

SUMMARY REPORT

PROPONENT:

Rural Municipality of Gimli

PROPOSAL NAME:

Sewage Treatment Plant - Stage 2

CLASS OF DEVELOPMENT:

Two

TYPE OF DEVELOPMENT:

Wastewater Treatment and Storage and Scrap Processing

CLIENT FILE NO.:

1086.10

OVERVIEW:

On October 23, 1996, the Department received a Proposal from the Rural Municipality of Gimli for the Development being the continued operation of a wastewater collection system and the upgrading and operation of a sewage treatment plant. The proposed upgrading consists of the construction of a truck dump station to facilitate the handling of truck hauled sewage and septage from within the municipality. The sewage treatment plant is located at the Gimli Industrial Park on the west half of Section 18-19-4 EPM in the Rural Municipality of Gimli. Effluent will continue to be discharged to a drainage ditch which flows into Lake Winnipeg.

The Department, on November 29, 1996, placed copies of the Proposal in the Public Registries located at Building 2, 139 Tuxedo Avenue; the Centennial Public Library, the Selkirk Community Library and the municipal office for R. M. of Gimli; and provided copies of the Proposal to the Interdepartmental Planning Board and TAC members. As well, the Department place public notification of the Proposal in the Gimli/Arborg Interlake Spectator on Monday, December 9, 1996. The newspaper and TAC notification invited responses until January 6, 1997.

COMMENTS FROM THE PUBLIC:

- One response was received following the public notification. Mr. Michael Michaluk raised a concern about trucking raw human waste on the residential road and past a live runway at the Gimli Air Base.

Disposition:

- The use of roads is not regulated through the environmental licensing process however the draft Licence includes a clause dealing with the type of containers used to transport sewage and the control of spillage on public roads.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

Highways

- No concerns.

Natural Resources

- *Comment: As the effluent from this plant is discharged into Lake Winnipeg it should meet or exceed the Manitoba Surface Water Quality Objectives, particularly with regard to ammonia concentrations.*

Disposition:

- The Proponent has indicated that no changes are proposed for the treated effluent quality. The Manitoba Surface Water Quality Objectives allow for mixing zones in the receiving water. Ammonia concentrations are not expected to exceed the water quality objectives outside the allowable mixing zone in Lake Winnipeg after the trickling filter has been upgraded.

Historic Resources

- *No concerns.*

Health

- *No comment.*

Rural Development

- *No comment.*

Environment-Operations Division

- *The proposal indicates that the proposed truck dumping station will handle present truck dumping needs and possibly up to a 5 year plan for the municipality. The report indicates that further studies and analysis will be completed to analyze the total future needs of the municipality. A clause should be included in the Licence to ensure that a report detailing the above is submitted to Manitoba Environment for review.*
- *At present the effluent from the sewage treatment plant does not meet the discharge limits as set out in the current Licence. The total residual chlorine content and the total and fecal coliform levels are consistently exceeded. The plant operator has indicated that when he tries to meet the total residual chlorine content limit that he will exceed the total and fecal coliform levels. It is imperative that the bio-filter/chlorination/ microbiological problem be resolved prior to the operation of the proposed dumping station. The plant operator has advised the Region that he currently shock chlorinates the bio-filter approximately every 5 weeks. This temporarily clears the ponding until the next shock chlorination is required.*
- *The report indicates that the effluent will be monitored as to flow volume and truck owner. What mechanism will be implemented to record or restrict the daily volume of septage that is allowed to be dumped? How will the haulers be policed to ensure that the daily contribution of septage is not exceeded?*
- *What is the proposed date for disconnection of the wet industries (Faroex and Omniglass) from the sewage treatment plant? What is Omniglass planning to do to reduce cooling water discharge from entering the system?*
- *When will the municipality institute a repair program to reduce the infiltration to acceptable limits? To ensure that this program is carried out, examination of the infrastructure and repair work should be set out as a component of the Licence.*

- *The proposal indicates that effluent will be mixed in a storage tank prior to being discharged to the sewage treatment plant, however the report does not identify the type of mixing system that will be used. Will sludge settle in this type of storage tank and is there a mechanism in place to remove sludge accumulation if necessary? Will it be necessary to install a grit screen in this tank or will the grit screen at the inlet pipe of the STP be sufficient.*
- *The program to educate the haulers as recommended in the report should be implemented by the municipality.*
- *The proposed metering equipment should be installed to accurately monitor the flows through the plant. The volume of sewage deposited into the truck dump reservoir should be recorded separately from the total flow entering the plant. The total flow to the lake should also be metered.*
- *The proposal indicates that the holding tank will be vented, which can be odourous. What mechanism will be put in place to minimize these odours? Complaints from the odours may be received from the nearby residents at Aspen Park, the nearby golf course or the tenants at the Industrial Park Complex itself.*
- *The biofilter media may never have been changed. Media must be changed rather than any effort made to clean same. Also the underdrain system must be inspected and repaired before new media is added. The current hydraulic problem and likely the historical chlorine demand problems are related to biofilter plugging problems.*
- *The concept of having haulers regulate the loading to the plant and truck haul station is sound but from a practical point of view will be very difficult. Also note that the septic tank hauling for July/August is the highest for the year (60-83 cu m/day) and not the fall as stated on page 1-5.*
- *The high summer load could very well be made worse by adding loadings from summer festivals.*
- *The proposed control system based on vapour monitoring will in practice be very complicated. Experience with valving such as at Manigatogan STP suggests that this system will be a serious operation and maintenance problem.*
- *The concrete tank discharge line is noted as 250 mm pressure line. This seems very large for the stated flows.*
- *The discharge apron is to be sloped to prohibit entry of precipitation by sloped to allow effluent to be washed into the top. How do you do both things at once?*
- *Raw septage is to be pumped continuously to the plant. Normally flow equalization allows flow to be pumped during off hours when loading is not critical, however this may cause a subsequent problem with hydrogen sulfide/methane production if no air is added during the day.*

The proponent responded to the above concerns with the following comments:

- The Municipality initially agreed with a clause in the licence requiring the review of truck dumping needs of the Municipality within 5 years. After a discussion about the possible terms of a monitoring program, the Municipality indicated that:

- the monitoring program should commence after the truck dumping station was commissioned;
- the frequency of sampling should be reduced with the sampling being greater in the summer;
- the requirement to take flow proportioned samples of influent and effluent on the same day should be altered so that only one sampler would be required.
- The Municipality intends to replace the trickling filter media as part of the overall capital works and the underdrain will be inspected/replaced during this operation.
- The Municipality will have a monitoring program to ensure the limits of septage are not exceeded. Access to utilize the dump station will be registered users only. Any user that is not in good standing with the Municipality will have access privileges removed by formal cancellation of his key activation (i.e. control panel will not recognize a certain key number and will deny access). In order to maintain good operation status each operator will be provided a daily septage allowance based on approximate market share and sewage treatment plant capacity.
- Faroex cooling water is presently disconnected from the sewage system. The Omni-glass operation presently is closed and equipment has been relocated to outside the Gimli Industrial Park. The Municipality has just completed a TV inspection of the sewer mains. A report is being prepared on recommended remedial measures. The Municipality will institute a phased repair program which could be reviewed by Environment.
- The storage tank is a one chamber closed top concrete cell. The system will be set up to pump the tank contents from the bottom of the tank at several locations. An agitation header will also be installed to allow the pumps to run and discharge all flow to “stir” up the tank. It is anticipated that the grit screen at the STP will be sufficient.
- The metering system will separately record truck haul and STP flows. The flow to the lake should equal that pumped through the STP.
- Odours will be generated during the discharge process from the truck to the storage tank. By utilizing a closed pipe and a fitting connection to the dump manhole will minimize odours during this process. Venting of the tank will possibly cause odour on a more continuous basis. Venting of the tank will only occur when the tank volume and corresponding air volume is displaced during filling or emptying operations. During emptying of the storage tank air will be drawn into the storage tank. During filling air and odours will be discharged from the storage tank. As filling only occurs intermittently of an approximate volume of 5 cubic metres at a time the volume of air discharged to the general area is not great. The odours should be greatly diluted prior to contact with nearby residents. Presently odour control measures such as filters are being investigated should there be need for control venting and odour from the tank.
- Festivals are typically held on weekends. The truck hauling and festivals would have to be considered as part of the overall loading of the STP.

- Systems for vapour monitoring are somewhat complicated however such systems are in use at other locations. Current technology will be used wherever possible.
- The pressure lines will be 75 or 100 mm. Gravity mains will be 200 or 250 mm. The discharge apron will be raised above the general area and sloped to the inside. Rain water will fall on the concrete apron itself and will drain to the tank. This volume will not be significant.
- The plant process will allow the operator to select flowrate and timing of pumping of trucked effluent to the STP. Depending upon plant operation, the operator will have the flexibility to pump continuously (i.e. > 20 hr/day) or only at night

Disposition:

- The draft Licence includes a clause requiring the Licencee to conduct a study on the sewage treatment needs, both hydraulic and organic loads, and truck hauled sewage versus piped sewage. The results of the study will have to be submitted to the department. The monitoring period has been reduced to two years from the original five year period and the monitoring will commence with the commissioning of the truck dump station. The sampling frequency has been reduced from a frequency of once per week to once every two weeks. Although this frequency requires more samples than the Municipality indicated it wanted, the sampling frequency is consistent throughout the year and it allows for the samples to be taken on the same day of the week, thus making it easier for the plant operator and the staff of the laboratory. The Municipality will have to take flow proportioned samples of influent and effluent on the same day. This is required in order to confirm hydraulic and organic loading along with effluent quality.
- It is evident that the trickling filter must be repaired to a proper functional level. A dechlorination process will have to be added if the microbiological limits cannot be met without high chlorine dose rates or an alternative disinfection system, such as UV disinfection, will have to be used. The draft Licence requires the Licencee to repair/replace the trickling filter media and underdrain system within a prescribed time frame. The repairs to the trickling filter will have to be done in the same time frame as the construction of the truck dumping facility. The Licencee should be able to reduce the chlorine levels to within the limits prescribed after the trickling filter is repaired. If the chlorine levels are not met the limits should be enforced so that the Licencee elects to upgrade the existing disinfection process with the addition of a dechlorination process or to replace the chlorination system with an acceptable alternative disinfection process such as UV (ultraviolet radiation) disinfection.
- The proponent has addressed the status of the selected wet industries which were the subject of inquiry.
- The proponent has indicated that it will operate a monitoring program to ensure that hauled septage will not overload the treatment system. The draft Licence will require the Municipality to operate a control program to regulate the introduction of septage by restricting access to the truck dumping facility to registered users only and prohibiting use of the facility after the daily loading limit of septage has been reached.

- The concern about the condition and repair of the collection system is valid and is addressed in the draft Licence through a requirement for a phased repair program acceptable to the Director.
- The proponent has indicated that it plans to provide adequate mixing capacity to ensure that all grit can be mixed and that the system will be set up to pump the tank contents from the bottom of the tank at several locations. The adequacy of the grit screen has also been addressed.
- The proponent has indicated how it will monitor flows into the sewage treatment plant. The draft Licence requires the monitoring and reporting of flows.
- The proponent has indicated how odour control will be handled. It is expected that odours may still pose a problem; therefore the standard odour control clause has been added to the draft Licence.
- The proponent has addressed the concerns about pipe size, drainage and influent septage control.

Environment-Water Quality Management

- *The proponent has indicated that the Bio-Filter is experiencing operational problems as to hydraulic efficiency.*
- *Additional truck hauling may further upset the system if high strength waste is added directly to the plant. The proposal states that measures will be implemented to ensure that the high BOD from the septage hauling will not shock load the plant, however the proposal does not explain how this will be done. A monitoring program should be considered for the licence to ensure that the plant can handle the truck haul wastes without further upset to the system.*

Disposition:

- The proponent has indicated that a monitoring program is presently being completed by the Municipality and that if the Licence requires a monitoring program any changes or alterations to the present monitoring system will be incorporated. The draft Licence requires a monitoring program.

Canadian Environmental Assessment Agency

- *CEAA has indicated that application of The Canadian Environmental Assessment Act with respect to this proposal will not be required.*

PUBLIC HEARING:

A public hearing is not required.

RECOMMENDATION:

A Licence be issued in accordance with the attached draft. Enforcement of the Licence should be assigned to the Approvals Branch until the upgrading to the sewage treatment plant, including the media and underdrains in the trickling filter, has been completed.

PREPARED BY:

Mike Van Den Bosch, P. Eng.
Environmental Engineer

Municipal & Industrial Approvals
April 7, 1997

Telephone: (204) 945-7015

Fax: (204) 945-5229

E-mail Address: Mike_Van Den Bosch@environment..gov.mb.ca

**A Stage 2 Environment Act Licence was issued on April 16, 1997 - Licence No. 2140
S2**