Manitoba
Water Stewardship

Willow Creek Watershed
Office of Drinking Water Technical Submission
Completed by: Drinking Water Officer
For East Interlake Conservation District

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The Office of Drinking Water provides both a regulator and technical resource for public, semi-public, and private wells within the watershed. Public wells represent systems with 15 or more service connections. Private wells refer to single family dwellings, and Semi-publics cover the operations that are not public or private facilities.

Within the Willow Creek watershed the Office of Drinking Water is aware of the following public water systems (systems with distribution serving more than 15 connections):

Spruce Sands Trailer Park
Ukranian Park
Mordens Meadows
Camp Neustadt
Camp Morton Provincial Park
Pelican Beach
Gimli Public Water System
Idle Wheels Campground
Sandy Hook RV Resort
Gimli Industrial Park Public Water System
Shorepoint Village Public Water System

Depending upon the precise location Wildwood Trailer Park may also be included in the study area.

Additional information about these systems is including the treatment train and locations are provided in Table 1.

Manitoba Conservation provides oversight to the classification of water treatment plants and I would encourage you to contact Donna Garcia regarding your inquiry about the treatment system classification and installation date of these systems.

Camp Neustadt is currently under a boil water advisory based on the lack of compliance with disinfection and bacteriological testing. This is the second boil water advisory for the camp this year (the first occurring immediately following start up). The facility will remain on the boil

water advisory until the Medical Officer of Health and the Office of Drinking Water are satisfied that adequate disinfection is occurring.

There are minor compliance issues with some of the other public water systems, but in general all provide a safe and secure water source to their water users.

It is strongly suspected that there are other campgrounds in the watershed serving in excess of 15 service connections that are not reporting to the Office of Drinking Water. Additional work is necessary to bring these operations into compliance with regulatory requirements.

While not a public water system the Diageo distillery in Gimli is a major water user for whom the reliable supply of high quality water from the aquifer provides a substantial economic benefit.

There are a number of semi-public water systems within this watershed. However, at this date the Office of Drinking Water does not have reliable information identifying these water systems, and few are reporting any information to the Office of Drinking Water.

There are also hundreds, and possibly thousands of private wells within the watershed. The Office of Drinking Water offers a limited private well program that consists of a subsidized private well sampling program, surveillance monitoring, and providing technical advice to private citizens concerned about their well water. Site inspections for private wells are generally not conducted.

There are no known water systems in the watershed that use surface water as their water source. All systems are groundwater based, and the bulk of development is centred on the easternmost portion of the watershed adjacent Lake Winnipeg and the recreational activities that it provides.

The aquifer in question is composed of limestone/dolomite and is characterized by having high hardness, high levels of total dissolved solids, generally low turbidity, and variable levels of iron, manganese, and other elements. Abundant supplies of groundwater may be found in all areas of the watershed.

The direction of Groundwater flow, overburden thickness, overburden type, and development within the watershed all follow a general west to east pattern. Groundwater generally flows west to east within the aquifer entering the aquifer through exposed bedrock and shallow overburden in the Narcisse and Chatfield area, flowing east to Lake Winnipeg.

Overburden thickness also increases as you proceed from west to east within the watershed; with little to no overburden in the areas of Chatfield and Narcisse, but in excess of 30 m of overburden in many areas adjacent Lake Winnipeg. Soils also reflect the east to west trend as the somewhat lighter interlake tills of the west portion of the watershed are replaced by the deeper lacustrine influenced clays adjacent Lake Winnipeg.

The combination of a western recharge zone, west to east groundwater flow, and a confining upper layer of clay in the eastern portions of the aquifer produces ideal conditions for upward

hydraulic pressure, and many of the wells in the eastern portion of the aquifer have a high static water level, to the point of reaching artesian condition in wet years.

Development within the watershed is most dense in the recreational areas adjacent Lake Winnipeg, and it typified by cottages, seasonal and transient campgrounds, condominium development, harbours and other recreational and residential activities. This watershed represents one of, if not the most developed reach of shoreline on Lake Winnipeg. However, in many areas a crown reserve does exist as a buffer between the water and the edge of private property ownership.

As you move inland from Lake Winnipeg the land use rapidly shifts from cottages and recreational activities to agriculture and rural residential use. Moving further west the agricultural capability of the land continues to decline resulting in lower population densities, and greater areas of wildlife management areas and community pasture.

Public, semi-public, and private drinking water supplies are all threatened by similar impacts. Within the Willow Creek watershed these impacts may include:

- Improperly Maintained, higher risk construction wells (ie pit wells) or abandoned wells;
- Sewage Management, both licenced facilities and private sewage disposal systems;
- Agricultural activities and accidents including chemical and manure management;
- Industrial spills (including contaminated sites) or land application;
- Waste Disposal Grounds, both active and closed; and,
- Transportation route spills (highways and railways).

While the location and details of the majority of these items should be provided to you and discussed by Manitoba Conservation, I'll briefly discuss these items as they apply to supplies of potable water in the watershed.

The historic construction (pre regulation) of livestock operations, sewage disposal facilities, and waste disposal grounds in areas of limited overburden of the Interlake, without additional effective means of groundwater protection, has resulted in some areas of the Interlake having small zones where groundwater pollution is an issue.

The western area of the Willow Creek watershed does have areas of little to no overburden, and consequently these areas would be at greater risk for aquifer pollution. However, at this time the Office of Drinking Water is not aware of a groundwater pollution issue affecting any of the communities in the western portion of the watershed.

Wells which are improperly maintained, higher risk construction (ie pit wells), or improperly abandoned wells do pose a risk to aquifer pollution by allowing a direct conduit for contaminants to reach the aquifer. There are numerous wells of this type throughout the watershed, and their locations are for the most part unknown. While they likely pose some threat to aquifer contamination throughout the watershed, their effect may be most notable in eastern areas of the watershed where development is more dense, and they may affect nearby production wells.

Generally the groundwater supplies and consequently the public water supplies in the Willow Creek Watershed are secure. The most populated areas of the watershed are also the areas where the overburden provides the greatest protection; providing a great benefit to the largest number of people. In addition, some of these wells are artesian in nature, reducing the likelihood they may become contaminated from surface water infiltration.