10.8455	1.9199

Friesen Drillers Ltd.
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Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2011	10050	10.8441	1.9185
2012	10055	10.8482	1.9226
2013	10060	10.8464	1.9208
2014	10065	10.844	1.9184
2015	10070	10.8464	1.9208
2016	10075	10.846	1.9204
2017	10080	10.8474	1.9218
2018	10085	10.8501	1.9245
2019	10090	10.8465	1.9209
2020	10095	10.8426	1.917
2021	10100	10.846	1.9204
2022	10105	10.8378	1.9122
2023	10110	10.8335	1.9079
2024	10115	10.8285	1.9029
2025	10120	10.8222	1.8966
2026	10125	10.8195	1.8939
2027	10130	10.8086	1.883
2028	10135	10.8064	1.8808
2029	10140	10.7964	1.8708
2030	10145	10.7902	1.8646
2031	10150	10.7821	1.8565
2032	10155	10.7735	1.8479
2033	10160	10.7636	1.838
2034	10165	10.7569	1.8313
2035	10170	10.7491	1.8235
2036	10175	10.745	1.8194
2037	10180	10.7355	1.8099
2038	10185	10.7263	1.8007
2039	10190	10.7203	1.7947
2040	10195	10.7149	1.7893
2041	10200	10.7046	1.779
2042	10205	10.6951	1.7695
2043	10210	10.6843	1.7587
2044	10215	10.6811	1.7555
2045	10220	10.6731	1.7475
2046	10225	10.6662	1.7406
2047	10230	10.6578	1.7322
2048	10235	10.65	1.7244
2049	10240	10.6415	1.7159
2050	10245	10.6347	1.7091
2051	10250	10.63	1.7044
2052	10255	10.6245	1.6989
2053	10260	10.6138	1.6882
2054	10265	10.6018	1.6762
2055	10270	10.5974	1.6718
2056	10275	10.5924	1.6668
2057	10280	10.5825	1.6569
2058	10285	10.5771	1.6515
2059	10290	10.5683	1.6427
2060	10295	10.5676	1.642
2061	10300	10.556	1.6304
2062	10305	10.5499	1.6243
2063	10310	10.5422	1.6166
2064	10315	10.5358	1.6102
2065	10320	10.526	1.6004
2066	10325	10.7352	1.8096
2067	10330	10.5124	1.5868
2068	10335	10.5058	1.5802
2069	10340	10.5012	1.5756
2070	10345	10.4955	1.5699
2071	10350	10.4849	1.5593
2072	10355	10.9983	2.0727
2073	10360	10.473	1.5474

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2074	10365	10.4676	1.542
2075	10370	10.4598	1.5342
2076	10375	10.4528	1.5272
2077	10380	10.4502	1.5246
2078	10385	10.4424	1.5168
2079	10390	10.432	1.5064
2080	10395	10.4287	1.5031
2081	10400	10.4224	1.4968
2082	10405	10.4136	1.488
2083	10410	10.4083	1.4827
2084	10415	10.4041	1.4785
2085	10420	10.3991	1.4735
2086	10425	10.3956	1.47
2087	10430	10.3885	1.4629
2088	10435	10.3807	1.4551
2089	10440	10.3731	1.4475
2090	10445	10.3689	1.4433
2091	10450	10.3631	1.4375
2092	10455	10.3577	1.4321
2093	10460	10.3486	1.423
2094	10465	10.345	1.4194
2095	10470	10.3389	1.4133
2096	10475	10.3337	1.4081
2097	10480	10.328	1.4024
2098	10485	10.3207	1.3951
2099	10490	10.3154	1.3898
2100	10495	10.3099	1.3843
2101	10500	10.3035	1.3779
2102	10505	10.3038	1.3782
2103	10510	10.2947	1.3691
2104	10515	10.288	1.3624
2105	10520	10.2824	1.3568
2106	10525	10.277	1.3514
2107	10530	10.2721	1.3465
2108	10535	10.2717	1.3461
2109	10540	10.2622	1.3366
2110	10545	10.259	1.3334
2111	10550	10.2572	1.3316
2112	10555	10.2539	1.3283
2113	10560	10.2482	1.3226
2114	10565	10.2449	1.3193
2115	10570	10.2354	1.3098
2116	10575	10.2329	1.3073
2117	10580	10.2282	1.3026
2118	10585	10.2204	1.2948
2119	10590	10.2173	1.2917
2120	10595	10.2116	1.286
2121	10600	10.21	1.2844
2122	10605	10.2039	1.2783
2123	10610	10.1969	1.2713
2124	10615	10.1946	1.269
2125	10620	10.1909	1.2653
2126	10625	10.1848	1.2592
2127	10630	10.1819	1.2563
2128	10635	13.5083	4.5827
2129	10640	10.1752	1.2496
2130	10645	10.1656	1.24
2131	10650	10.165	1.2394
2132	10655	10.1616	1.236
2133	10660	10.1569	1.2313
2134	10665	10.1525	1.2269
2135	10670	10.1484	1.2228
2136	10675	10.1449	1.2193

	Time [min]	Water Level [ft]	Drawdown [ft]
2137	10680	10.1427	1.2171
2138	10685	10.1379	1.2123
2139	10690	10.1336	1.208
2140	10695	10.129	1.2034
2141	10700	10.119	1.1934
2142	10705	10.1141	1.1885
2143	10710	10.1085	1.1829
2144	10715	10.1056	1.18
2145	10720	10.101	1.1754
2146	10725	10.0977	1.1721
2147	10730	10.0951	1.1695
2148	10735	10.0896	1.164
2149	10740	10.0868	1.1612
2150	10745	10.0809	1.1553
2151	10750	10.0786	1.153
2152	10755	10.0737	1.1481
2153	10760	10.0704	1.1448
2154	10765	10.0672	1.1416
2155	10770	10.0618	1.1362
2156	10775	10.0557	1.1301
2157	10780	10.0547	1.1291
2158	10785	10.0468	1.1212
2159	10790	10.0447	1.1191
2160	10795	10.0423	1.1167
2161	10800	10.0373	1.1117
2162	10805	10.0331	1.1075
2163	10810	10.0312	1.1056
2164	10815	10.0255	1.0999
2165	10820	10.0224	1.0968
2166	10825	10.0182	1.0926
2167	10830	10.0149	1.0893
2168	10835	10.0088	1.0832
2169	10840	10.0074	1.0818
2170	10845	10.0062	1.0806
2171	10850	9.9995	1.0739
2172	10855	9.9941	1.0685
2173	10860	9.9894	1.0638
2174	10865	9.9862	1.0606
2175	10870	9.983	1.0574
2176	10875	9.9798	1.0542
2177	10880	14.0367	5.1111
2178	10885	9.9733	1.0477
2179	10890	9.9743	1.0487
2180	10895	9.9673	1.0417
2181	10900	9.9616	1.036
2182	10905	9.9774	1.0518
2183	10910	9.9581	1.0325
2184	10915	12.4754	3.5498
2185	10920	9.9494	1.0238
2186	10925	9.9453	1.0197
2187	10930	9.9407	1.0151
2188	10935	9.9368	1.0112
2189	10940	9.9372	1.0116
2190	10945	9.9311	1.0055
2191	10950	9.9296	1.004
2192	10955	9.9257	1.0001
2193	10960	9.9267	1.0011
2194	10965	9.9173	0.9917
2195	10970	9.9147	0.9891
2196	10975	9.9118	0.9862
2197	10980	9.9097	0.9841
2198	10985	9.9032	0.9776
2199	10990	9.9038	0.9782

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2200	10995	9.8988	0.9732
2201	11000	9.8955	0.9699
2202	11005	9.8939	0.9683
2203	11010	9.8867	0.9611
2204	11015	9.8822	0.9566
2205	11020	9.8809	0.9553
2206	11025	9.8808	0.9552
2207	11030	9.872	0.9464
2208	11035	9.8702	0.9446
2209	11040	9.8661	0.9405
2210	11045	9.8622	0.9366
2211	11050	12.8952	3.9696
2212	11055	9.8565	0.9309
2213	11060	9.8527	0.9271
2214	11065	9.8494	0.9238
2215	11070	11.904	2.9784
2216	11075	9.8459	0.9203
2217	11080	9.8412	0.9156
2218	11085	9.841	0.9154
2219	11090	9.8358	0.9102
2220	11095	9.8308	0.9052
2221	11100	9.8267	0.9011
2222	11105	9.8233	0.8977
2223	11110	9.8172	0.8916
2224	11115	9.8159	0.8903
2225	11120	9.8114	0.8858
2226	11125	9.8085	0.8829
2227	11130	9.8072	0.8816
2228	11135	9.8026	0.877
2229	11140	9.8011	0.8755
2230	11145	9.7956	0.87
2231	11150	9.7942	0.8686
2232	11155	9.7938	0.8682
2233	11160	9.7899	0.8643
2234	11165	9.7895	0.8639
2235	11170	9.7814	0.8558
2236	11175	9.7757	0.8501
2237	11180	9.7752	0.8496
2238	11185	9.7718	0.8462
2239	11190	9.7684	0.8428
2240	11195	9.766	0.8404
2241	11200	9.7627	0.8371
2242	11205	9.7589	0.8333
2243	11210	9.7583	0.8327
2244	11215	9.7552	0.8296
2245	11220	9.7507	0.8251
2246	11225	9.9732	1.0476
2247	11230	9.7472	0.8216
2248	11235	9.7439	0.8183
2249	11240	9.7393	0.8137
2250	11245	9.736	0.8104
2251	11250	9.7355	0.8099
2252	11255	9.7303	0.8047
2253	11260	9.7298	0.8042
2254	11265	9.7259	0.8003
2255	11270	9.7236	0.798
2256	11275	9.7213	0.7957
2257	11280	9.7185	0.7929
2258	11285	9.7158	0.7902
2259	11290	9.7148	0.7892
2260	11295	9.7147	0.7891
2261	11300	9.714	0.7884
2262	11305	9.7138	0.7882

Friesen Drillers Ltd.
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Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2263	11310	9.7048	0.7792
2264	11315	9.7024	0.7768
2265	11320	9.702	0.7764
2266	11325	9.6998	0.7742
2267	11330	9.7009	0.7753
2268	11335	9.7015	0.7759
2269	11340	9.694	0.7684
2270	11345	9.6918	0.7662
2271	11350	9.6904	0.7648
2272	11355	9.6889	0.7633
2273	11360	9.688	0.7624
2274	11365	9.6872	0.7616
2275	11370	9.6834	0.7578
2276	11375	9.6812	0.7556
2277	11380	9.6813	0.7557
2278	11385	9.6813	0.7557
2279	11390	9.6787	0.7531
2280	11395	9.6736	0.748
2281	11400	9.6769	0.7513
2282	11405	9.6715	0.7459
2283	11410	9.6726	0.747
2284	11415	12.9249	3.9993
2285	11420	9.6685	0.7429
2286	11425	9.6691	0.7435
2287	11430	9.6681	0.7425
2288	11435	9.6676	0.742
2289	11440	9.6639	0.7383
2290	11445	9.6667	0.7411
2291	11450	9.6646	0.739
2292	11455	9.6646	0.739
2293	11460	9.6617	0.7361
2294	11465	9.6635	0.7379
2295	11470	9.6605	0.7349
2296	11475	9.6596	0.734
2297	11480	9.6582	0.7326
2298	11485	9.6587	0.7331
2299	11490	9.6558	0.7302
2300	11495	9.6579	0.7323
2301	11500	9.6561	0.7305
2302	11505	9.6518	0.7262
2303	11510	9.6532	0.7276
2304	11515	9.6535	0.7279
2305	11520	9.6493	0.7237
2306	11525	9.6498	0.7242
2307	11530	9.648	0.7224
2308	11535	9.6483	0.7227
2309	11540	9.6464	0.7208
2310	11545	9.645	0.7194
2311	11550	9.6451	0.7195
2312	11555	9.6473	0.7217
2313	11560	9.6446	0.719
2314	11565	9.6424	0.7168
2315	11570	9.6434	0.7178
2316	11575	9.644	0.7184
2317	11580	9.6418	0.7162
2318	11585	9.6404	0.7148
2319	11590	9.6425	0.7169
2320	11595	9.6407	0.7151
2321	11600	9.6384	0.7128
2322	11605	9.6408	0.7152
2323	11610	9.6414	0.7158
2324	11615	9.6414	0.7158
2325	11620	9.6382	0.7126

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2326	11625	9.642	0.7164
2327	11630	9.6367	0.7111
2328	11635	9.6394	0.7138
2329	11640	9.6337	0.7081
2330	11645	9.6349	0.7093
2331	11650	9.6327	0.7071
2332	11655	9.6345	0.7089
2333	11660	9.6314	0.7058
2334	11665	9.6302	0.7046
2335	11670	9.6302	0.7046
2336	11675	9.6313	0.7057
2337	11680	13.3714	4.4458
2338	11685	9.6304	0.7048
2339	11690	9.627	0.7014
2340	11695	9.6292	0.7036
2341	11700	9.6289	0.7033
2342	11705	9.6293	0.7037
2343	11710	9.6262	0.7006
2344	11715	9.6239	0.6983
2345	11720	9.6247	0.6991
2346	11725	9.623	0.6974
2347	11730	9.6233	0.6977
2348	11735	9.6233	0.6977
2349	11740	9.62	0.6944
2350	11745	9.6185	0.6929
2351	11750	9.6188	0.6932
2352	11755	9.6212	0.6956
2353	11760	9.6191	0.6935
2354	11765	9.6139	0.6883
2355	11770	9.6161	0.6905
2356	11775	9.6131	0.6875
2357	11780	9.6106	0.685
2358	11785	12.1175	3.1919
2359	11790	9.6123	0.6867
2360	11795	9.6098	0.6842
2361	11800	9.6111	0.6855
2362	11805	9.6108	0.6852
2363	11810	12.6665	3.7409
2364	11815	13.5046	4.579
2365	11820	9.6062	0.6806
2366	11825	9.6055	0.6799
2367	11830	9.6041	0.6785
2368	11835	9.6017	0.6761
2369	11840	9.6764	0.7508
2370	11845	9.6066	0.681
2371	11850	9.611	0.6854
2372	11855	12.6713	3.7457
2373	11860	9.6014	0.6758
2374	11865	10.7492	1.8236
2375	11870	9.60	0.6744
2376	11875	9.5965	0.6709
2377	11880	9.594	0.6684
2378	11885	9.591	0.6654
2379	11890	9.5911	0.6655
2380	11895	9.5903	0.6647
2381	11900	9.5885	0.6629
2382	11905	9.5879	0.6623
2383	11910	9.5879	0.6623
2384	11915	9.5874	0.6618
2385	11920	9.588	0.6624
2386	11925	9.5895	0.6639
2387	11930	9.5818	0.6562
2388	11935	9.5835	0.6579

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, MB R5G 1T8

Pumping Test - Water Level Data

Project: OBS-853

Number: 2014-078-11472

Client: City of Selkirk/MWSB

	Time [min]	Water Level [ft]	Drawdown [ft]
2389	11940	9.5814	0.6558
2390	11945	9.5806	0.655
2391	11950	9.5799	0.6543
2392	11955	9.579	0.6534
2393	11960	9.5753	0.6497
2394	11965	9.5737	0.6481
2395	11970	9.5756	0.65
2396	11975	9.5751	0.6495
2397	11980	9.5707	0.6451
2398	11985	9.5686	0.643
2399	11990	9.5721	0.6465
2400	11995	9.5711	0.6455
2401	12000	9.5683	0.6427
2402	12005	9.5663	0.6407
2403	12010	9.5663	0.6407
2404	12015	9.5682	0.6426
2405	12020	9.5625	0.6369
2406	12025	9.5607	0.6351
2407	12030	9.5632	0.6376
2408	12035	9.5623	0.6367
2409	12040	9.5623	0.6367
2410	12045	9.5615	0.6359
2411	12050	9.5604	0.6348
2412	12055	9.5602	0.6346
2413	12060	9.557	0.6314
2414	12065	9.5545	0.6289
2415	12070	9.5612	0.6356
2416	12075	9.556	0.6304
2417	12080	9.554	0.6284
2418	12085	9.5557	0.6301
2419	12090	9.5537	0.6281
2420	12095	9.5545	0.6289
2421	12100	9.55	0.6244
2422	12105	9.5485	0.6229
2423	12110	9.5476	0.622
2424	12115	9.548	0.6224
2425	12120	9.5472	0.6216
2426	12125	9.5426	0.617
2427	12130	9.5434	0.6178
2428	12135	9.5466	0.621
2429	12140	9.5459	0.6203
2430	12145	9.543	0.6174

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, MB R5G 1T8	**Pumping Test - Discharge Data** Page 1 of 1
	Project: OBS-853
	Number: 2014-078-11472
	Client: City of Selkirk/MWSB

Location: NE14-14-4EPM - RM of St. Andrews	Pumping Test: Pumping Test 1	Pumping Well: North Supply Well
Test Conducted by: Ashley Friesen	Test Date: 9/21/2015	Discharge: variable, average rate 795 [U.S. gal/
Observation Well: North Supply Well		Radial Distance to PW [ft]: -

	Time [min]	Discharge [U.S. gal/min]
1	0	0.00
2	10080	795.00
3	12960	0.00

Appendix M

Geochemistry Data

FRIESEN DRILLERS LTD
ATTN: JEFF BELL
307 PTH 12 N
STEINBACH MB R5G 1L9

Date Received: 24-SEP-15
Report Date: 19-NOV-15 11:03 (MT)
Version: FINAL

Client Phone: 204-326-2485

Certificate of Analysis

Lab Work Order #: L1677769

Project P.O. #: NOT SUBMITTED
Job Reference: CITY OF SELKIRK
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1677769-1 DAY 1							
Sampled By: CLIENT on 22-SEP-15 @ 13:30							
Matrix: Water							
Miscellaneous Parameters							
Special Request	See Attached					19-NOV-15	R3314016
ROU4W total							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	603		1.2	mg/L		30-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		30-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		30-SEP-15	
Chloride in Water by IC							
Chloride (Cl)	58.7		0.50	mg/L		24-SEP-15	R3279196
Conductivity							
Conductivity	1180		1.0	umhos/cm		29-SEP-15	R3279438
Fluoride in Water by IC							
Fluoride (F)	0.296		0.020	mg/L		24-SEP-15	R3279196
Hardness Calculated							
Hardness (as CaCO3)	615		0.30	mg/L		29-SEP-15	
Nitrate in Water by IC							
Nitrate (as N)	0.082		0.020	mg/L		24-SEP-15	R3279196
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.082		0.070	mg/L		30-SEP-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		24-SEP-15	R3279196
Sulfate in Water by IC							
Sulfate (SO4)	123		0.30	mg/L		24-SEP-15	R3279196
TDS calculated							
TDS (Calculated)	739		5.0	mg/L		30-SEP-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	495		1.0	mg/L		29-SEP-15	R3279438
Total Metals by ICP-MS							
Calcium (Ca)-Total	86.8		0.20	mg/L	28-SEP-15	28-SEP-15	R3278270
Iron (Fe)-Total	<0.10		0.10	mg/L	28-SEP-15	28-SEP-15	R3278270
Magnesium (Mg)-Total	96.7		0.050	mg/L	28-SEP-15	28-SEP-15	R3278270
Manganese (Mn)-Total	0.0117		0.0010	mg/L	28-SEP-15	28-SEP-15	R3278270
Potassium (K)-Total	5.85		0.10	mg/L	28-SEP-15	28-SEP-15	R3278270
Sodium (Na)-Total	71.6		0.050	mg/L	28-SEP-15	28-SEP-15	R3278270
Turbidity							
Turbidity	0.71		0.10	NTU		24-SEP-15	R3278280
pH							
pH	7.97		0.10	pH units		29-SEP-15	R3279438
L1677769-2 DAY 2							
Sampled By: CLIENT on 23-SEP-15 @ 13:30							
Matrix: Water							
Miscellaneous Parameters							
Special Request	See Attached					19-NOV-15	R3314016
ROU4W total							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	608		1.2	mg/L		30-SEP-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		30-SEP-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		30-SEP-15	
Chloride in Water by IC							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1677769-2 DAY 2							
Sampled By: CLIENT on 23-SEP-15 @ 13:30							
Matrix: Water							
Chloride in Water by IC							
Chloride (Cl)	60.5		1.0	mg/L		08-OCT-15	R3288226
Conductivity							
Conductivity	1160		1.0	umhos/cm		29-SEP-15	R3279438
Fluoride in Water by IC							
Fluoride (F)	0.216		0.040	mg/L		08-OCT-15	R3288226
Hardness Calculated							
Hardness (as CaCO3)	607		0.30	mg/L		29-SEP-15	
Nitrate in Water by IC							
Nitrate (as N)	0.117		0.040	mg/L		08-OCT-15	R3288226
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.117		0.070	mg/L		13-OCT-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.020	DLM	0.020	mg/L		08-OCT-15	R3288226
Sulfate in Water by IC							
Sulfate (SO4)	128		0.60	mg/L		08-OCT-15	R3288226
TDS calculated							
TDS (Calculated)	742		5.0	mg/L		30-SEP-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	498		1.0	mg/L		29-SEP-15	R3279438
Total Metals by ICP-MS							
Calcium (Ca)-Total	81.5		0.20	mg/L	28-SEP-15	28-SEP-15	R3278270
Iron (Fe)-Total	<0.10		0.10	mg/L	28-SEP-15	28-SEP-15	R3278270
Magnesium (Mg)-Total	98.1		0.050	mg/L	28-SEP-15	28-SEP-15	R3278270
Manganese (Mn)-Total	0.0109		0.0010	mg/L	28-SEP-15	28-SEP-15	R3278270
Potassium (K)-Total	5.71		0.10	mg/L	28-SEP-15	28-SEP-15	R3278270
Sodium (Na)-Total	69.5		0.050	mg/L	28-SEP-15	28-SEP-15	R3278270
Turbidity							
Turbidity	0.36		0.10	NTU		24-SEP-15	R3278280
pH							
pH	7.84		0.10	pH units		29-SEP-15	R3279438

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
LPML	Lab-Preserved for Total Metals. Sample received with pH > 2 and preserved at the lab. Total Metals results may be biased low.

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-WP	Water	Total Alkalinity as CaCO3	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

ALS Test Code	Matrix	Test Description	Method Reference**
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-T

This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

ALS Test Code	Matrix	Test Description	Method Reference**
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
PH-WP	Water	pH	APHA 4500H

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SPECIAL REQUEST-UW	Misc.	Special Request University of Waterloo	SEE SUBLET LAB RESULTS
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)

Turbidity in aqueous matrices is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
UW	UNIVERSITY OF WATERLOO
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Client: Dalmaijer
ALS Laboratories
Work Order #: L1677769

ISO# 2015441
Location:
2 for 18O, 2H, E3H

Environmental Isotope Lab
11/19/2015

#	Sample	Lab#	$\delta^{18}O$	Result	Repeat	$\delta^{2}H$	Result	Repeat	E3H	Result	± 1σ	Repeat	± 1σ
			H_2O	VSMOW	± 0.2‰	H_2O	VSMOW	± 0.8‰		± 0.8 T.U.		± 0.8 T.U.	
1	L1677769-1	352619	X	-13.29		X	-100.75		X	5.8	0.6		
2	L1677769-2	352620	X	-13.08	-13.31	X	-100.41	-100.64	X	5.5	0.5		

pH	Conductivity
7.97	1180
7.84	1160

AZD

18O/2H Results from LGR Laser

Tritium is reported in Tritium Units.
1TU = 3.221 Picocurries/L per IAEA, 2000 Report.
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

To Contact uwEILAB:
519 888 4732

Rick Heemskerk
uwEILAB Manager
rkhmskrk@uwaterloo.ca
519 888 4567 ext 35838

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1677769-COFC

COC Number: 14 - 505968

Page ___ of ___

L1677769

Report To	
Company:	FRIESEN DRILLERS LTD
Contact:	JEFF BELL, P.ENG.
Address:	307 PTH 12 N STEINBACH, MB
Phone:	(204) 326-2485

Report Format / Distribution	
Select Report Format:	☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ Yes ☐ No
☐ Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jeff@friesendrillers.com
Email 2	paulynn@friesen drillers.com

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)		
R	☑	Regular (Standard TAT if received by 3pm)
P	☐	Priority (2-4 business days if received by 3pm)
E	☐	Emergency (1-2 business days if received by 3pm)
E2	☐	Same day or weekend emergency if received by 10am – contact ALS for surcharge.
Specify Date Required for E2,E or P:		

Invoice To		
Same as Report To	☑ Yes	☐ No
Copy of Invoice with Report	☑ Yes	☐ No
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Quote #:	
Job #:	City of Selkirk
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
Approver ID:	Cost Center:
GL Account:	Routing Code:
Activity Code:	
Location:	
ALS Contact:	Sampler:

ALS Lab Work Order # (lab use only)

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ROUTINE	ENRICHED TRITIUM	Oxygen 18	Deuterium	Number of Containers
1	DAY 1	22-Sept. 15	1:30pm	water	/	/	/	/	
2	DAY 2	23-Sept. 15	1:30pm	water	/	/	/	/	

Drinking Water (DW) Samples[1] (client use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No
Are samples for human drinking water use? ☐ Yes ☐ No

Special Instructions / Specify Criteria to add on report (client Use)

3.6

SAMPLE CONDITION AS RECEIVED (lab use only)					
Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				
INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date: 9-24-15	Time: 9:00	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

FRIESEN DRILLERS LTD
ATTN: JEFF BELL
307 PTH 12 N
STEINBACH MB R5G 1L9

Date Received: 30-SEP-15
Report Date: 19-NOV-15 11:03 (MT)
Version: FINAL

Client Phone: 204-326-2485

Certificate of Analysis

Lab Work Order #: L1680909

Project P.O. #: NOT SUBMITTED
Job Reference: CITY OF SELKIRK
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1680909-1 DAY 5							
Sampled By: D.L/JPTEL on 26-SEP-15 @ 13:51							
Matrix: WATER							
Miscellaneous Parameters							
Special Request	See Attached					19-NOV-15	R3314030
ROU4W total							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	609		1.2	mg/L		08-OCT-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		08-OCT-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		08-OCT-15	
Chloride in Water by IC							
Chloride (Cl)	57.5		0.50	mg/L		06-OCT-15	R3284991
Conductivity							
Conductivity	1160		1.0	umhos/cm		07-OCT-15	R3285780
Fluoride in Water by IC							
Fluoride (F)	0.277		0.020	mg/L		06-OCT-15	R3284991
Hardness Calculated							
Hardness (as CaCO3)	588		0.30	mg/L		05-OCT-15	
Nitrate in Water by IC							
Nitrate (as N)	0.100	HTD	0.020	mg/L		06-OCT-15	R3284991
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.100		0.070	mg/L		07-OCT-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010	HTD	0.010	mg/L		06-OCT-15	R3284991
Sulfate in Water by IC							
Sulfate (SO4)	122		0.30	mg/L		06-OCT-15	R3284991
TDS calculated							
TDS (Calculated)	725		5.0	mg/L		08-OCT-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	499		1.0	mg/L		07-OCT-15	R3285780
Total Metals by ICP-MS							
Calcium (Ca)-Total	71.2		0.20	mg/L	02-OCT-15	02-OCT-15	R3282232
Iron (Fe)-Total	<0.10		0.10	mg/L	02-OCT-15	02-OCT-15	R3282232
Magnesium (Mg)-Total	99.7		0.050	mg/L	02-OCT-15	02-OCT-15	R3282232
Manganese (Mn)-Total	0.0096		0.0010	mg/L	02-OCT-15	02-OCT-15	R3282232
Potassium (K)-Total	5.78		0.10	mg/L	02-OCT-15	02-OCT-15	R3282232
Sodium (Na)-Total	68.2		0.050	mg/L	02-OCT-15	02-OCT-15	R3282232
Turbidity							
Turbidity	0.29		0.10	NTU		06-OCT-15	R3288166
pH							
pH	7.69		0.10	pH units		07-OCT-15	R3285780
L1680909-2 DAY 6							
Sampled By: D.L/JPTEL on 27-SEP-15 @ 13:30							
Matrix: WATER							
Miscellaneous Parameters							
Special Request	See Attached					19-NOV-15	R3314030
ROU4W total							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	604		1.2	mg/L		08-OCT-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		08-OCT-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		08-OCT-15	
Chloride in Water by IC							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1680909-2 DAY 6							
Sampled By: D.L/JPTEL on 27-SEP-15 @ 13:30							
Matrix: WATER							
Chloride in Water by IC							
Chloride (Cl)	57.9		0.50	mg/L		06-OCT-15	R3284991
Conductivity							
Conductivity	1160		1.0	umhos/cm		07-OCT-15	R3285780
Fluoride in Water by IC							
Fluoride (F)	0.285		0.020	mg/L		06-OCT-15	R3284991
Hardness Calculated							
Hardness (as CaCO3)	593		0.30	mg/L		05-OCT-15	
Nitrate in Water by IC							
Nitrate (as N)	0.101	HTD	0.020	mg/L		06-OCT-15	R3284991
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.101		0.070	mg/L		07-OCT-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010	HTD	0.010	mg/L		06-OCT-15	R3284991
Sulfate in Water by IC							
Sulfate (SO4)	123		0.30	mg/L		06-OCT-15	R3284991
TDS calculated							
TDS (Calculated)	726		5.0	mg/L		08-OCT-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	495		1.0	mg/L		07-OCT-15	R3285780
Total Metals by ICP-MS							
Calcium (Ca)-Total	72.3		0.20	mg/L	02-OCT-15	02-OCT-15	R3282232
Iron (Fe)-Total	<0.10		0.10	mg/L	02-OCT-15	02-OCT-15	R3282232
Magnesium (Mg)-Total	100		0.050	mg/L	02-OCT-15	02-OCT-15	R3282232
Manganese (Mn)-Total	0.0104		0.0010	mg/L	02-OCT-15	02-OCT-15	R3282232
Potassium (K)-Total	5.61		0.10	mg/L	02-OCT-15	02-OCT-15	R3282232
Sodium (Na)-Total	69.6		0.050	mg/L	02-OCT-15	02-OCT-15	R3282232
Turbidity							
Turbidity	0.24		0.10	NTU		06-OCT-15	R3288166
pH							
pH	7.70		0.10	pH units		07-OCT-15	R3285780
L1680909-3 DAY 7							
Sampled By: D.L/JPTEL on 28-SEP-15 @ 13:15							
Matrix: WATER							
Miscellaneous Parameters							
Special Request	See Attached					19-NOV-15	R3314030
ROU4W total							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	614		1.2	mg/L		08-OCT-15	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		08-OCT-15	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		08-OCT-15	
Chloride in Water by IC							
Chloride (Cl)	62.3		1.0	mg/L		06-OCT-15	R3284991
Conductivity							
Conductivity	1170		1.0	umhos/cm		07-OCT-15	R3285780
Fluoride in Water by IC							
Fluoride (F)	0.217		0.040	mg/L		06-OCT-15	R3284991
Hardness Calculated							
Hardness (as CaCO3)	581		0.30	mg/L		05-OCT-15	
Nitrate in Water by IC							
Nitrate (as N)	0.121	HTD	0.040	mg/L		06-OCT-15	R3284991

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1680909-3 DAY 7							
Sampled By: D.L/JPTEL on 28-SEP-15 @ 13:15							
Matrix: WATER							
Nitrate+Nitrite							
Nitrate and Nitrite as N	0.121		0.070	mg/L		07-OCT-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.020	HTD	0.020	mg/L		06-OCT-15	R3284991
Sulfate in Water by IC							
Sulfate (SO4)	134		0.60	mg/L		06-OCT-15	R3284991
TDS calculated							
TDS (Calculated)	741		5.0	mg/L		08-OCT-15	
Total Alkalinity as CaCO3							
Alkalinity, Total (as CaCO3)	504		1.0	mg/L		07-OCT-15	R3285780
Total Metals by ICP-MS							
Calcium (Ca)-Total	73.4		0.20	mg/L	02-OCT-15	02-OCT-15	R3282232
Iron (Fe)-Total	<0.10		0.10	mg/L	02-OCT-15	02-OCT-15	R3282232
Magnesium (Mg)-Total	96.5		0.050	mg/L	02-OCT-15	02-OCT-15	R3282232
Manganese (Mn)-Total	0.0096		0.0010	mg/L	02-OCT-15	02-OCT-15	R3282232
Potassium (K)-Total	5.60		0.10	mg/L	02-OCT-15	02-OCT-15	R3282232
Sodium (Na)-Total	66.4		0.050	mg/L	02-OCT-15	02-OCT-15	R3282232
Turbidity							
Turbidity	0.30		0.10	NTU		06-OCT-15	R3288166
pH							
pH	7.66		0.10	pH units		07-OCT-15	R3285780

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
LPML	Lab-Preserved for Total Metals. Sample received with pH > 2 and preserved at the lab. Total Metals results may be biased low.

Sample Parameter Qualifier Key:

Qualifier	Description
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-WP	Water	Total Alkalinity as CaCO3	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

ALS Test Code	Matrix	Test Description	Method Reference**
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-T

This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

ALS Test Code	Matrix	Test Description	Method Reference**
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
PH-WP	Water	pH	APHA 4500H

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SPECIAL REQUEST-UW	Misc.	Special Request University of Waterloo	SEE SUBLET LAB RESULTS
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)

Turbidity in aqueous matrices is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
UW	UNIVERSITY OF WATERLOO
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Client: Dalmaijer
ALS Laboratories
Work Order #: L1680909

ISO# 2015454
Location:
3 for 18O, 2H, E3H

Environmental Isotope Lab
11/19/2015

#	Sample	Lab#	$\delta^{18}O$	Result	Repeat	$\delta^{2}H$	Result	Repeat	E3H	Result	± 1σ	Repeat	± 1σ	pH	Conductivity	AZD
			H_2O	VSMOW	± 0.2‰	H_2O	VSMOW	± 0.8‰		± 0.8 T.U.		± 0.8 T.U.				
1	L1680909-1	352848	X	-13.12		X	-100.67		X	5.5	0.5			7.69	1160	
2	L1680909-2	352849	X	-13.09	-13.19	X	-100.87	-100.60	X	5.4	0.6	5.3	0.5	7.70	1160	
3	L1680909-3	352850	X	-13.18		X	-100.54		X	4.8	0.5			7.66	1170	

18O/2H Results from LGR Laser

Tritium is reported in Tritium Units.
1TU = 3.221 Picocurries/L per IAEA, 2000 Report.
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

Rick Heemskerk
uwEILAB Manager
rkhmskrk@uwaterloo.ca
519 888 4567 ext 35838

To Contact uwEILAB:
519 888 4732

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

C[illegible] L1680909-COFC [illegible]EST FORM   COC # A056394

Page ____ of ____

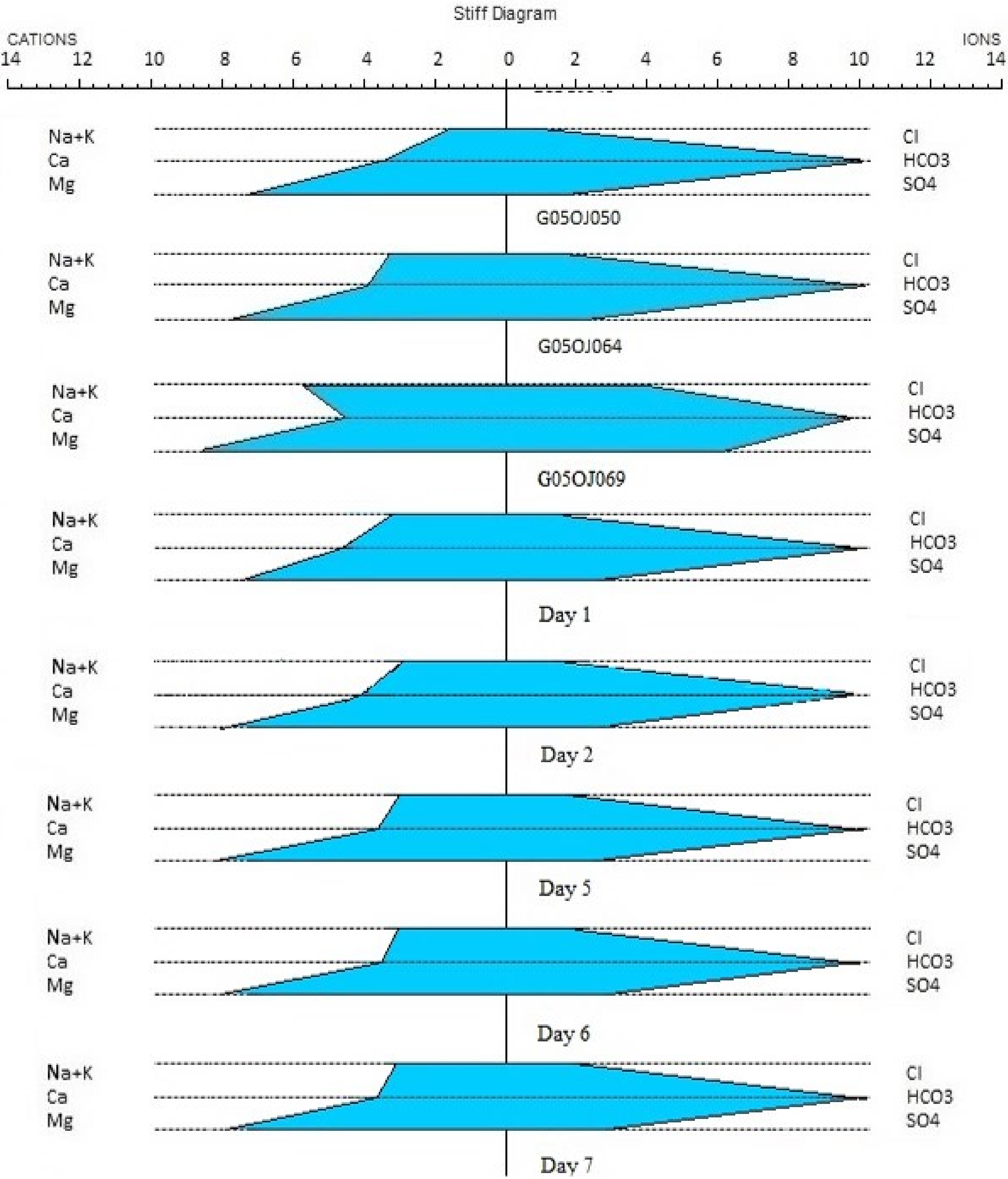
REPORT TO:	REPORT FORMAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: FRIESEN DRILLERS LTD.	STANDARD ✓ OTHER ____	✓ REGULAR SERVICE (DEFAULT)
CONTACT: JEFF BELL, P.ENG.	PDF ✓ EXCEL ____ CUSTOM ____ FAX ____	RUSH SERVICE (2-3 DAYS)
ADDRESS: 307 PTH 12 N	EMAIL 1: jeff@friesendrillers.com	PRIORITY SERVICE (1 DAY or ASAP)
STEINBACH MB	EMAIL 2: poulynn@friesendrillers.com	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
PHONE: (204) 326-2485 FAX: (204) 326-2483		ANALYSIS REQUEST
INVOICE TO: SAME AS REPORT ? YES / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	
COMPANY:	CLIENT / PROJECT INFORMATION:	
CONTACT:	JOB #: City of Selkirk	
ADDRESS:	PO /AFE:	
	Legal Site Description:	
PHONE: FAX:	QUOTE #:	
Lab Work Order # (lab use only)	SAMPLER (Initials): D.L. /J.P.T.E.L	

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	ROUTINE	ENRICHED TRITIUM	OXYGEN18	DEUTERIUM								HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	DAY 5	Sept. 26, 2015	1:51pm	Water	/	/	/	/										
	DAY 6	Sept. 27, 2015	1:30pm	Water	/	/	/	/										
	DAY 7	Sept. 28, 2015	1:15 pm	Water	/	/	/	/										

GUIDELINES / REGULATIONS	SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS

Failure to complete all portions of this form may delay analysis. Please fill in this form *LEGIBLY*.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	SAMPLE CONDITION (lab use only)	
		[signature] 8:00	9-30-29	TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	10°C	(If no provide details)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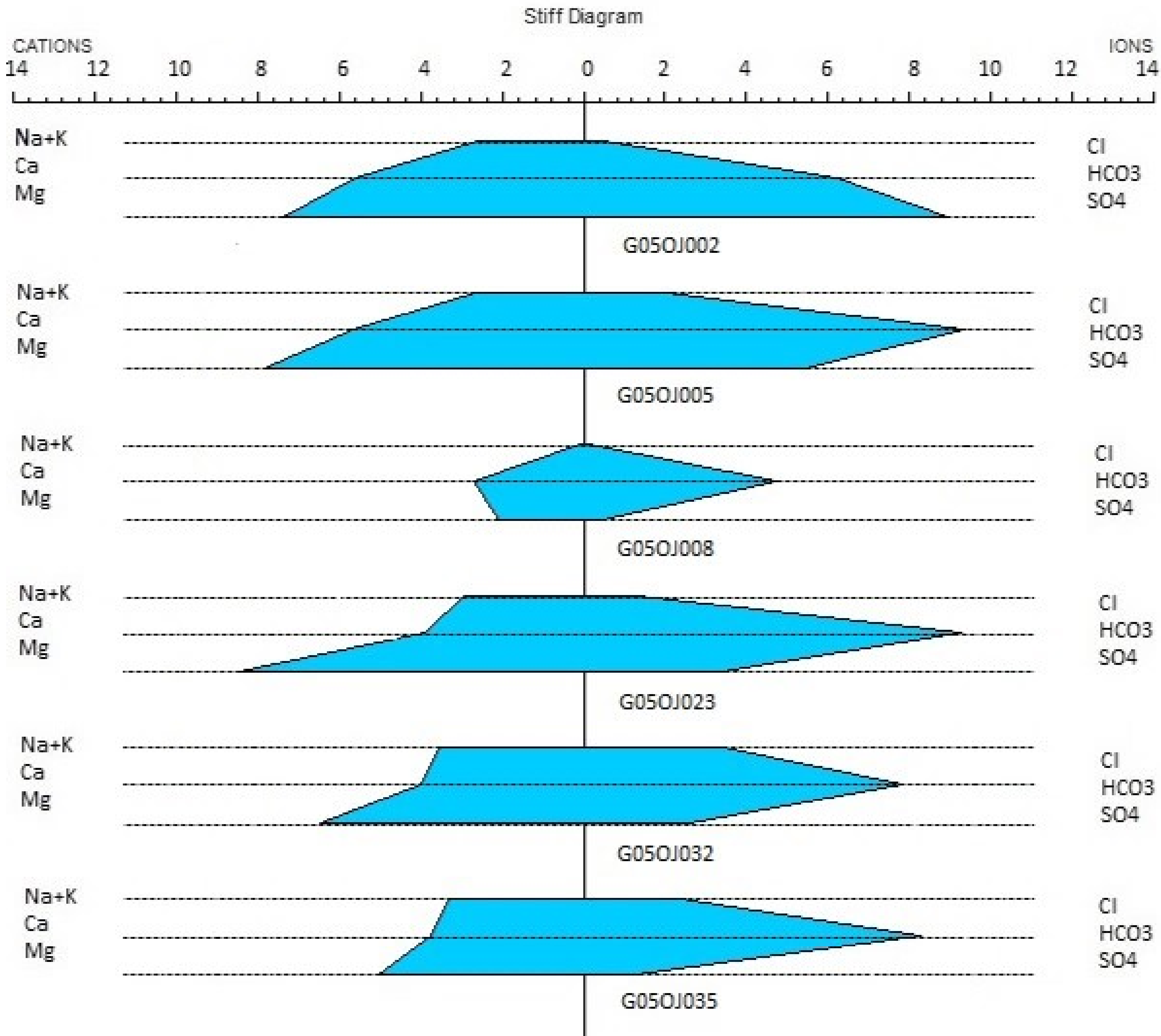
Na+K
Ca
Mg
Cl
HCO3
SO4
G05OJ050
G05OJ064
G05OJ069
Day 1
Day 2
Day 5
Day 6
Day 7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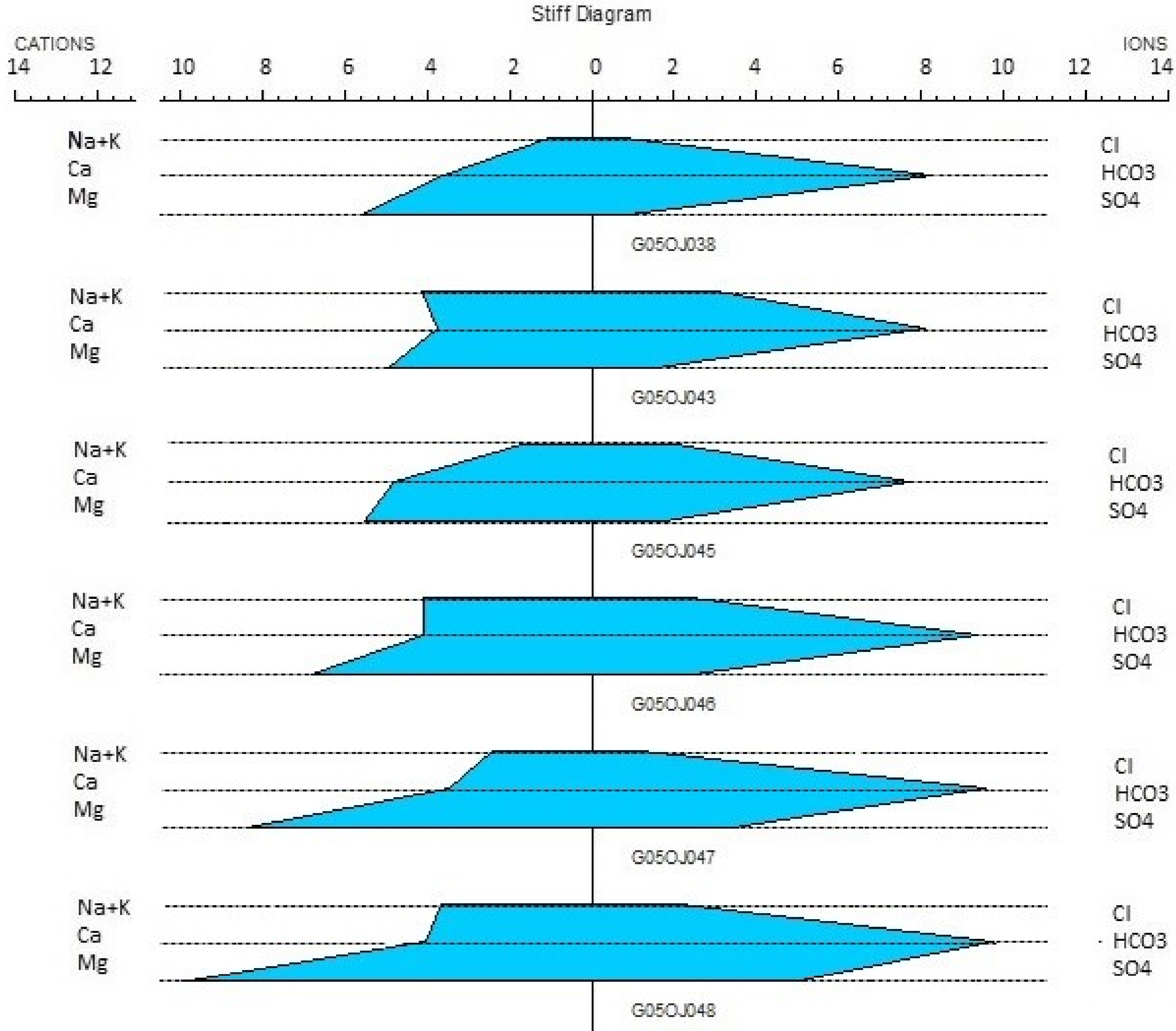
G05OJ032
G05OJ035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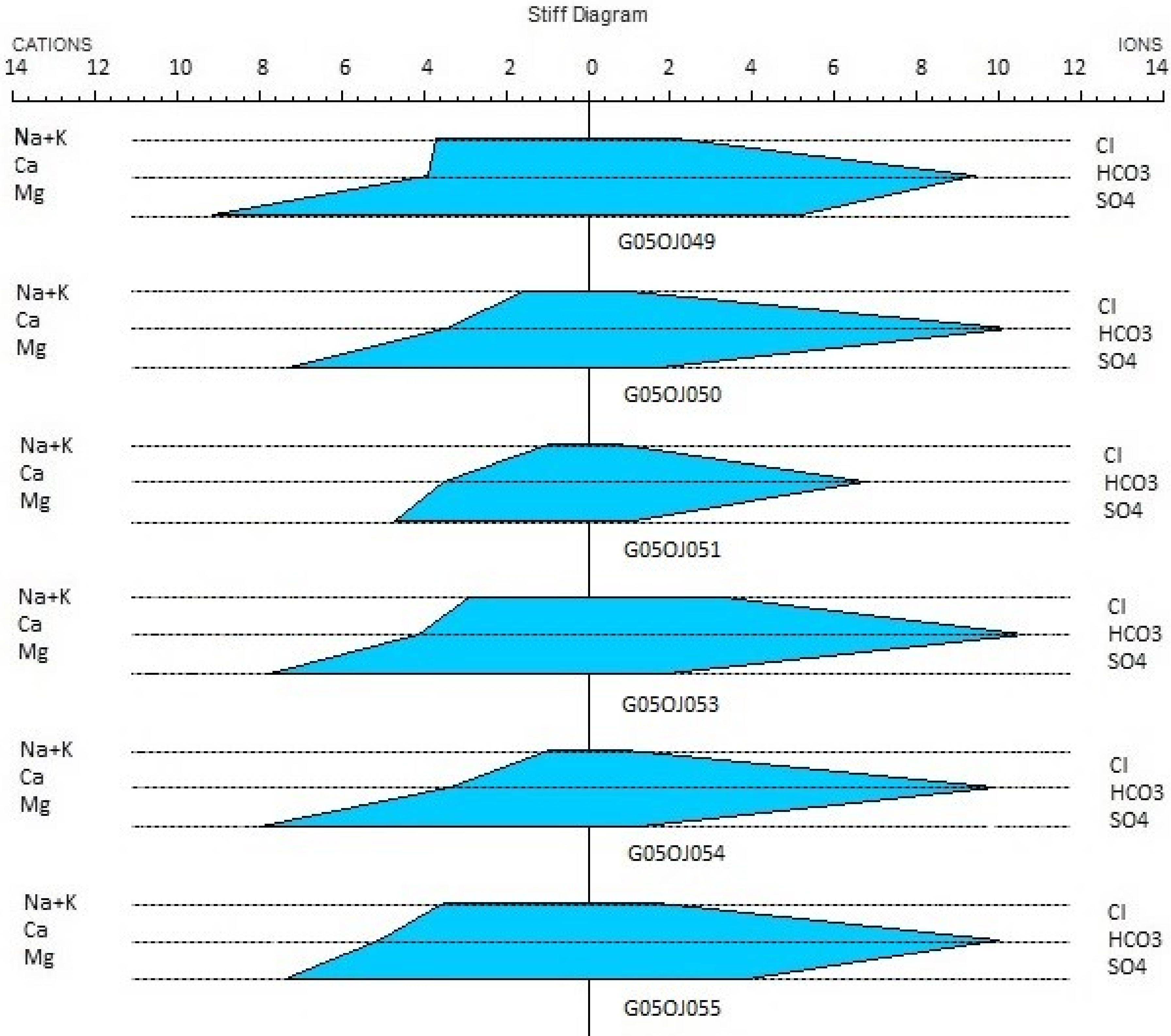
G05OJ048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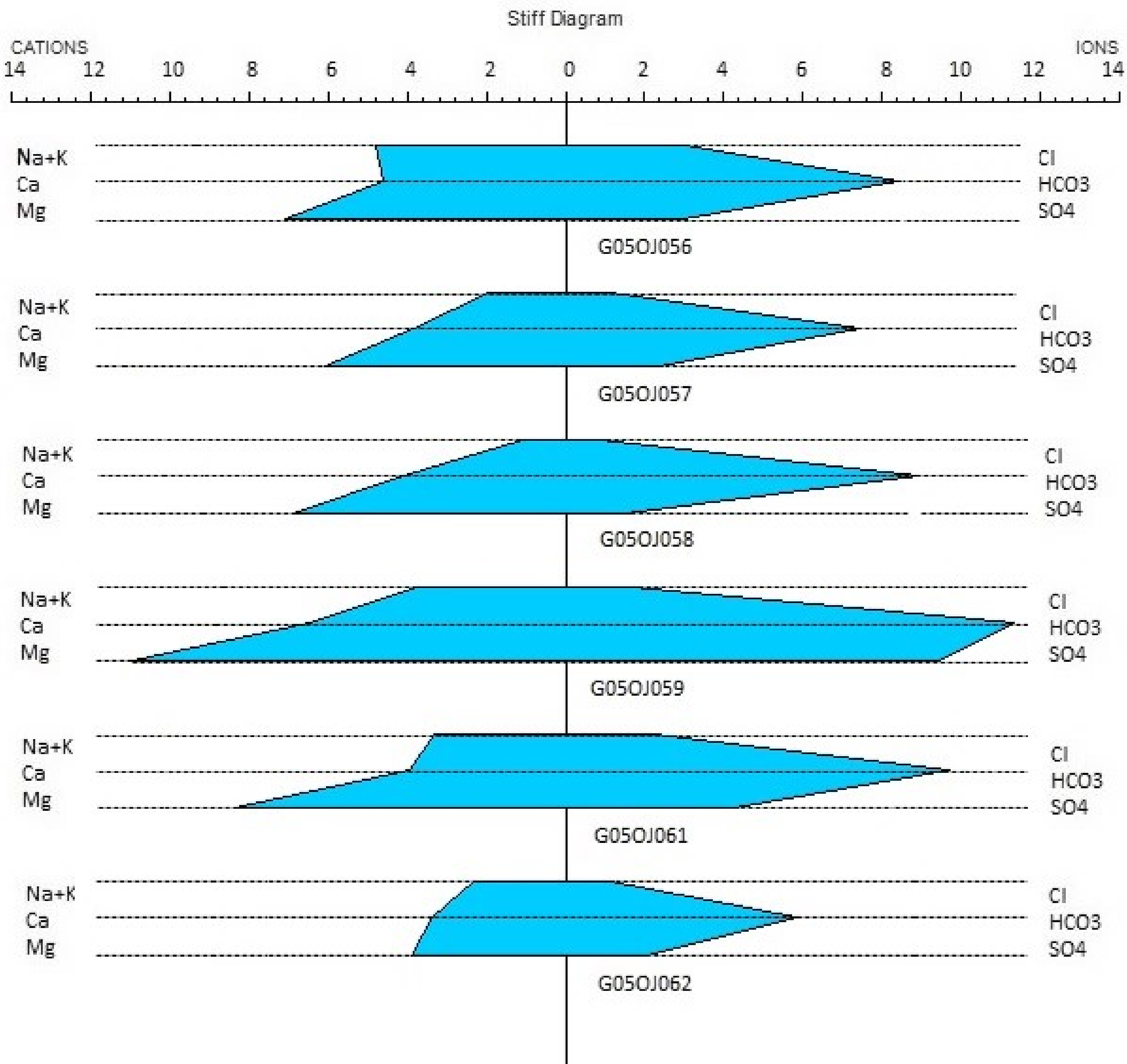
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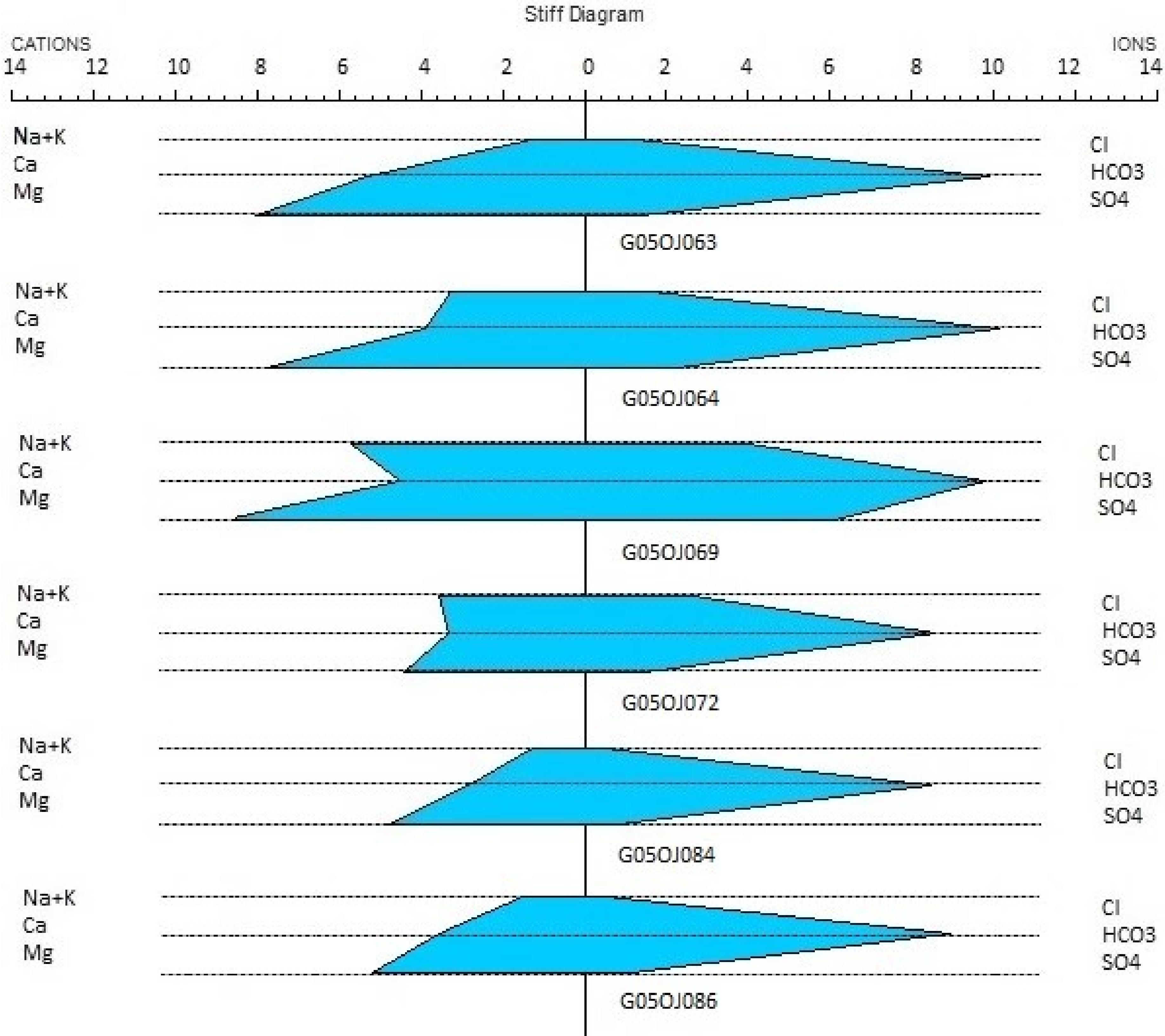

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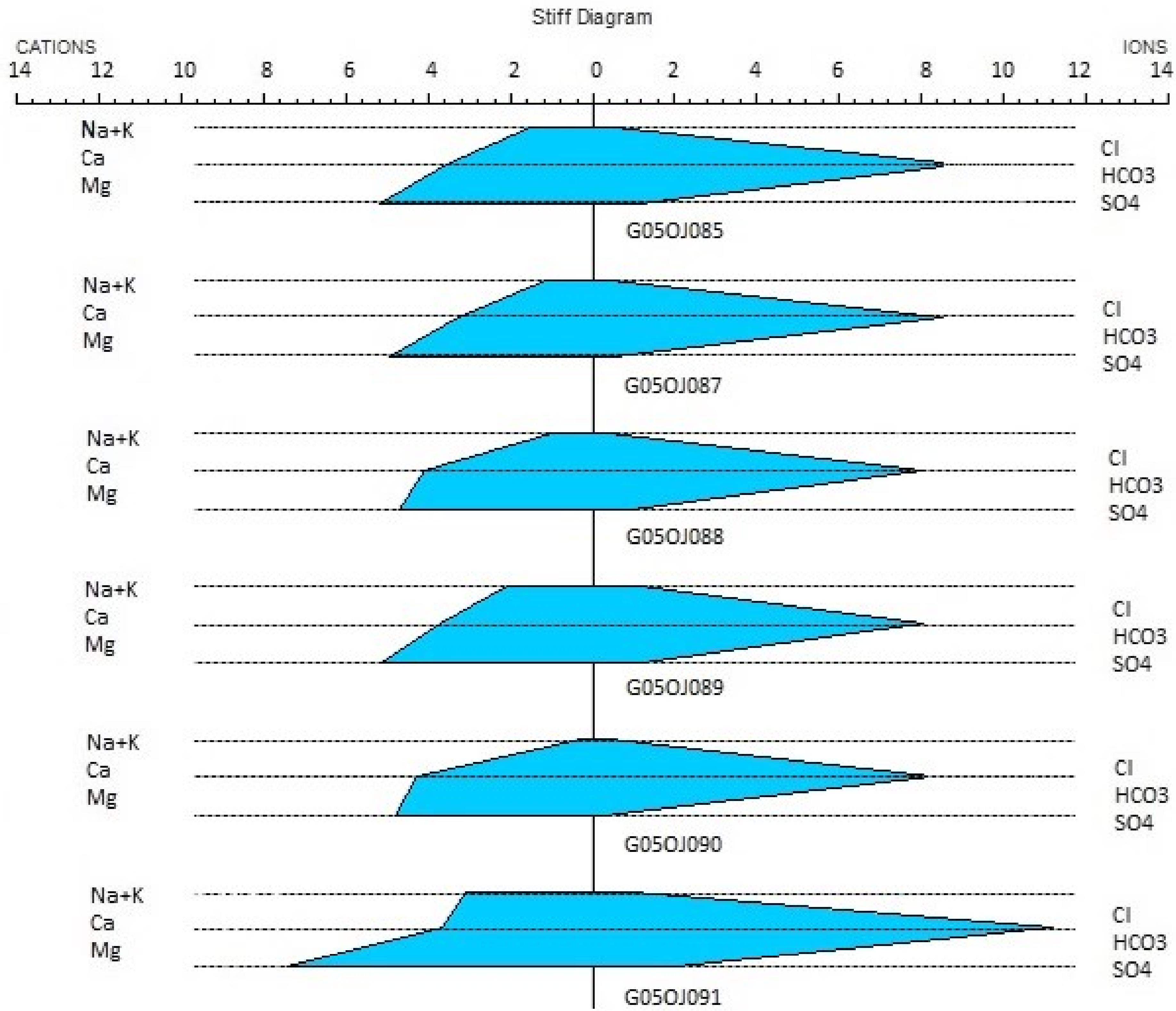

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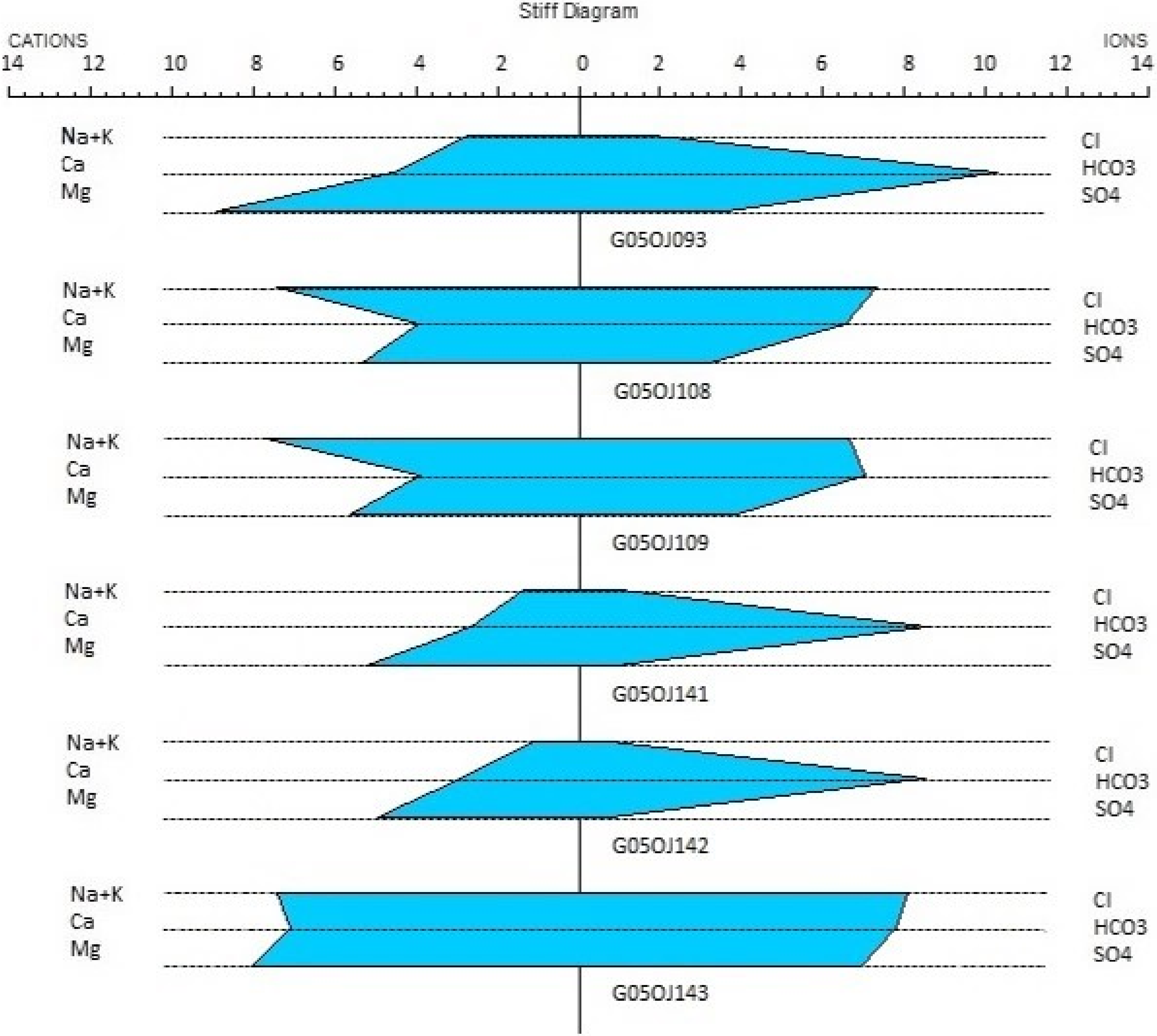
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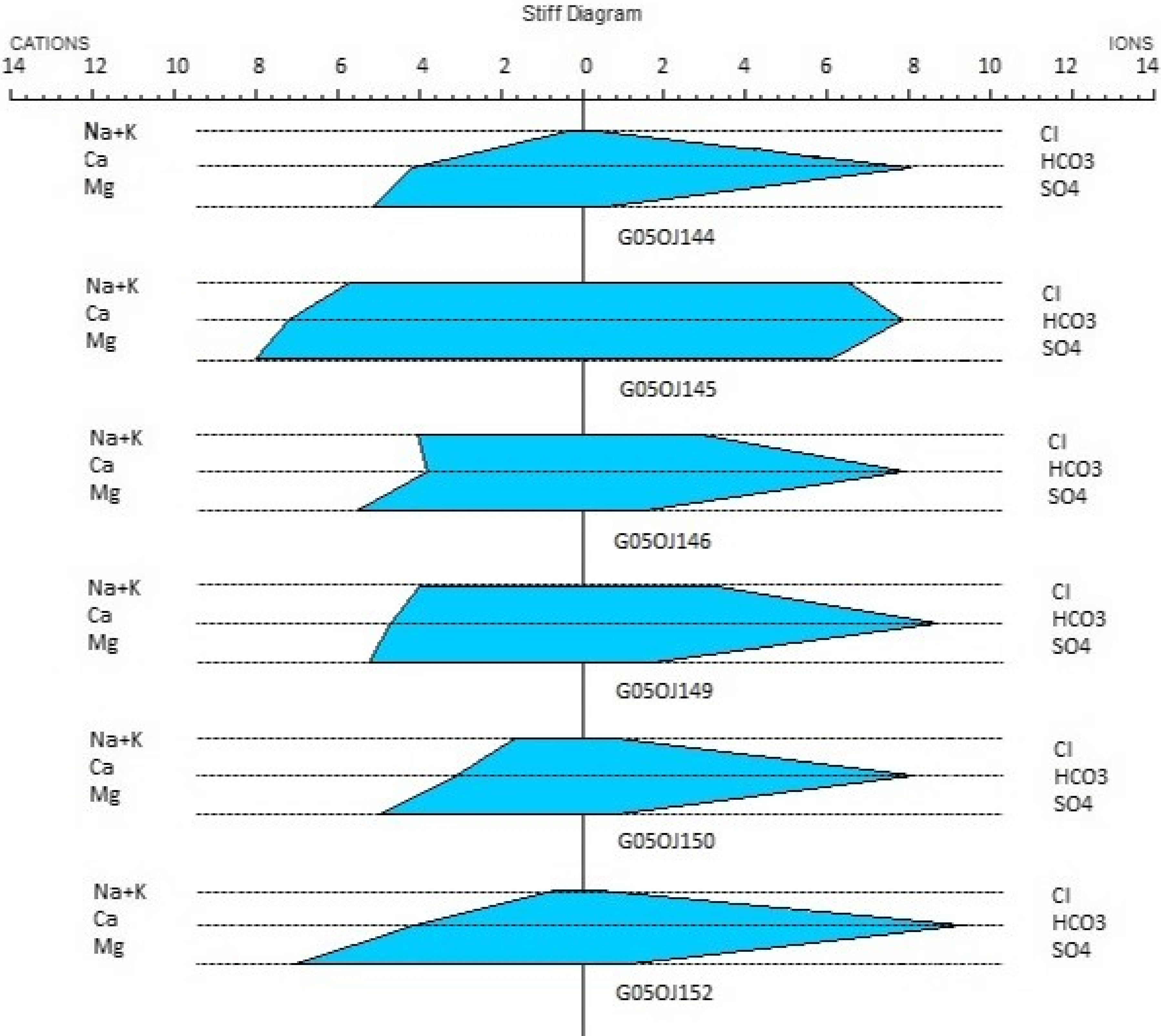
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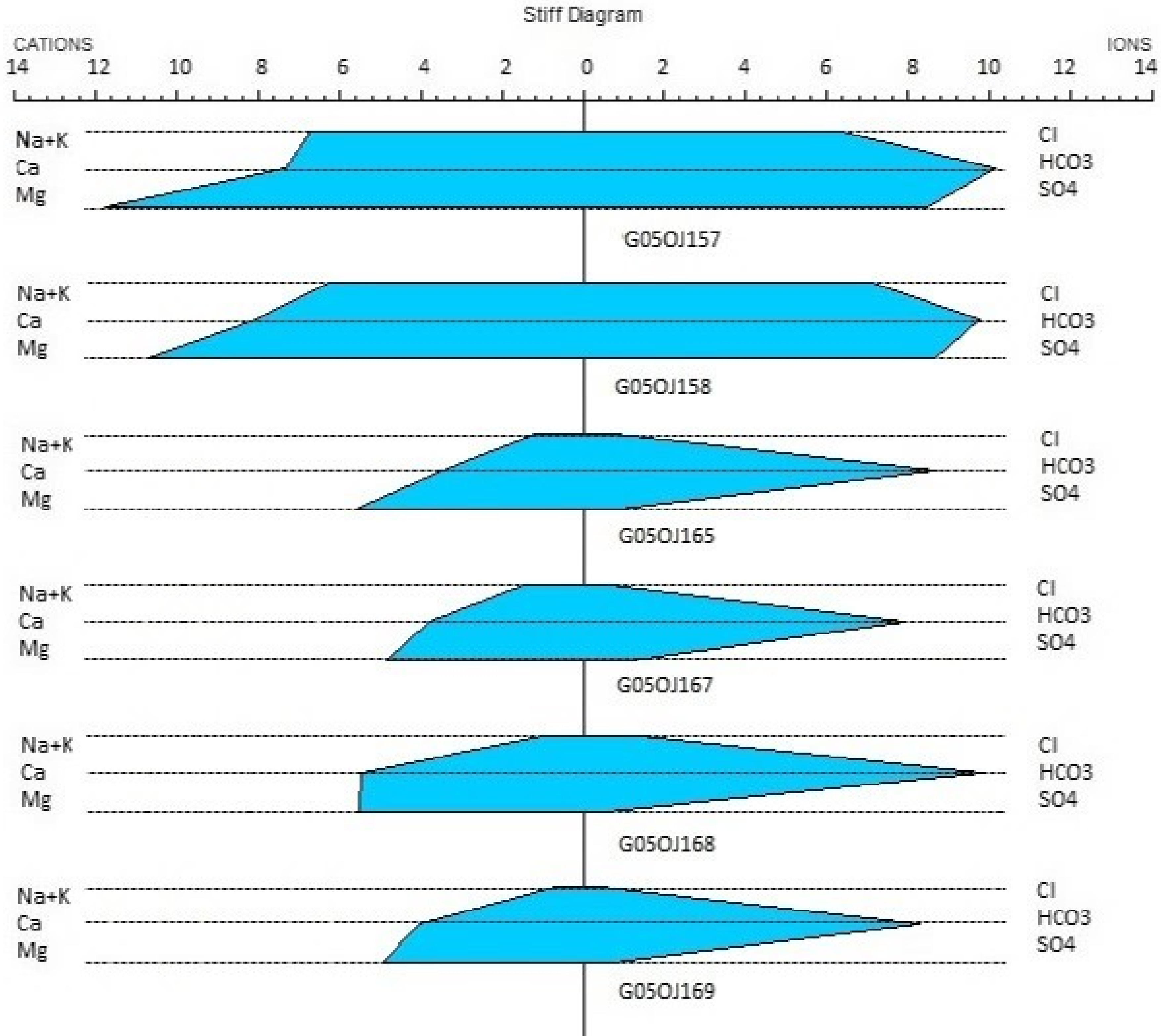
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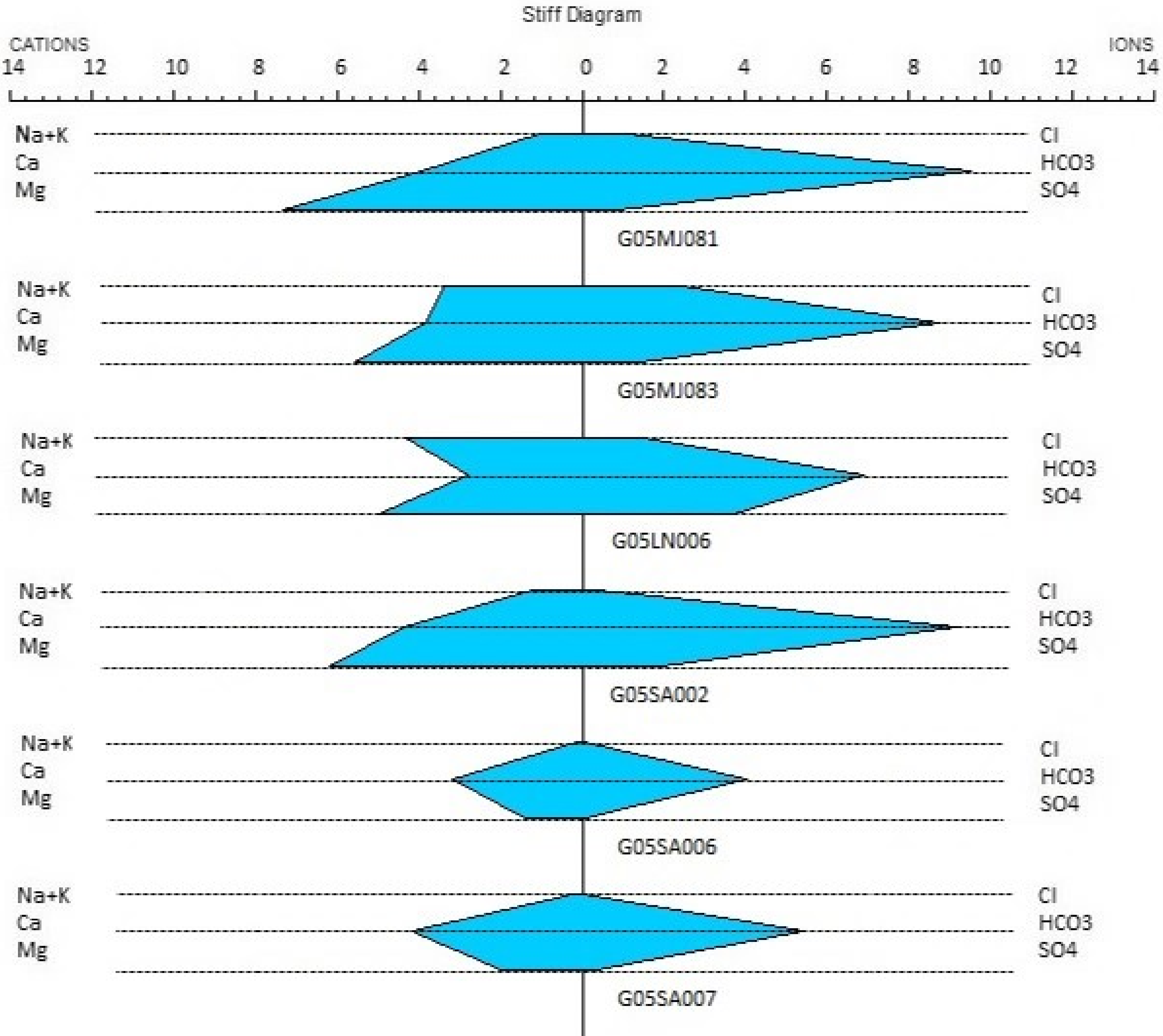

Stiff Diagram
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0
2
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6
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10
12
14
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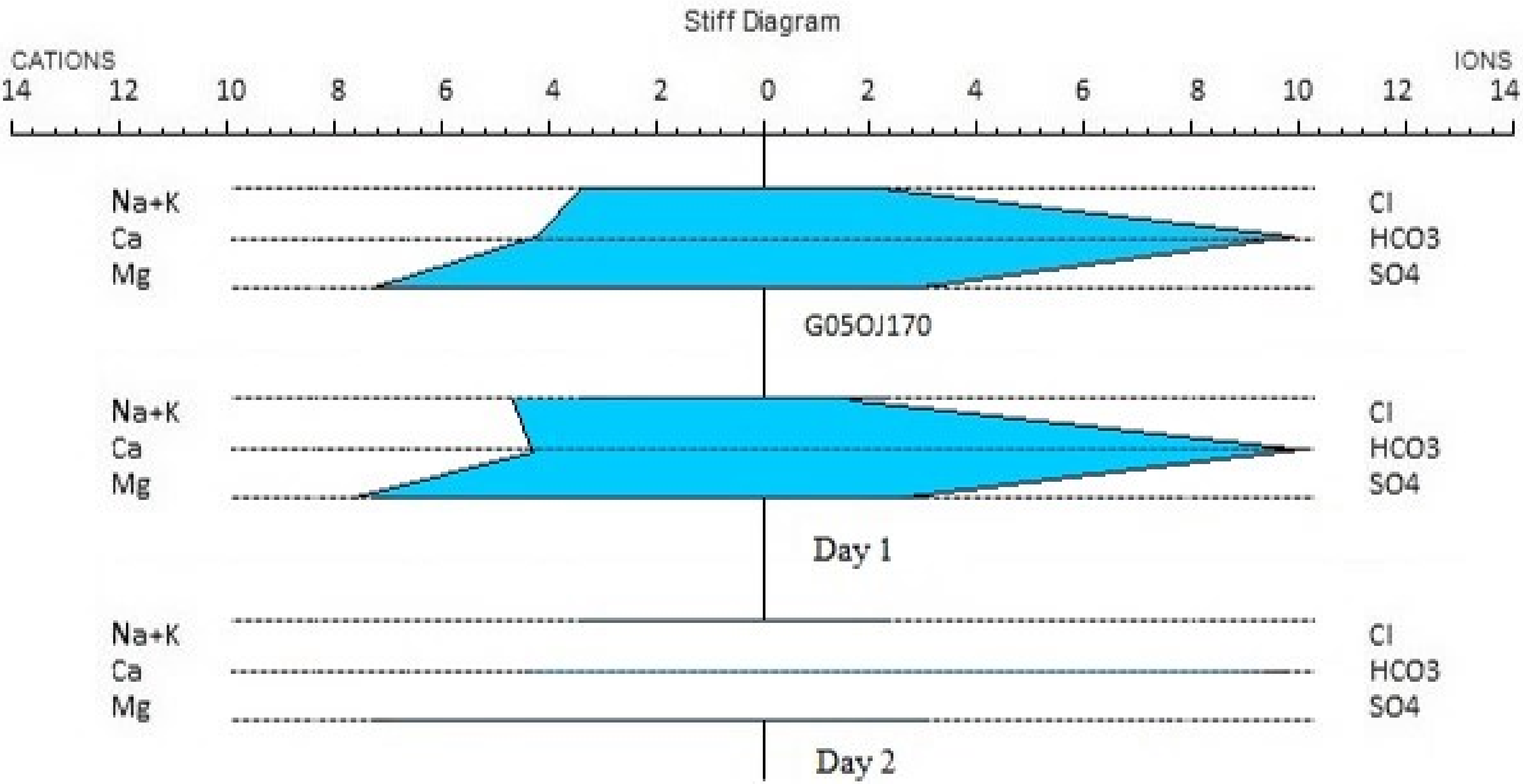
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CATIONS
IONS
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12
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Mg
Cl
HCO3
SO4
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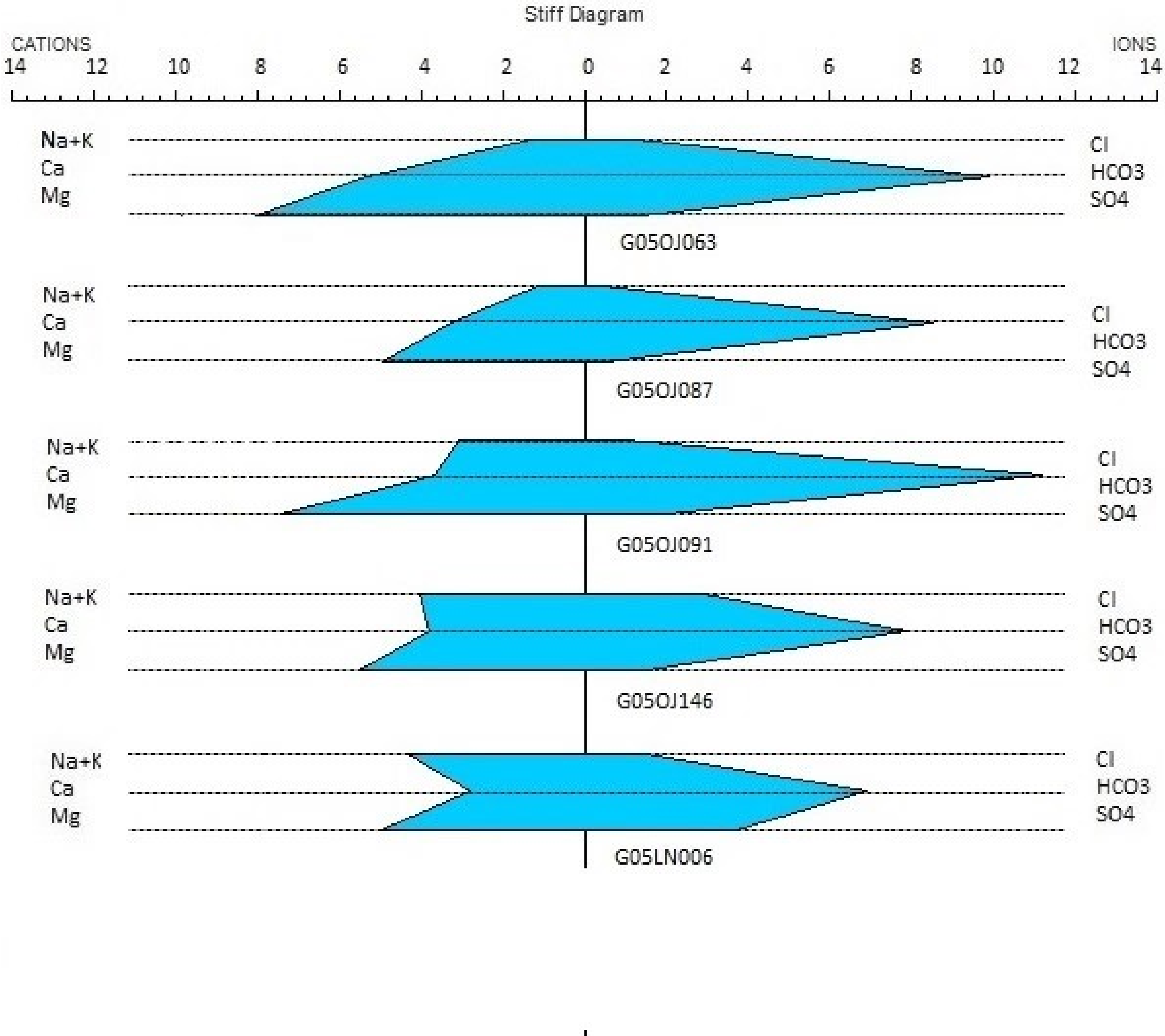
Day 1
Day 2


Stiff Diagram
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