# ALBERTA
# ENVIRONMENTAL APPEALS BOARD

# Report and Recommendations

**Date of Report and Recommendation – May 19, 2006**

**IN THE MATTER OF** sections 91, 92, 94, 95, and 99 of the *Environmental Protection and Enhancement Act,* R.S.A. 2000, c. E-12,

**-and-**

**IN THE MATTER OF** appeals filed by Marilynn and Lee Fenske and Markus and Tracey Janus with respect to *Environmental Protection and Enhancement Act* Amending Approval No. 20754-00-04 issued to the Beaver Regional Waste Management Services Commission by the Director, Central Region, Regional Services, Alberta Environment.

Cite as: *Fenske and Janus* v. *Director, Central Region, Regional Services, Alberta Environment* re: *Beaver Regional Waste Management Services Commission* (19 May 2006), Appeal Nos. 05-044 & 05-047-R (A.E.A.B.).

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| **HEARING BEFORE:** | | Dr. Steve E. Hrudey, Chair,<br>Dr. M. Anne Naeth, Board Member, and<br>Dr. Harrie Vredenburg, Board Member. |
| **APPEARANCES:** | | |
| | **Appellants:** | Ms. Marilynn and Mr. Lee Fenske and Mr. Markus and Ms. Tracey Janus, represented by Ms. Marilynn and Mr. Lee Fenske. |
| | **Director**: | Mr. Tom Slater, Director, Central Region, Regional Services, Alberta Environment, represented by Mr. Darin Stepaniuk, Alberta Justice. |
| | **Approval Holder:** | Beaver Regional Waste Management Services Commission, represented by Ms. Sheila McNaughtan and Ms. Cherisse Killick-Dzenick, Reynolds Mirth Richard and Farmer LLP. |
| **WITNESSES:** | | |
| | **Appellants:** | Ms. Marilynn and Mr. Lee Fenske and Mr. Markus Janus. |
| | **Director:** | Mr. Tom Slater, Director, Alberta Environment; Mr. David Dowhaniuk, Municipal Approvals Technologist, Alberta Environment; and Mr. Gene Leskiw, Hydrogeologist, Alberta Environment. |
| | **Approval Holder:** | Mr. J. Francis Hugo, Entara Consulting Services Ltd.; and Mr. C.E. Moell, C.E. Moell & Associates Ltd. |
| **BOARD STAFF:** | | Mr. Gilbert Van Nes, General Counsel and Settlement Officer; and Ms. Valerie Myrmo, Registrar of Appeals. |

## EXECUTIVE SUMMARY

Alberta Environment issued an amending approval to the Beaver Regional Waste Management Services Commission amending the original approval for the construction, operation, and reclamation of a Class II Landfill (a landfill that can accept any type of waste except hazardous waste) near Ryley, Alberta. The amendment allows leachate (liquid removed from the landfill cells) with a chloride ion concentration of greater than 3,000 mg/l to be recirculated within the Stage 1 Cell of the landfill.

The Board received two appeals opposing the Amending Approval. The Board held a mediation that did not result in a resolution. The Board proceeded with the appeals and held a hearing.

The Appellants did not provide sufficient evidence for the Board to consider reversing the decision to issue the amending approval. However, the Board noted that there were some important gaps in the scientific information in the application and at the hearing regarding possible negative impacts of recirculating leachate with higher chloride levels. Therefore, the Board recommended to the Minister that the amending approval be varied to require the Beaver Regional Waste Management Services Commission to prepare a number of reports, for review by Alberta Environment, to ensure that there are no outstanding technical, environmental, or health concerns with the recirculation of leachate with higher chloride levels. These reports included:

1. A written report detailing the effects that varying concentrations of chloride in leachate will have on the anaerobic digestion of landfill waste;
2. A written report detailing the effects that various types, fractions, and concentrations of hydrocarbons from the produced sand will have on the landfill's high-density polyethylene liner;
3. A written report detailing the potential hydrogeological connections between the landfill site and Mr. Lee and Ms. Marilynn Fenske's property;
4. A written report reviewing the results from the analysis of the water from the dugout on Mr. Lee and Ms. Marilynn Fenske's property that is used as a domestic water supply; and
5. An updated written report listing all of the wells drilled on the landfill site, including abandoned and reclaimed wells.

The Board noted that this information will also be of assistance to Alberta Environment when it reviews the Beaver Regional Waste Management Services Commission's application to renew the approval for the landfill, which expires in September 2006.

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# I. INTRODUCTION

[1] This is the Alberta Environmental Appeals Board (the "Board") Report and Recommendations regarding appeals filed by Ms. Marilynn and Mr. Lee Fenske and Mr. Markus and Ms. Tracey Janus (collectively, the "Appellants") with respect to the Beaver Regional Landfill (the "Landfill"), a Class II Landfill located near Ryley, Alberta.[1] The Landfill, said to be one of the largest in Canada, accepts municipal waste and produced sand.[2] The produced sand is a waste material from the oil and gas industry and is a potential source of hydrocarbons and chlorides. Among other concerns, chlorides have the potential to contaminate potable water and are an issue in the proper operation of landfills.

[2] The Appellants object to the amendment of the Landfill's *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12 ("EPEA") approval to allow the recirculation of leachate containing more than 3,000 mg/l of chlorides in the Stage 1 Cell of the Landfill.[3] Leachate is the liquid produced by a landfill cell as a result of the breakdown of waste or that has entered the cell and been in contact with the waste.[4] Leachate can contain a variety of contaminants, including chlorides. The management of leachate is one of the key issues in the proper operation of a landfill because leachate that is not contained can provide a vehicle for the escape of contaminants from the landfill. Prior to the amendment, recirculation of leachate was only permitted if it contained less than 3,000 mg/l of chlorides. Any leachate that exceeded this

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[1] A "Class II Landfill" can accept any type of waste, except hazardous waste. See: *Waste Control Regulation*, Alta. Reg. 192/1996, section 1(j).

[2] Produced sand, also known as reservoir sand, is brought to the surface along with oil, water, and gas when heavy oil is pumped out of an oil bearing formation. The sand is separated from the oil through the use of a settling tank. The sand is then transported to proper disposal sites, including landfills such as the one in the current appeals.

[3] The Beaver Regional Waste Management Services Commission was issued Public Health Approval W1075 in 1989 under the *Public Health Act*, S.A 1984, c.P-27.1 (now R.S.A. 2000, c.P-37) and the *Waste Management Regulation*, Alta. Reg. 250/85. As a result of changes in legislation, the Public Health Approval was deemed to be an approval under the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c.E-12. On May 28, 1998, Approval W1075 was consolidated and amended with the issuance of Amending Approval 20754-00-01 ("1998 Approval"). The 1998 Approval effectively replaced the Public Health Approval in its entirety. The 1998 Approval has been subsequently amended, including by way of a 1999 Ministerial Order following previous appeals before the Board. These additional amendments are not relevant for the purposes of the current appeals.

[4] See: *Standards for Landfills in Alberta*, Alberta Environment, Environmental Assurance, Science and Standards Branch (May 2004). Leachate is removed from the bottom of a landfill cell by a leachate collection system that generally includes a permeable drainage layer, a network of perforated piping, and a sump.

chloride concentration had to be trucked from the Landfill site to a facility for treatment or disposal by deep-well injection.

[3] The Stage 1 Cell authorized under the 1998 Approval required an engineered liner system, but provide a choice of construct the liner out of either compacted clay or geosynthetic material. A restriction on the concentration of chlorides in recirculated leachate was included to protect the engineered clay liner from damage by a build-up of chlorides. A build-up of chlorides can damage an engineered clay liner by causing shrinking and cracking, making the liner more permeable and resulting in the potential release of contaminants from the landfill. However, the Stage 1 Cell was redeveloped under the geosynthetic material option, using a continuous synthetic high density polyethylene ("HDPE") liner. The rationale for the amendment to remove the limit on the chloride concentration in the recirculated leachate is that the choice of the HDPE liner, versus a compacted clay liner, removes the concern about high concentrations of chlorides damaging the engineered clay liner.

[4] The operator of the Landfill requested the amendment because it believes recirculation is an acceptable, if not a preferable, way to manage leachate, and it reduces operating costs because the leachate no longer needs to be disposed of at an offsite facility as frequently. The Appellants oppose the amendment because they believe that it is preferable to remove as much leachate from the Landfill site as possible to reduce the risk of a potential release of leachate, which may impact groundwater quality.

## II. PROCEDURAL BACKGROUND

[5] On October 21, 2005, the Director, Central Region, Regional Services, Alberta Environment (the "Director"), issued Amending Approval No. 20754-00-04 (the "Amending Approval") under EPEA, to the Beaver Regional Waste Management Services Commission (the "Approval Holder"), amending the approval for the construction, operation, and reclamation of a Class II Landfill, located at NE-10-50-17-W4M near Ryley, Alberta.

[6] On November 10 and 15, 2005, the Board received Notices of Appeal from Ms. Marilynn and Mr. Lee Fenske and Mr. Markus and Ms. Tracey Janus appealing the Amending Approval. On November 10 and 16, 2005, the Board wrote to the Appellants, the Approval

Holder, and the Director (collectively the "Parties") acknowledging receipt of the Notices of Appeal and notifying the Approval Holder and the Director. The Board also requested the Director provide the Board with a copy of the records (the "Record") relating to the Amending Approval.[5]

[7] According to standard practice, the Board wrote to the Natural Resources Conservation Board and the Alberta Energy and Utilities Board ("AEUB") asking whether this matter had been the subject of a hearing or review under their respective legislation. Both boards responded in the negative.

[8] On December 15, 2005, in consultation with the Parties, the Board scheduled a mediation meeting for January 17, 2006.[6] Following detailed discussions at the mediation meeting, no resolution was reached and the Board proceeded to schedule a hearing.

[9] On February 13, 2006, in consultation with the Parties, the Board scheduled the hearing of these appeals for April 21, 2006, in Edmonton, Alberta.[7] The Parties were notified of the date of the hearing and the procedure which would be followed.[8]

[10] The Board received the Parties' submissions on April 11, 2006, and the hearing was held on April 21, 2006.

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[5] On December 2, 2005, the Board received a copy of the Record from the Director, and on December 8, 2005, a copy was forwarded to the Appellants and the Approval Holder.

[6] The Board conducted a mediation meeting pursuant to section 11 of the *Environmental Appeal Board Regulation*, Alta. Reg. 114/93, which provides:

> "Where the Board has determined the parties to the appeal, the Board may, prior to conducting the hearing of the appeal, on its own initiative or at the request of any of the parties, convene a meeting of the parties and any other interested persons the Board considers should attend, for the purpose of … mediating a resolution of the subject matter of the notice of appeal …."

[7] On February 16, 2006, the Board wrote to the Village Administrator for the Village of Ryley, asking them to place the Notice of Hearing on the Village of Ryley's public bulletin board. Copies of the Notice of Hearing were also sent to persons who were named as interested persons and the McPherson Public Library in Ryley, Alberta.

[8] On March 8, 2006, the Board received a request from the Appellants for the Approval Holder to provide additional information and data, including information on the wells drilled on the Landfill site and the dewatering of the Landfill site. The Board asked the Appellants to provide further details explaining why the information they were requesting was relevant to their appeals. They provided a response on March 22, 2006. The Board received the Approval Holder's and the Director's responses to the Appellant's document production request on March 31, 2006. Based on the submissions and a review of the Record, the Board notified the Parties on April 5, 2006, that the Approval Holder was to provide the information requested by the Appellants. The information was provided to the Parties and the Board on April 7 and 10, 2006. At the hearing, the Appellants indicated they had no further concerns with their information request.

# III. SUBMISSIONS

## A. Appellants

[11] The Appellants explained the Fenske farm is diagonally adjacent to the Landfill, and the Janus farm is located approximately half a mile from the Landfill. They listed the issues under appeal as: trucking of leachate, recirculation of leachate, effects on shallow groundwater, effects on surface water, effects on deeper aquifers, and odour.

[12] The Appellants stated the Amending Approval allows for recirculation of leachate with chlorides of unlimited concentration in the operation of the Stage 1 Cell of the Landfill. The Appellants referred to the Approval Holder's letter dated March 31, 2006, where it stated the leachate from the Stage 1 Cell had returned to the allowable limit of 3,000 mg/l chloride. The Appellants argued this indicates leachate has not been "hauled" from the Stage 1 Cell since September 2005.

[13] The Appellants questioned why the Approval Holder needs the Amending Approval considering its approval needs to be renewed in approximately four months.

[14] The Appellants explained the Fenske's domestic water supply is drawn from a dugout located within 300 metres of the Landfill, and there are an additional six dugouts on the Fenske's land.

[15] The Appellants stated the containment of the leachate depends on the alleged infallibility of the engineered containment system. The Appellants explained that if all the drilled wells on the Landfill site are not accounted for, the wells will provide a pathway for leachate migration from the Landfill.

[16] The Appellants stated the "…waste landfilled at the site will be entombed in the water table as this is a zone of saturation [for the] landfill."[9] The Appellants argued all landfills leak and the leachate will eventually migrate offsite. The Appellants stated the risk of migration and the risk of contamination of the environment are borne by the adjacent landowners, which is unacceptable. The Appellants, therefore, requested the Amending Approval be cancelled.

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[9] Appellants' submission, dated April 11, 2006, at page 3.

**B. Approval Holder**

[17] The Approval Holder explained the Amending Approval allows the Approval Holder to recirculate leachate that exceeds 3,000 mg/l of chloride in the Stage 1 Cell and to recirculate Stage 1 Cell leachate back onto the working face of the cell. The Approval Holder explained that in the 1998 Approval, the Approval Holder could only recirculate leachate that did not exceed a concentration of 3,000 mg/l of chloride, and if the leachate exceeded 3,000 mg/l of chloride, the leachate had to be disposed of at a treatment facility or deep-well disposal facility. According to the Approval Holder, these provisions were incorporated into the 1998 Approval because of concerns about the potential deterioration of an engineered clay liner in contact with high chloride concentrations. The Approval Holder explained that instead of an engineered clay liner system, a continuous HDPE liner was used in the redevelopment of the Stage 1 Cell. Therefore, the concerns relating to the deterioration of a clay liner from exposure to chlorides did not apply. The Approval Holder stated between September 2004 and September 2005 leachate from the Stage 1 Cell exceeded 3,000 mg/l of chloride, which required the leachate to be removed on a regular basis and transported to and disposed of at a Newalta facility near Redwater, Alberta.

[18] The Approval Holder stated that, in reviewing the application, the Director considered: leachate volumes that may be produced in the Stage 1 Cell based on the actual leachate produced in the Stage 1 Cell as well as in the other stages of the Landfill; the proposed method to recirculate the leachate; potential for odours from recirculation of leachate; issues with Landfill traffic; whether recirculation would continue after the Stage 1 Cell was filled and closed; and whether recirculation of leachate to the Stage 1 Cell would be addressed in the operations plan.

[19] According to the Approval Holder, it provided responses to questions raised by the Appellants in their Statements of Concern, even though it did not accept the relevance of some of the questions. The Approval Holder explained its response to the Appellants on August 14, 2005, where it addressed issues including:

- the concentration levels of chlorides in the Stage 2 and 3 Cells;
- confirmation that leachate from the Stage 2 and 3 Cells would not form part of the recirculated leachate in the Stage 1 Cell;
- confirmation that the Approval Holder would be relying on total absorption of the leachate into the biomass to accommodate the leachate recirculation;
- the method of spraying the leachate and confirmation that year round spraying was contemplated;
- the type of material used for daily cover;
- the potential lag time between spraying and covering the area;
- expectations that the nominal odour emanating from the Stage 1 Cell would be no different than the odour emanating from the Stage 3 Cell leachate recirculation;
- expectations that changes in the concentration levels of some constituents in the leachate would occur initially, but would diminish over time;
- projected time for the closure and reclamation of the Stage 1 Cell;
- information on long term leachate management post-closure;
- interpretation that the hydrogeologic characteristics of the area do not support concerns about potential groundwater contamination in wells and dugouts;
- information on the liner used in the Stage 1 Cell;
- confirmation that leachate recirculation is a proven, effective, and practical method of leachate management in landfills with HDPE liners;
- expectations that no significant adverse effects would result from leachate recirculation; and
- an explanation of the purpose of certain components of the Landfill in relation to leachate, including the interceptor trench and the groundwater and surface water quality monitoring.

[20] The Approval Holder stated that on October 7, 2005, it also addressed the following issues for the Appellants:

- the high concentration of chlorides in the Stage 1 Cell originated from the produced sands, which are a residual from the oil industry;
- the produced sand can be accepted at the Landfill and can be used as cover material;

- the produced sand was used as a protective cushion over the HDPE liner to protect it from damage;
- that with heavy precipitation chlorides were rapidly leached from the produced sand;
- the produced sand was also accepted into the Stage 2 and 3 Cells, but because it was deposited higher up in the waste mass, the chloride levels in the leachate collected by the leachate collection system, at the bottom of the cell were lower;
- an explanation of the method of leachate recirculation and plans for future cells to help reduce the opportunity for direct exposure of leachate to the atmosphere;
- use of stormwater retention ponds on the Landfill site and other available alternatives to manage leachate in the event calculations of absorptive capacity were too low or if there is a period of extreme precipitation prior to the closure of the cell;
- expectations of final capping and reclamation of the finished slopes in the Stage 1, 2, and 3 Cells;
- expectations that leachate management through recirculation and trucking for offsite disposal would continue in all three cells until final capping and reclamation of the cells;
- an explanation that there is no hydraulic connection from the northeast corner of the Landfill to the Fenske's dugouts;
- leachate from the Landfill is not considered hazardous waste;
- an explanation that differences between the Moell Report and the Golder Associates Report were a result of additional monitoring carried out for the Moell Report; and
- the design principle for the Stage 1 Cell following closure is for natural attenuation to resolve potentially adverse effects should leakage occur.

The Approval Holder stated it responded to a number of issues they believed were not relevant to the Amending Approval, such as complaints of odours, noise pollution, and litter on the Fenske property, the past history of approvals, and comments regarding the upcoming application for the renewal of the operating approval for the Landfill.

[21] The Approval Holder stated that, other than the amendment in the Amending Approval, it will continue to operate the Landfill in accordance with the 1998 Approval and the 1999 Ministerial Order.

[22] The Approval Holder explained the 1998 Approval required the liner be compacted clay or geosynthetic material. The Approval Holder stated that under the 1998 Approval, recirculation of leachate with less than 3,000 mg/l chloride concentration was an acceptable management procedure, but if the chloride concentration exceeded 3,000 mg/l, the leachate had to be removed and disposed of at a treatment facility or deep-well disposal facility. The Approval Holder stated that limiting the chloride concentration addressed concerns of the possible deterioration of engineered clay liner systems, but the Stage 1 Cell was reconstructed with a continuous HDPE liner system for leachate containment. The Approval Holder stated leachate recirculation is a proven, effective, and practical method of leachate management in landfills with engineered liners for containment, and there is no significant adverse effect resulting from leachate recirculation.

[23] The Approval Holder stated that from September 2004 to September 2005, the chloride concentration exceeded 3,000 mg/l, requiring off-site disposal by truck to the facility in Redwater and adding substantial costs to the operation of the Landfill. The Approval Holder explained approximately 60 cubic metres of leachate may be produced in the Stage 1 Cell per month. This figure is based on the current use and development of the cell, the actual amount of leachate generated and recirculated in the Stage 2 and 3 Cells since 1998, and estimates of future precipitation.

[24] The Approval Holder explained the recirculation method will include using a submersible pump to remove leachate from the sump, trucking the leachate to the working face, and spraying it over the work face prior to applying the daily cover. The Approval Holder stated that the trucks and tanks on-site, and used for the Stage 2 and 3 Cells, will be used for the Stage 1 Cell recirculation. It explained that, occasionally, a portable pump may be used to pump directly to the working face from the sump.

[25] The Approval Holder stated the surface runoff from the site either remains on the site or is conveyed to a stormwater retention pond for storage. According to the Approval Holder, surface water runoff from the interior slopes of the Landfill is maintained within the cells and is absorbed within the waste fill or managed through the leachate collection system.

[26] According to the Approval Holder's consultant, Mr. Moell, the Landfill site is essentially devoid of aquifers, and he concluded: "There are no hydrostatigraphic units underlying the site to depths of at least 20 m that would qualify as groundwater aquifers of continuous water-bearing zones of any consequence, …" and the "…only potential pathway for the migration of the landfill fluids lies within six metres of the surface, represented by the weathered bedrock zone extending to, or less than this depth from the surface."[10] Mr. Moell concluded the potential pathway does not represent a continuous hydraulic zone and leachate migration within this depth interval is unlikely. Therefore, according to the Approval Holder, there is no scientific basis for the Appellants' concern for potential groundwater or surface water contamination.

[27] According to the Approval Holder, recirculation has been used on the Stage 2 and 3 Cells with no apparent odour problems. The Approval Holder explained the recirculated leachate will be covered immediately after being sprayed on the surface of the waste, and as increased concentration of chlorides do not contribute to odour, it does not anticipate odour problems.

[28] The Approval Holder stated it installed monitoring wells as part of the 1998 Approval and 1999 Ministerial Order, and to date, the results of the monitoring wells have not indicated any concerns with elevated chloride levels. The Approval Holder stated the monitoring will continue with the Amending Approval.

[29] The Approval Holder argued the Director's decision is correct, reasonable, and meets the purposes of EPEA, and the Appellants have not presented any evidence to support an argument that the Director's decision should be reversed or varied. The Approval Holder further argued the Appellants did not provide any scientific or technical evidence to support their appeals.

[30] The Approval Holder stated the matters relating to the 1998 Approval and the 1999 Ministerial Order are not before the Board. The only issue before the Board is the

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[10] Approval Holder's submission, dated April 11, 2006, at paragraph 28.

amendment in the Amending Approval. The Approval Holder requested the Board dismiss the appeals.

**C. Director**

[31] The Director explained the Amending Approval allows leachate with a chloride ion concentration of greater than 3,000 mg/l to be recirculated within the redeveloped Stage 1 Cell. The Director stated the main goal of leachate management is the protection of surface and groundwater resources. He explained leachate recirculation is an acceptable management method that was allowed under the 1998 Approval. The Director stated the surface and groundwater resources are protected by the integrity of the Landfill liner system.

[32] According to the Director, leachate recirculation offers environmental benefits compared to treatment or deep-well disposal, including: additional moisture is added back into the waste which can enhance biological processes that decompose and help stabilize the waste; waste volumes can be reduced through enhanced evapotranspiration; leachate recirculation can reduce the concentration of some organic constituents through biological, physical, and chemical processes; and the risk of spills associated with offsite transport of leachate is eliminated. The Director stated the additional moisture from the leachate recirculation will make the waste less prone to produce wind blown litter. The Director explained he does not consider offsite treatment or deep-well disposal as methods superior to leachate recirculation; they are all appropriate leachate management alternatives.

[33] The Director explained the Amending Approval removes the requirement for offsite treatment or deep-well disposal of leachate with a chloride ion concentration greater than 3,000 mg/l from the Stage 1 Cell. He stated the 3,000 mg/l trigger was included in the 1998 Approval because, at that time, the Landfill design allowed for a compacted clay liner system, and the chloride threshold was set to protect against deterioration of the clay liner. The Director explained the Stage 1 Cell was ultimately developed using a HDPE liner. Compatibility of an HDPE liner with higher chloride concentrations is not an issue.

[34] The Director explained another consideration associated with the removal of the chloride trigger was the "…evaluation of whether additional leachate volume could increase the

hydraulic loading on the liner system to an extent that would compromise integrity."[11] The Director stated the Approval Holder provided estimates of the total leachate volumes that could be produced in the Stage 1 Cell, and the "…estimates showed the waste mass is more than adequate to absorb and retain the leachate before reaching full saturation."[12]

[35] The Director stated that, under condition 4.3.14 of the 1998 Approval,[13] the Approval Holder is still required to remove any accumulation of leachate in the collection system exceeding a depth of 300 mm over the liner.

[36] The Director explained he does not expect the higher concentration of chlorides in the recirculated leachate to alter the odour characteristics because chlorides are not viewed as being a contributor to odour. The Director stated there will be a larger volume of leachate to deal with onsite, creating the potential to increase odours related to the presence of odour causing leachate constituents, but this can be managed with operational practices.

[37] The Director submitted that he properly exercised his discretion in issuing the Amending Approval, and he requested the appeals be dismissed because there is no basis for reversing or varying the Amending Approval.

## IV. DISCUSSION

[38] Under section 99 of EPEA, the Board provides recommendations to the Minister to confirm, reverse, or vary the Director's decision, which in this case is the issuance of the Amending Approval to allow the Approval Holder to recirculate leachate with more than 3,000 mg/l of chloride in the Stage 1 Cell of the Landfill. The Board can only consider those issues related to the Amending Approval, not the original 1998 Approval.

[39] The Appellants live adjacent to or in very close proximity to the Landfill. They raised legitimate concerns about operations at the Landfill, including concerns about: the

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11 Director's submission, dated April 11, 2006, at paragraph 15.

12 Director's submission, dated April 11, 2006, at paragraph 16.

13 Condition 4.3.14 of the 1998 Approval states:

"The approval holder shall remove any accumulation of leachate in the leachate collection system which exceeds a depth of 300 mm over the liner."

recirculation of leachate, the effect of increased chloride concentrations on groundwater and surface waters should the HDPE liner fail, and the possible increase in odours. They also questioned whether all of the non-operational monitoring and testing wells were properly reclaimed to prevent the possibility of these wells providing a pathway for groundwater contamination. The Appellants and their families have lived in the area for decades and their attachment to the land and the area is evident.

[40] The only aspect of the operations of the Landfill that can be considered in these appeals was the change introduced by the Amending Approval, leading to concerns about the potential effect of recirculation of leachate with higher chloride levels. Under the 1998 Approval, the Approval Holder had the ability to recirculate leachate in the cells. The Amending Approval removed the limit for chloride concentrations in the leachate. This is the only issue that has to be considered: How would the amendment cause harm to the Appellants and the environment?

[41] As stated in previous Board decisions,[14] the onus is on the Appellants to provide sufficient evidence and arguments to support their position and to demonstrate to the Board that the Director's decision should be reversed or varied. The Appellants put their concerns into context by explaining where they are located in relation to the Landfill and the topography of the area. The Board believes the Appellants' issues were relevant and justified. Although the Appellants provided valuable evidence about their concerns and helped to put the project into context, they did not provide sufficient evidence to the Board to justify reversing the Director's decision.

[42] However, this does not mean the Board is content with the information that the Approval Holder filed in its application for the Amending Approval or presented at the hearing. During questioning at the hearing, a number of issues were raised that could not be answered by

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[14] See: *Paron et al*. v. *Director, Environmental Services, Northeast Slopes Region, Alberta Environment* (1 August 2001) Appeal Nos. 01-045-047-D; *Northcott* v. *Director, Northern Region, Regional Services, Alberta Environment*, re: *Lafarge Canada Inc.* (11 January 2005), Appeal Nos. 04-009, 04-011, and 04-012-R (A.E.A.B.); *Bailey et al. #2* v. *Director, Northern Environmental Slopes Region, Environmental Services, Alberta Environment*, re: *TransAlta Utilities Corporation* (18 May 2001) Appeal Nos. 00-074, 077, 078, 01-001-005-R (A.E.A.B.); and *Lederer and Chant* v. *Director, Bow Region, Alberta Environment* re: *Spruce Valley Ranch Ltd.* (6 March 2001) Appeal Nos. 00-068 and 00-069-D (A.E.A.B.).

the Approval Holder's witnesses or the Director's witnesses, raising a concern about the completeness of the information available to the Director when he made his decision. As a result, the Board will recommend to the Minister that the Amending Approval be varied to require the Approval Holder provide reports to fill in the gaps in the available information to ensure there are no outstanding technical, environmental, or health concerns with the recirculation of leachate at higher concentrations of chloride. The Board's concern is that something may have been missed in the application process for the Amending Approval, and to ensure the proper protection of the environment, and particularly potable water supplies in the area, the Board is of the view that the Director needs to review additional information from the Approval Holder.

[43] The Board notes that the 1998 Approval and Amending Approval are up for renewal in September 2006. The Board believes this additional information on the recirculation of leachate will be of assistance to the Director when he considers the renewal application. Therefore, the Board will recommend that the Amending Approval be varied to ensure the Director receives this additional information prior to considering the renewal application.

## A. Leachate

[44] One of the major concerns raised by the Appellants was the effect of higher chlorides in the recirculated leachate. The Approval Holder and the Director provided evidence to show the use of a HDPE liner is an accepted practice in landfills and no evidence was provided to show it is not an acceptable practice. However, the Board is concerned about the absence of solid evidence provided by the Approval Holder and the Director regarding other effects that may occur as a result of allowing higher concentrations of chlorides in the leachate. The Board understands that the Approval Holder and the Director made the decision to allow recirculation of leachates with higher chloride levels based on the absence of known adverse effects of chlorides on HDPE liners.

[45] The Board would prefer that the Approval Holder had provided the Director with a more in-depth consideration of the proposal. These are several questions that should have been answered before making the determination to proceed with the proposal. Considering only one

aspect is insufficient to base a decision that could have detrimental effects to the environment, and ultimately to the citizens of Alberta. The Board appreciates that the Director was amending only one part of the 1998 Approval and probably viewed it as a minor amendment, because the Approval Holder was already allowed to recirculate leachate in the Stage 1 Cell, just at lower chloride concentrations. The Board recognizes that Alberta Environment has concerns about limited resources and manpower available to deal with every application of this nature. However, ultimately it is the Approval Holder's application, and if there is more information needed or further research required to be certain of a particular condition, the Director should ask the Approval Holder to provide complete information in support of the application. Being confident that all relevant information has been provided would ultimately result in a better approval. The additional information would also provide those living in the area with a better understanding of the project.

[46] The question of how higher levels of chloride could affect the anaerobic digestion of the waste was not considered. Mr. Hugo, witness for the Approval Holder, conceded there is a possibility that high levels of chloride could have a significant adverse affect on the Landfill, including negatively affecting the biodegradation of waste that could possibly result in an increase of odours. A major justification for leachate recirculation in municipal landfills is to enhance the biodegradation of wastes. Any adverse effects on biodegradation caused by chlorides would defeat the purpose of this action. As neither the Approval Holder nor the Director could provide any information on possible adverse effects, if any, of higher levels of chloride in leachate on biodegradation, the Board will recommend the Amending Approval be varied to require the Approval Holder to provide a report on the effects of chlorides on anaerobic digestion of landfill waste, including information on what concentration could cause an adverse affect. The Board believes that it is insufficient to wait until the Landfill ages to see if problems arise. The Approval Holder should prevent problems from arising if they are foreseeable.

[47] The Board is mindful of the experience of the Director and his staff and how each application received by the Director, whether it be for a landfill or some other facility, is a learning experience. By requiring the Approval Holder to provide information on the effects of chloride concentrations on the anaerobic digestion of waste, the Director and his staff will have

additional information, so that when the application is received to consider the renewal of the 1998 Approval and the Amending Approval, the Director will know even more and will be able to develop an even better approval, should one be issued.

## B. Surface and Groundwater

[48] The Appellants raised the possibility of surface runoff water from the Landfill entering their dugouts or groundwater supplies. Based on the information presented regarding the construction of the Landfill site, it appears the Appellants should not be affected by surface water runoff leaving the Landfill site and flowing into their water sources. The Approval Holder explained the Landfill is designed so that any surface runoff is contained within the Landfill site, either in retention ponds or within the cells. No evidence was provided to contradict or bring into question the evidence provided on this point. The site was chosen for the Landfill because of the favourable soil, topographic, and hydrogeologic properties.

[49] The Appellants also expressed concern that there is a possibility of a connection between the groundwater aquifer under the Landfill and the groundwater aquifer under their properties. The Approval Holder explained the hydraulic conductivity is very low and there is very little hydraulic head, both reducing the possibility of leachates leaving the Landfill site.[15] The soils in the area have low transmission rates as demonstrated by the amount of standing water on the site.

[50] Mr. Moell, witness for the Approval Holder, explained the difference between passive and active aquifers. An active aquifer has water that flows through the geologic deposit, whereas in a passive aquifer, the geological deposit is saturated with water that does not flow through the aquifer at any appreciable rate. It appears from the information and data provided, the Landfill site is located over a passive aquifer. The water present in any saturated zone essentially does not flow from the Landfill site. These factors support the claim that the site has the characteristics looked for when locating a landfill.

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[15] Hydraulic conductivity is defined as "…the ability of the soil to transmit water under an imposed potential gradient…. The ability of soils to conduct water is a function of pore size and the degree to which the pores are filled with water." R.L. Hausenbuiller, *Soil Science Principles and Practices*, 3rd ed., (Dubuque: Wm. C. Brown,

[51] Further, the Stage 1 Cell has essentially a double layer of protection. It has an impermeable HDPE liner constructed over a naturally impermeable clay formation. This natural clay formation also acts a barrier to the infiltration of leachates into the subsoil and potentially any aquifer. The rationale for using such impermeable liners with leachate collection and recirculation is to retain all the contaminants in the waste long enough that all of the degradable components can be degraded over time with the landfill cell. As a result, there does not appear to be any evidence to demonstrate that there is a connection between this Landfill and the groundwater aquifer.

[52] While, the Board accepts that it seems unlikely that there is a hydraulic connection between the Landfill and the Fenske's water supply, the Board is concerned that Mr. Moell's conclusion on this point is based solely on a comparison of Total Dissolved Solids ("TDS") in the Fenske's domestic water dugout and in the nearest wells. Although the difference in TDS is indicative that any hydraulic connection should be limited, the difference in TDS could also be explained by dilution of higher TDS water infiltration with low TDS surface water. The Board believes there is sufficient information available to do a more complete assessment of the possibility of any hydraulic connection between the Landfill and the Fenske's water supply. Therefore, the Board will recommend that the Amending Approval be varied to require the Approval Holder to provide a detailed hydrogeologic report to the Director looking specifically for any potential hydraulic connection between the Landfill and the Fenske's water supply. This will provide additional information on the hydrogeology of the site that will hopefully provide some degree of reassurance for the Appellants that their water will not be affected by the Landfill. If the report shows there is a possible connection, the Director should determine what measures need to be taken to protect the water sources in the area.

[53] The Board is also of the view that when the Approval Holder prepares this report it would be useful to also look at the possibility of any hydrogeological connect between the Landfill site and the Janus' land. While the distance between the Janus' land and the Landfill site makes it unlikely that there is any connection, the Board is of the view that this information

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1985) at page 172. Fine soils, such as clays, are not very good conductors of water even when saturated. Hydraulic head measures the amount of potential energy available to drive groundwater flow through an aquifer.

will provide the Janus' with an additional level of reassurance and would demonstrate goodwill on the part of the Approval Holder.

[54] The Approval Holder tests the water quality of the Fenske's dugout twice a year at the same time the monitoring wells are tested at the Landfill site. The Board believes this is a valuable undertaking and should continue. It provides information to the Approval Holder, the Appellants, and the Director. However, the results from the analysis of the Fenske's dugout have not been automatically provided to the Fenskes. The Fenskes should not have to ask for information concerning their own water source. Therefore, the Board will recommend that the Amending Approval be varied to require the Approval Holder to provide the results of the water analysis of the Fenske's dugout to Mr. and Ms. Fenske when it becomes available.

## C. Odour

[55] Another issue raised by the Appellants was the potential increase in odours. They explained that at the present time they are already overwhelmed by odours from the Landfill site, depending on the temperature, humidity, and wind direction. The Approval Holder stated it did not anticipate odour problems because recirculation has been used in the Stage 2 and 3 cells with no apparent odour problems and the recirculated leachate will be covered immediately.

[56] The Appellants live next to a major landfill. There is no doubt that landfills cause odours to some degree. While the Approval Holder does not anticipate odour problems, it did not address the potential for cumulative odour effects. Stage 2 and 3 cells may release minimal odours, but with the addition of the Stage 1 cell leachate being kept on-site and recirculated, there is the potential for increased odours.

[57] The Appellants suggested the Approval Holder plant shelterbelt trees along a berm on the northeast corner of the Landfill site with the logic that trees absorb carbon dioxide, a gas that is emitted from landfills. The Board believes there is some merit to examining the use of trees as a buffer zone to decrease odour, and therefore, the Board strongly encourages the Approval Holder to consider establishing and maintaining a shelterbelt along the northeast corner of the Landfill site. Although aesthetics was not an issue in these appeals, planting trees on the perimeter of the Landfill site would also improve the visual impact of the Landfill site for

adjacent landowners and visitors to the area, and would be a worthwhile gesture of goodwill by the Approval Holder.

**D. Decommissioned Wells**

[58] The Appellants raised concerns with abandoned wells on the Landfill site that have not been decommissioned properly, thereby leaving the possibility of leachate entering the groundwater through openings or eroded casings. It surprises the Board that the Approval Holder showed minimal concern about the potential effect that improperly decommissioned wells may have on the operation of the Landfill. The Approval Holder could not tell the Board how many boreholes may exist on the property, regardless of whether the Approval Holder, Alberta Environment, or previous landowners drilled the boreholes. Considering the further development the Approval Holder intends to undertake, the Board considers it necessary to account for these boreholes on the site by determining the location of all wells on the site and ensuring documentation is maintained for each of the wells that are decommissioned, abandoned, or reclaimed. The Approval Holder should also properly reclaim all abandoned wells found on the site. The Board recommends that the Amending Approval be varied to add a condition that the Approval Holder conduct a thorough assessment to determine the location and status of all wells previously and presently drilled on the Landfill site. A copy of the results of the assessment is to be provided to the Director.

[59] Mr. Moell, one of the witnesses for the Approval Holder, explained he uses the terms “reclaimed well” and “abandoned well” synonymously. With respect, the Board disagrees that these terms mean the same thing. There is a critical distinction between an abandoned well and a reclaimed well. An abandoned well is no longer being used, often simply left to collapse over time, but it has not been reclaimed. A reclaimed well is when the borehole has been properly sealed, usually by backfilling the borehole with bentonite mud.

[60] The Board is concerned with the site management practices of the Approval Holder. The Approval Holder had no record of the wells that have been reclaimed. This type of information should be in the Approval Holder’s possession. At the hearing, it was explained that the consultant had the information, but the Approval Holder did not have the information until a

few days before the hearing. Given the development of the site, the Approval Holder should have sought out this type of information long before the hearing or even before the application was made to amend the Approval. While the Approval Holder must rely on specialized consultants to provide technical services, the Approval Holder is ultimately responsible for the integrity of the site. The Approval Holder must be able to satisfy the Director that it is capable of exercising that responsibility.

[61] The Board was surprised the Approval Holder did not have a representative from the Beaver Regional Waste Management Services Commission at the hearing; only two consultants appeared as witnesses. The Board recognizes these witnesses provided scientific data, but a representative of the Commission itself could have provided information on the actual day-to-day operations of the facility and could have explained why information, such as that regarding the reclaimed wells, was not sought out. The Board would also have had an opportunity to establish from a representative of the Commission whether it recognized its responsibilities under their EPEA Approval.

[62] As the issue of abandoned wells will, in all likelihood, increase as development in the Province continues, the Board believes it would be useful for Alberta Environment to consider a mechanism by which all wells that have been reclaimed are reported to Alberta Environment. There is a website run by Alberta Environment in which any wells that are drilled are recorded. However, according to the Director, this site is not updated when wells are ultimately reclaimed. According to the *Water (Ministerial) Regulation*, Alta, Reg. 205/98, it is not a requirement to have the person who is reclaiming the well or the owner of the well to report to Alberta Environment that the well is no longer being used and has been properly reclaimed.[16]

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[16] Section 66 of the *Water (Ministerial) Regulation* provides:

"(1) Subject to subsection (2), if a water well is not completed due to a construction problem or inadequate water yield to meet the water well owner's water requirements,

(a) the driller must immediately reclaim the water well in accordance with this section, and

(b) the approval holder or, in the case of a water well that does not require an approval, the driller must complete the drilling report and provide it as if the water well were completed as required by section 41(1).

(2) If a water well that is not completed has been drilled by the holder of a Class C approval and the water well is abandoned, the owner of the water well must reclaim the water well or cause the water well to be reclaimed in accordance with this section.

(3) If a water well is abandoned after completion, the owner of the water well must reclaim the water well or cause the water well to be reclaimed in accordance with this section.

Because there are existing requirements for reclaiming a well, it should not be too onerous to have an additional requirement of notifying Alberta Environment when the well is reclaimed. Alberta Environment could then update the website with the information. The Board realizes the website will not be completely accurate, but it would provide important additional information on Alberta's groundwater resources for Alberta Environment, industry, and the citizens of Alberta. This would benefit all concerned. Therefore, the Board encourages Alberta Environment to consider implementing a reporting system for reclaimed wells. This should also make it easier to identify abandoned wells.

## E. Other Matters

[63] The Board also notes there was insufficient information on the impact of the produced sands and the hydrocarbons they contain on the HDPE liner. The only information the Approval Holder provided was that there is a limit on the concentration of hydrocarbons that can be accepted in the produced sands as stated in the AEUB interim directive ID 99-4.[17] The

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(4) When a water well is to be reclaimed,
(a) the water well must be thoroughly flushed and cleaned of all foreign materials,
(b) the water well must be disinfected with a concentration of at least 200 milligrams of chlorine per litre of water in the water well,
(c) all equipment and materials, including casing, liner and riser pipe, must
(i) be removed, or
(ii) if removal of the equipment or materials is impracticable, be cut off at least 0.5 metre below ground level,
and
(d) the water well must be filled full length so that vertical movement of water within the water well bore is effectively and permanently prevented.
(5) Material used to fill a water well under subsection (4)(d) must be
(a) free of any substance that may cause an adverse effect on the environment, human health, property or public safety,
(b) suitable cement, grout, concrete, bentonite or equivalent commercial slurry, or clay slurry, impervious water well cuttings or impervious overburden materials,
(c) introduced at the bottom of the water well and placed progressively upwards, unless it is designed and manufactured for the purpose of being introduced into the water well from the ground surface, and
(d) put in place by the use of drill pipe, grout pipe or tremie pipe, cement bucket or dump bailer in such a way as to avoid segregation or dilution of the sealing materials.
(6) The uppermost 0.5 metre of the borehole to the ground surface in the water well must be backfilled with material appropriate for the intended use of the land.
(7) All equipment used for the reclamation of a water well must be free of any substance that may cause an adverse effect on the environment, human health, property or public safety."

[17] ID 99-4 resulted from a Memorandum of Understanding developed by the AEUB and Alberta Environment to address hydrocarbon and chloride criteria for disposing of oilfield wastes, including produced sands, into Class II

Approval Holder could not provide any data on what effects different concentrations, types, and fractions of hydrocarbon constituents may have on the liner. For example, lower molecular weight hydrocarbons, such as non-polar hexane, and more polar aromatic species such as benzene, toluene, ethylbenzene or the xylenes can be effective solvents, but no information was provided on how these constituents could affect the HDPE liner. The Approval Holder was unable to provide information on what hydrocarbons are present in the sand, and if certain hydrocarbons are there, what affect they would have on the liner. Therefore, the Board will recommend that the Amending Approval be varied so that the Approval Holder will provide the Director with a report on the types, fractions, and concentrations of hydrocarbons that affect HDPE liners, which hydrocarbons are present in the produced sands accepted at the Landfill, and how the different types, fractions, and concentrations of hydrocarbons will affect odours.

[64] The Director argued the issues raised by the Appellants were heard by the Board and considered by the Minister in appeals filed in 1999 in relation to the amendments made to Approval No. W1075 and consolidated into the 1998 Approval, and therefore, they should not have the right to raise the same issues again. With respect, the Board disagrees. The Fenskes appeared before the Board in the appeals of the 1998 Approval and raised the issue of the decommissioning of monitoring wells and the possible contamination of their dugout and groundwater from leachate.[18] Those issues were raised for conditions included in that Approval. The appeals before the Board now resulted from amending the 1998 Approval, changing certain conditions. The Appellants have the right to appeal those changes. They were not attempting to reargue the conditions in the 1998 Approval. Amendments change the operating conditions, resulting in the potential for change in the effects felt by the Appellants. The issues raised were appropriate and the concerns were valid. Whether the issues were considered previously is not determinative when there are changes to conditions in an approval, because the specific circumstances are now different. The manner in which the leachate is dealt with under the Amending Approval is not the same as that in the 1998 Approval. Because of these changes, the

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landfills.

[18] See: *Mizera et al.* v. *Director, Northeast Boreal and Parkland Regions #2, Alberta Environmental Protection* re: *Beaver Regional Waste Management Services Commission* (13 July 1999) Appeal Nos. 98-231-98-233-R (A.E.A.B.).

Appellants had the right to raise their concerns on the potential effects resulting from the higher levels of chloride in the leachate.

[65] During Mr. Moell's testimony, he provided his definition of an aquifer. He stated he considered an aquifer is a water-bearing zone that can deliver useable quantities of *potable* water. Mr. Moell acknowledged there is some disagreement as to the correct definition of an aquifer. The Board agrees with his statement about the controversy, because it cannot agree that an aquifer can only contain potable water. In reviewing common definitions of "aquifer," there is no qualifier that the water must be potable.[19]

# V. CONCLUSIONS

[66] The Board finds there is inadequate evidence to consider reversing the Director's decision to issue the Amending Approval. However, there appears to be a lack of sound scientific data concerning some aspects of the Amending Approval application submitted by the Approval Holder. As a result, the Board will not reverse the Director's decision to issue the Amending Approval, but it will recommend further amendments to ensure that there are no outstanding technical, environmental, or health concerns arising from the recirculation of leachate with higher levels of chlorides. These amendments will assist in the protection of groundwater in the area and will also assist the Director when the Approval Holder submits its application to renew its Approval in September 2006.

# VI. RECOMMENDATIONS

## A. General Recommendations

[67] The Board encourages Alberta Environment to develop a method to record when wells are reclaimed. Alberta Environment currently maintains a website to record when wells are drilled. Under the *Water (Ministerial) Regulation*, there are specific steps that are required to

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[19] See: *Water Act*, section 1(1)(i), which defines an aquifer as "… an underground water-bearing formation that is capable of yielding water." See also: R. Allan Freeze and John A. Cherry, *Groundwater* (Upper Saddle River: Prentice Hall Inc., 1979) at page 47, where aquifer is defined as "…a saturated permeable geologic unit that can transmit significant quantities of water under ordinary hydraulic gradients…" and C.W. Fetter, *Applied*

be taken when a well is reclaimed. One additional step could be added is to inform Alberta Environment when the well is reclaimed, and this could then be recorded onto the website. This requirement would make it more practical to locate abandoned wells, those which have not been reclaimed but are no longer in use.

[68] The Appellants have concerns regarding the Landfill and the possible increase of odours resulting from the use of leachate with higher levels of chloride. The Approval Holder should examine alternatives that may reduce the possibility of odours reaching adjoining properties. Although no evidence was provided on the effectiveness, the use of trees planted on a berm along the edge of the Landfill site should be considered for the benefit of all of the Landfill's neighbours.

## B. Specific Recommendations

[69] In accordance with section 99 of EPEA, the Board recommends that the Minister of Environment confirm the Amending Approval with the following changes.

[70] The Board is recommending the Approval Holder be required to submit the following information to the Director:

1. A written report detailing the effects that varying concentrations of chloride in leachate will have on the anaerobic digestion of landfill waste;
2. A written report detailing the effects that various types, fractions, and concentrations of hydrocarbons from the produced sand will have on the landfill's high-density polyethylene liner;
3. A written report detailing the potential hydrogeological connections between the landfill site and Mr. Lee and Ms. Marilynn Fenske's property;
4. A written report reviewing the results from the analysis of the water from the dugout on Mr. Lee and Ms. Marilynn Fenske's property that is use as a domestic water supply; and
5. An updated written report listing all of the wells drilled on the landfill site, including abandoned and reclaimed wells.

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*Hydrology*, 4th ed. (Upper Saddle River: Prentice Hall Inc., 2001) at page 95, where aquifer is defined as "… a geologic unit that can store and transmit water at rates fast enough to supply reasonable amounts to wells."

[71] Attached for the Minister's consideration is a draft Ministerial Order implementing these recommendations.

[72] Finally, with respect to sections 100 and 103 of EPEA, the Board recommends that copies of this Report and Recommendations and any decision of the Minister be sent to the following parties:

1. Mr. Lee and Ms. Marilynn Fenske;
2. Mr. Markus and Ms. Tracey Janus;
3. Ms. Shelia McNaughtan and Ms. Cherisse Killick-Dzenick, Reynolds Mirth Richard and Farmer LLP on behalf of the Beaver Regional Waste Management Commission; and
4. Mr. Darin Stepaniuk, Alberta Justice, on behalf of Mr. Tom Slater, Director, Central Region, Regional Services, Alberta Environment.

## VII. COSTS

[73] At the hearing, the Appellants and Director stated they did not intend to make an application for costs. In its written submission, the Approval Holder stated it intended to make an application for costs, and it repeated its request at the hearing. The Board requests that any application for costs be provided to the Board within two weeks of the date of the Minister's Order with respect to this Report and Recommendations. The Board will then provide the Parties with an opportunity to respond to any such applications before making its decision.

Dated on May 19, 2006, at Edmonton, Alberta.

"*original signed by*"
Dr. Steve E. Hrudey
Chair

"*original signed by*"
Dr. M. Anne Naeth
Board Member

"*original signed by*"
Dr. Harrie Vredenburg
Board Member

# VIII. Draft Ministerial Order

**Ministerial Order**

/2006

*Environmental Protection and Enhancement Act*
R.S.A. 2000, c. E-12.

**Order Respecting Environmental Appeal Board**
**Appeal Nos. 05-044 and 05-047**

I, Guy Boutilier, Minister of Environment, pursuant to section 100 of the *Environmental Protection and Enhancement Act*, make the order in the attached Appendix, being an Order Respecting Environmental Appeals Board Appeal Nos. 05-044 and 05-047.

Dated at the City of Edmonton, in the Province of Alberta this _____ day of _____, 2006.

_____
Guy Boutilier
Environment

Draft Appendix

Order Respecting Environmental Appeals Board Appeals 05-044 and 05-047

With respect to the decision of the Director, Central Region, Regional Services, Alberta Environment (the "Director"), to issue Amending Approval No. 20754-00-04 (the "Amending Approval") under the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c.E-12, to the Beaver Regional Waste Management Services Commission (the "approval holder"), I, Guy Boutilier, Minister of Environment:

Order that the decision of the Director to issue Amending Approval 20754-00-04 is confirmed, subject to the following provisions.

1. The Amending Approval 20754-00-04 be varied by adding immediately after condition 1 the following:

   "2. The approval is amended by adding after condition 4.3.29:

      4.3.30 On or before August 31, 2006, the approval holder shall submit to the Director a written report, satisfactory to the Director, detailing the effects that varying concentrations of chloride in leachate will have on the anaerobic digestion of landfill waste.

      4.3.31 On or before August 31, 2006, the approval holder shall submit to the Director a written report, satisfactory to the Director, detailing the effects that various types, fractions, and concentrations of hydrocarbons from the produced sand will have on high-density polyethylene liners.

   3. The approval is amended by adding after condition 4.4.11:

      4.4.12 On or before August 31, 2006, the approval holder shall submit to the Director a written report, satisfactory to the Director, detailing the potential hydrogeologic connections between the landfill site and Mr. Lee and Ms. Marilynn Fenske's property (S 14-50-17-W4M).

      4.4.13 On or before August 31, 2006, the approval holder shall submit to the Director a written report, satisfactory to the Director, reviewing the results from the analysis of the water from the dugout on Mr. Lee and Ms. Marilynn Fenske's property that is used as a domestic water supply.

      4.4.14 On or before August 31, 2006, the approval holder shall submit to the Director a written report, satisfactory to the Director, listing all of the wells drilled on the landfill site, including abandoned and reclaimed wells."

2. A copy of each of the reports required to be prepared pursuant to this Ministerial Order shall be provided to Mr. Lee and Ms. Marilynn Fenske and Mr. Markus and Ms. Tracey Janus by August 31, 2006.

ALBERTA ENVIRONMENT
*Office of the Minister*

# Ministerial Order

# 13/2006

*Environmental Protection and Enhancement Act*
R.S.A. 2000, c. E-12.

**Order Respecting Environmental Appeal Board**
**Appeal Nos. 05-044 and 05-047**

I, Guy Boutilier, Minister of Environment, pursuant to section 100 of the *Environmental Protection and Enhancement Act*, make the order in the attached Appendix, being an Order Respecting Environmental Appeals Board Appeal Nos. 05-044 and 05-047.

Dated at the City of Edmonton, in the Province of Alberta this 28th day of June, 2006.

"*original signed by*"
Guy Boutilier
Environment

## Appendix

Order Respecting Environmental Appeals Board Appeals 05-044 and 05-047

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2. A copy of each of the reports required to be prepared pursuant to this Ministerial Order shall be provided to Mr. Lee and Ms. Marilynn Fenske and Mr. Markus and Ms. Tracey Janus by August 31, 2006.