

**REPORT ON HEARINGS  
RURAL MUNICIPALITY OF PORTAGE LA PRAIRIE  
LIQUID WASTE DISPOSAL FACILITY**

**THE MANITOBA CLEAN ENVIRONMENT COMMISSION  
MARCH 1990**

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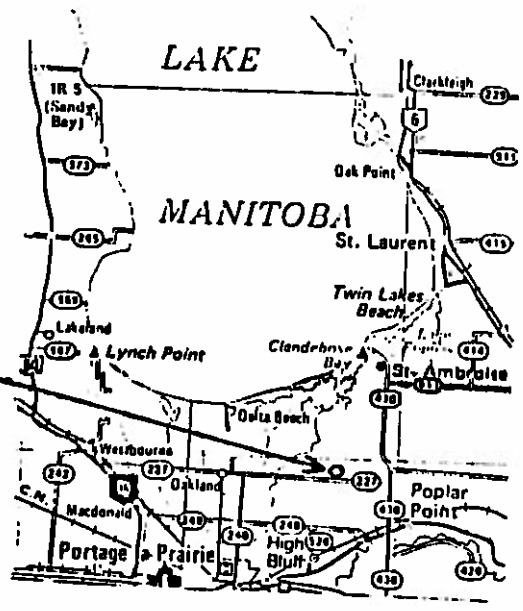
**RURAL MUNICIPALITY OF PORTAGE LA PRAIRIE  
LIQUID WASTE DISPOSAL FACILITY**

**BACKGROUND**

Poetker Engineering Consultants Ltd., acting on behalf of the Rural Municipality of Portage la Prairie, filed a proposal with the Environment Department for an upgraded and expanded liquid waste disposal facility. Located in the municipal waste disposal grounds adjacent to Provincial Road 227 (Section SW 22, Township 13, Range 5 WPM, see Figure 1) and operated in accordance with Environment Licence 1315, the two cell lagoon receives sanitary wastes from holding and septic tanks from residences and local businesses throughout the municipality. Poetker Engineering Consultants Ltd. registration proposed to expand the lagoon by constructing two additional cells (see Figure 2). The proposal is that the additional 2 cell lagoon will provide an adequate surface area to permit evaporation of incoming wastewater with no requirement for discharge of lagoon effluent to the land or surface waterways. Lining the cells with native clay would limit seepage to a small volume.

The P.R. 227 site is operated as a Class 1 waste disposal ground and serves the R.M. of Portage la Prairie and the City of Portage la Prairie. At present there are three distinct and separate disposal activities at the site. Solid wastes from both the City and the R.M. are disposed in one area. Liquid sanitary wastes from the municipality are disposed into the facility discussed in this report. Some sludge removed from the City of Portage la Prairie wastewater pollution control facility is disposed of at a location separate from both the liquid waste disposal facility and solid waste area.

A summary of the proposal submitted to the Environment Department was advertised in appropriate newspapers, following which an objection was received



Liquid Waste Disposal Site

HGE 5W

TWP 13

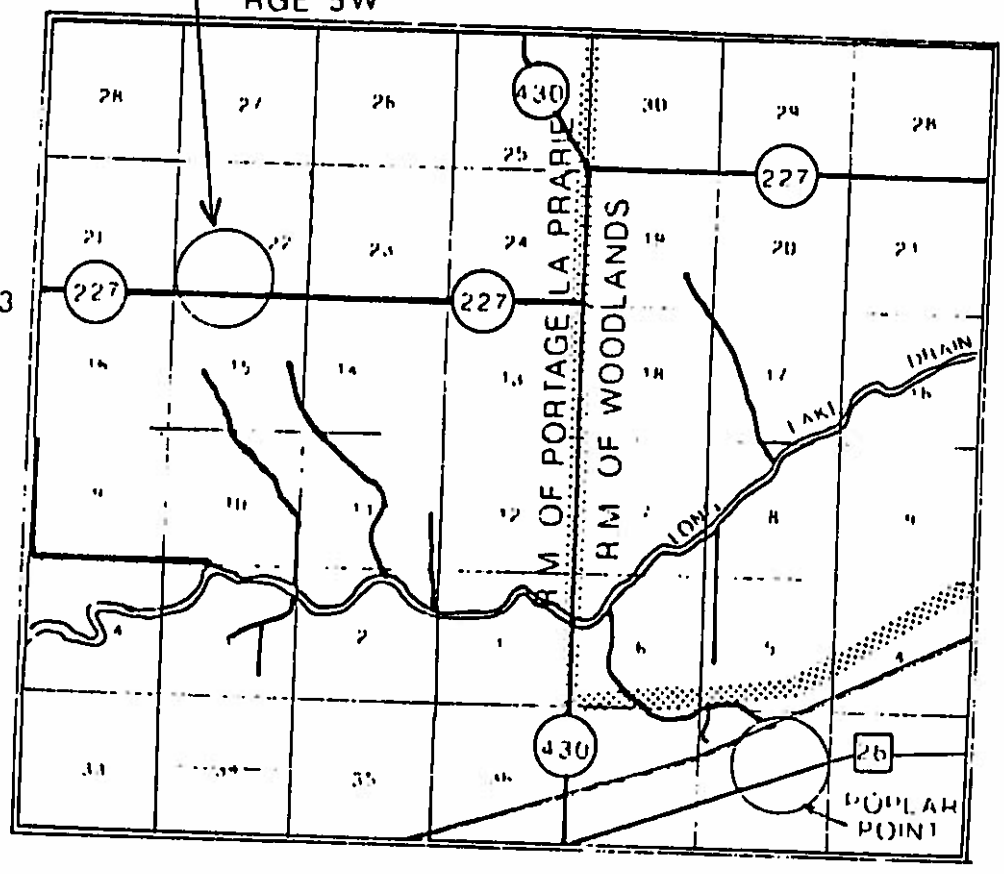
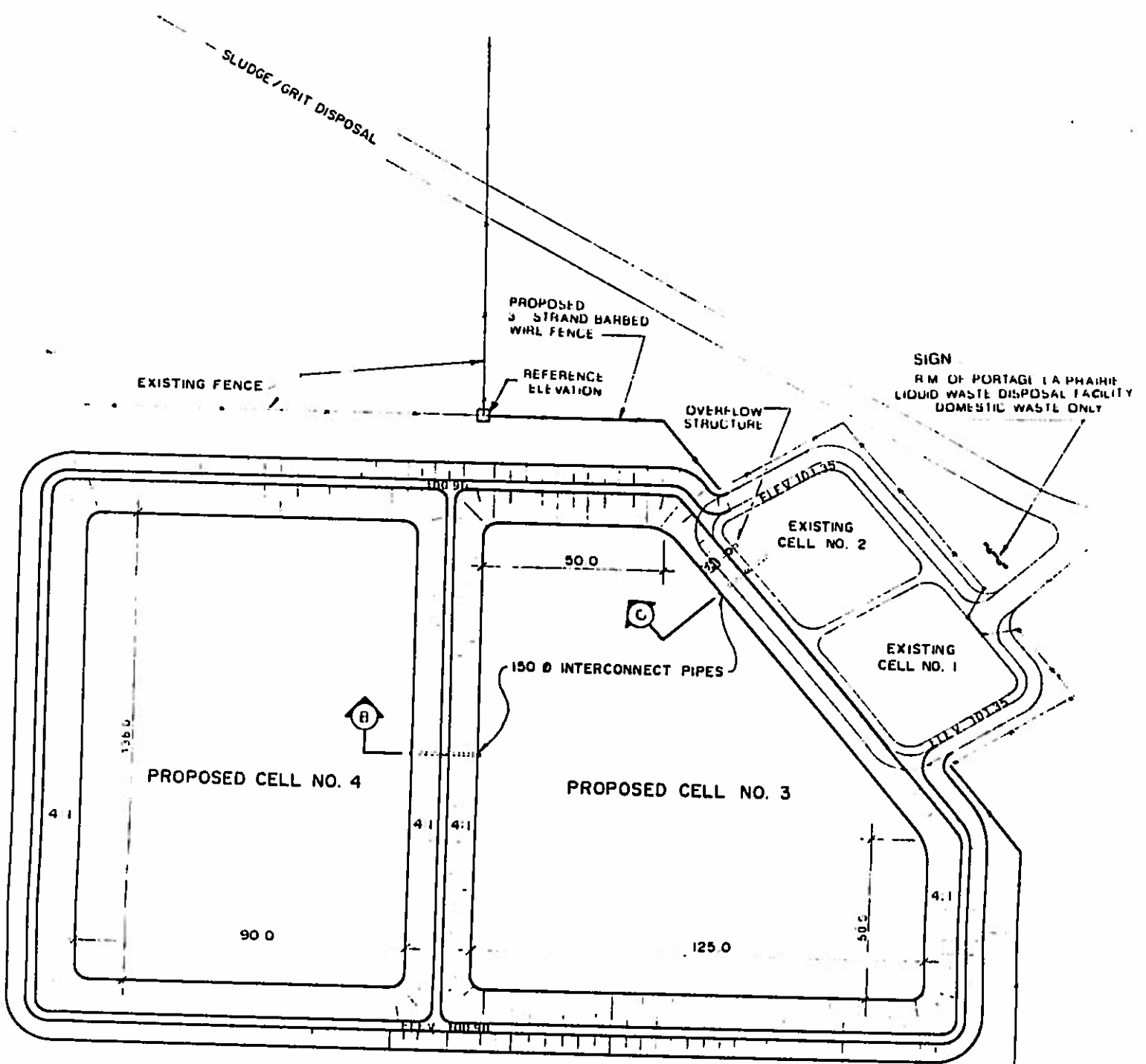


Figure 1



SW 1/4 OF SEC. 22  
TWP. 13, RGE. 5 W.P.M.

TREES AND BRUSH

Figure 2

BACKGROUND (cont.)

by the Environment Department. Accordingly, the Honourable J. Glen Cummings, Minister of the Environment, in a letter dated November 29, 1989, requested that the Clean Environment Commission hold a public hearing on the Licence application and provide him with a report and recommendations.

A public hearing was convened on January 30, 1990 at 10:00 a.m. at the Westward Village Inn, Portage la Prairie, Manitoba. Commissioners in attendance at the hearing were: Mr. Stan Eagleton, Chairperson; Ms. Linda Ericsson; Ms. Donna Plant; and Mr. Maurice Blanchard.

SUMMARY OF PRESENTATIONS

Mr. Alf Poetker, P.Eng., of Poetker Engineering Consultants Ltd. presented the proposal prepared by his company on behalf of the R.M. of Portage la Prairie.

There are approximately 7,000 residents in the municipality. Most residents, aside from the Village of Oakville, which has a communal wastewater facility, dispose of domestic wastewater into septic fields or holding tanks. Contents of holding tanks as well as those from septic tanks that are cleaned or experiencing failure are trucked to the liquid waste facility at the P.R. 227 Class I waste disposal ground. A survey of the wastewater hauling contractors by Poetker Engineering projected that the annual wastewater load to the disposal site will be 17,131 cubic meters.

Since the lagoon site is located on relatively flat terrain with marginal drainage capabilities, Poetker Engineering designed the holding pond facility as an evaporation pond system. Mr. Poetker said that an advantage of this method is that the introduction of contaminants into the environment will be avoided. Wastewater will be treated in cells 1 and 2 and the effluent would overflow to cells 3 & 4. Accumulated sludge in 1 and 2 will be removed periodically to a disposal site in a manner acceptable to the Environment Department.

SUMMARY OF PRESENTATIONS (cont.)

Average evaporation amounts in the area were stated by Mr. Poetker to be approximately 0.6 meters per year from open water surfaces. The exposed water surface required to evaporate projected annual wastewater disposal amounts was determined to be 2.8 hectares (7 acres). Mr. Poetker said it was proposed that cells 3 and 4 will be constructed to provide for a maximum liquid depth of 0.75 meters, which includes a small safety factor to permit storage during wet years. A free board allowance of 0.9 meters is proposed in accordance with conventional lagoon design requirements.

A Stage 1 Environment Licence was issued to the R.M. of Portage la Prairie on October 16, 1989 to upgrade the existing liquid waste disposal facility. The second stage of upgrading, which is the current proposal, is to construct two new evaporation ponds (cells 3 and 4) utilizing native impervious clay. All vegetation, organic material and unsuitable soil would be removed where new embankments are to be constructed. The bottom and sides of the ponds will be scarified and compacted with a sheepsfoot roller, taking care to remove unsuitable material. The dykes will be constructed with excavated material placed in six inch lifts and compacted. Only impervious clay is to be used for a 3 metre width on the entire inside perimeter, thus providing an impervious liner.

A toe drain constructed around the perimeter of the wastewater stabilization pond will prevent water from ponding against the outside toe of the dykes. Existing chain link fencing will be maintained and where required a new three strand barbed wire fence will be installed to restrict access. Embankments will be seeded with a perennial type of low growing spreading grass to prevent erosion.

The lagoon holding facility will receive wastewater delivery by trucks into cell 1. Cells 1 and 2 will be interconnected. Wastewater delivered by truck is primarily anaerobic so that it is expected that cells 1 and 2 will be an anaerobic operation with some odour experienced. Clarified

SUMMARY OF PRESENTATIONS (cont.)

effluent will be decanted from cell 2 into cell 3. As the loading increases cell 4 will receive effluent.

It is not expected that cells 3 and 4 will cause a nuisance odour, apart from a short period during ice breakup. The anaerobic receiving and sludge collection cells (1 and 2) are expected to cause a limited and localized odour, similar to that of the existing operation. Odours overall are expected to be confined to the grounds of the landfill site. It is expected that a scum layer will form on cell 1 and possibly cell 2, and that this layer would help to restrict odour.

The lagoon is at least 3 kilometres from the nearest residence, and is surrounded by a community pasture. A buffer area of trees, approximately 125 meters in width, is being retained between the proposed new cells and the north property line of P.R. 227.

Soils at the proposed site were investigated, and Mr. Poetker said they were found to be suitable for lagoon construction. Materials used in construction of the lagoon will be reworked to mix in any sand or silt encountered. Laboratory tests indicate that the sandy, silty clay has a coefficient of permeability of  $1 \times 10^{-8}$  cm/sec.

Analysis indicated that seepage to the sub-soils will be negligible and groundwater contamination is unlikely. Since no discharge of effluent is proposed there will be no impact caused to drainage systems or surface waters as a result of the operation.

In response to a question Mr. Poetker said that the existing cells were built with locally derived materials. In 1989 his company had supervised the addition of new material on top of the dykes, and this material was properly compacted to ensure it was sufficiently impermeable. Mr. Poetker said that there is no evidence of lateral seepage from the existing cells, and



SUMMARY OF PRESENTATIONS (cont.)

that because of the impermeable nature of clays underlying the lagoon he did not expect there would be any downward seepage. He reiterated his opinion that groundwater contamination was unlikely.

Mr. Poetker stated that the dumping of wastewater into the lagoon is unsupervised. He said the wastes are principally from septic tanks and holding tanks. In answer to questions, Mr. Poetker said that because of the possible addition of unknown contaminants, he could not say whether or not the wastes dumped in the lagoon would be suitable for land application. He said there is a sign at the site prohibiting the dumping of all but sanitary wastes.

Mr. Maris Rutulis, P.Eng., a hydrogeologist from the Water Resources Branch of the Manitoba Department of Natural Resources said that the underlying bedrock in the area is limestone with some shale beds. Overlying the bedrock is a 20 to 40 meter layer of impermeable glacial till composed mainly of clay. There are some scattered, discontinuous sand and gravel deposits in the till.

The main aquifer underlying the site is located in the limestone bedrock, but the water is salty and not useable for human consumption. This aquifer is well protected from surface contamination by the impervious glacial till. The aquifer is confined, meaning that it has a high static water level, and upward movement of water from the aquifer occurs. This may explain why two of the four test holes drilled during an earlier soil investigation filled with water a few hours after drilling, even though initially the holes were dry.

Well water supplies in the area are drawn from small isolated aquifers located at various depths in discontinuous sand and gravel deposits. These aquifers are not connected, and Mr. Rutulis said that in the unlikely event that one of these small aquifers became contaminated, the effect would remain confined to that granular pocket. The nearest wells are several kilometres away and withdraw water from small sand and gravel aquifers that are not connected to aquifers adjacent to the lagoon site.

SUMMARY OF PRESENTATIONS (cont.)

Mr. Rutulis said that the lagoon site is not a significant aquifer re-charge area, and that there is very little groundwater flow in the underlying aquifers. He has inspected other lagoons in the area constructed of similar local clay materials, and these lagoons do not leak or cause ground water contamination. Mr. Rutulis concluded that the lagoon site is acceptable in terms of ground water protection.

Mrs. Ruth Peters, a local resident, said that the proposal to expand the liquid waste disposal facility is part of the broad issue of waste disposal now being faced by society and that the proposal should be considered in that context. The proposal affects everybody, not just her family, because everybody produces waste. There is a need to protect people from unknown pollution, she said, and we need to be innovative and develop new approaches to our waste disposal problems, such as incineration of sewage waste.

One reason why the site of the P.R. 227 waste disposal ground was selected, said Mrs. Peters, was because the land was not considered to be very valuable, but, she said, the site in question contains remnants of the native prairie, which is disappearing. In her opinion the land had been undervalued when the site was selected.

Money that will be spent to upgrade and expand the liquid waste disposal facility would be better spent on developing new disposal methods. Mrs. Peters felt there should be more consideration given to land application of treated effluent. If the effluent was unacceptable due to the presence of unknown chemicals, she did not believe the holding facility was acceptable either.

She questioned the use of the holding facility during a wet cycle. She stated that in wet years overland flow of runoff occurs in the area. She also asked for written assurance that there will be no groundwater contamination.

SUMMARY OF PRESENTATIONS (cont.)

Mrs. Peters said there were many unknowns and unpredictable factors associated with this proposal. Expansion of the facilities and amounts of wastes received at the waste disposal ground has occurred without there ever having been a public review of the overall operation. Mrs. Peters requested that the Clean Environment Commission ask the Minister of Environment to have such a review conducted.

When asked what alternative wastewater disposal methods she thought should be considered, Mrs. Peters said that land disposal should be given greater consideration. Individuals could contribute to solving the problem by reducing water consumption. An overview of waste disposal in the municipality should be conducted and new technology that provides better disposal should be sought and implemented.

Mr. Doug Peterson, P.Eng., Head of the Water Pollution Control Section of the Manitoba Environment Department described the review of the proposal. Copies of the proposal and design report were circulated to appropriate government departments, and a summary of the proposal was advertised in newspapers. There were no concerns identified by the various government departments contacted. The one letter of objection that was received was sent by Mrs. Ruth Peters regarding concerns over potential groundwater pollution and odours from the facility.

Mr. Peterson stated that the environmental impact of the proposed R.M. of Portage la Prairie liquid waste disposal facility is considered to be minimal. He recommended that environmental aspects which should be included in any Licence are as follows:

1. No discharge to surface water or surrounding land area should be allowed.
2. The lagoon cells should be constructed with a soil lining in accordance with the Department's guidelines for lagoon cell construction.

SUMMARY OF PRESENTATIONS (cont.)

3. Post construction soil samples should be taken to confirm that the cells have been lined with appropriate material.

Following this presentation, Mr. Peterson answered a number of questions. He said that the proposal would provide an environmentally acceptable method of disposing the liquid wastes generated in the R.M. of Portage la Prairie. The proposed facility is designed to provide treatment of raw sewage, and there would be no point in pre-treating waste before disposing of it into the proposed liquid waste disposal facility. There are alternative waste treatment methods available that could be constructed to provide acceptable disposal, but Mr. Peterson said the Department had only reviewed the method the R.M. had proposed. He said that because there would be no discharge of effluent, the risk of releasing contaminants to the environment from the proposed facility would be lower than the risk associated with alternative facilities that did involve discharges to the environment.

In response to a question, Mr. Peterson said that hazardous waste disposal is a problem that is being addressed by the Environment Department. Waste generators in Manitoba have been identified, and the disposal of wastes is being tracked. Although it may be possible to dump a tank full of hazardous wastes at the unsupervised disposal site, Mr. Peterson said that such activities are illegal and are controlled by the Department.

In response to a question, Mr. Walter Keryluk, a Public Health Inspector, with the Environment Department, Portage la Prairie, stated that it is illegal to dispose of septic tank pumpout wastewater directly onto agricultural land. Any exceptions to this require the approval of the Minister of Environment. The standard practice in Manitoba is that septic and holding tank pumpouts are disposed of in a liquid waste facility within a registered waste disposal grounds. Mr. Keryluk said that the proposed facility would serve residences in the municipality, and that sewage or sludge from the City of Portage la Prairie would not be disposed of into it.

## CONCLUSIONS

The Clean Environment Commission is of the opinion that the facility, as proposed, would provide an acceptable method for disposing of liquid sanitary wastes generated in the R.M. of Portage la Prairie. There is a need to expand and upgrade the present facility, and this need will be fulfilled if the additional two cells are constructed. In terms of environmental protection, evaporation of effluent from the proposed facility would be a better alternative than discharging treated effluent to surface waters or agricultural land. However, the Commission questions that the evaporation rate presented by the Consultant may be higher than can realistically be expected to occur. The analysis presented in this regard would seem to represent an extremely dry year. On the other hand, the projected annual liquid loading of 17,000 cubic metres might also be considered generous. If the loading reaches or exceeds the projected capacity, the facility would have to be enlarged, which would necessitate the re-registration of the proposal under the Environment Act for further enlargement of the lagoon facilities or alternative action.

Odour problems from the proposed liquid waste disposal facility are expected to be acceptable by virtue of the site location and will be minimized through operational procedures described in the proposal. There will be no danger to groundwater supplies in the area if the lagoon cells are constructed as described in the proposal. Subsurface conditions under the site provide a further significant degree of groundwater protection.

The Commission is also concerned that unauthorized dumping could occur at this site due to the absence of supervision, but on the other hand, midnight dumping can occur at many locations.

**RECOMMENDATIONS**

The Clean Environment Commission recommends that a Stage 2 Licence under the Environment Act be issued to allow the R.M. of Portage la Prairie to upgrade and expand the existing liquid waste disposal facility as described in the proposal prepared by Poetker Engineering Consultants Ltd., subject to the following terms, limits and conditions:

1. The Applicant shall ensure that there is no discharge of wastewater stored in the facility to the environment other than through evaporation to the atmosphere.
2. The Applicant shall take all reasonable measures to ensure that only sanitary liquid wastes be disposed in the facility.
3. The Applicant shall display prominent signs announcing that only sanitary wastes can be placed in the facility.
4. The Applicant shall, in case of physical or mechanical breakdown of the wastewater collection and/or treatment system:
  - (a) notify the Director immediately;
  - (b) identify the repairs to the wastewater collection and/or treatment system;
  - (c) complete the repairs in accordance with the written instructions of the Director.
5. The Applicant shall, prior to the construction of dykes for the wastewater treatment lagoon:
  - (a) remove all organic topsoil from the area where the dykes will be constructed; or,

RECOMMENDATIONS (cont.)

- (b) remove all organic material for a depth of 0.3 meters and a width of 3.0 meters from the area where the dyke will be built, providing all the lagoon dykes are lined with clay or other suitable material as required by Clause 6 to a minimum thickness of one meter measured perpendicular to the face of the side wall.
  
- 6. The Applicant shall construct the wastewater treatment lagoon with clay or other suitable material such that all interior surfaces of the lagoon structure are underlain with a minimum of 1 meter of soil having a hydraulic conductivity of  $1 \times 10^{-7}$  centimeters per second or less.
  
- 7. The Applicant shall arrange with the designated Environment Officer a mutually acceptable time and date for any required soil sampling between the 15th day of May and the 1st day of November of any year, unless prior approval by the Director is given.
  
- 8. The Applicant shall either:
  - (a) subject undisturbed soil samples from the completed wastewater treatment lagoon to hydraulic conductivity tests, the number and location of said samples to be specified by the designated Environment Officer up to a maximum of twenty samples; or,
  - (b) where undisturbed soil samples cannot be taken, test the soil of 4 plane surfaces of the wastewater treatment lagoon for hydraulic conductivity by an in situ field test method as prescribed by the designated Environment Officer.

RECOMMENDATIONS (cont.)

9. The Applicant shall, not less than 2 weeks before the wastewater treatment lagoon is placed in operation, submit to the Director the results of the tests carried out pursuant to Clause 8.
10. The Applicant shall install a fence around the wastewater treatment lagoon to limit access.
11. The Applicant shall control weeds on the lagoon by mowing.
12. The Applicant shall remove and dispose sludge and other solid material accumulated in the lagoon cells in a manner approved by the Environment Department.



APPENDIX

L I S T   O F   E X H I B I T S

10:00 a.m., Tuesday, January 30, 1990

1. Mr. A. J. Poetker, Poetker Engineering Consultants, Brief,  
(dated January 30, 1990).
2. Mrs. Ruth Peters, Poplar Point Resident, Oral Brief.
3. Mr. Doug Peterson, P. Eng., Head, Water Pollution Control,  
Environmental Control Services, Manitoba Environment, Brief  
(dated January 29, 1990).