

# ALBERTA ENVIRONMENTAL APPEALS BOARD

## Report and Recommendations

Date of Hearing – January 18 and 19, 2010

Date of Report and Recommendations - February 18, 2010

**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** an appeal filed by Amil Shapka with respect to *Environmental Protection and Enhancement Act* Approval No. 248406-00-00 issued to the Evergreen Regional Waste Management Services Commission by the Director, Northern Region, Environmental Management, Alberta Environment.

Cite as: *Shapka v. Director, Northern Region, Environmental Management, Alberta Environment*, re: *Evergreen Regional Waste Management Services Commission* (18 February 2010), Appeal No. 08-037-R (A.E.A.B.).

**BEFORE:**

Mr. Alex MacWilliam, Panel Chair;  
Dr. Alan Kennedy, Board Member; and  
Dr. Dan Johnson, Board Member.

**BOARD STAFF:**

Mr. Gilbert Van Nes, General Counsel and  
Settlement Officer; Ms. Denise Black, Board  
Secretary; and Ms. Marian Fluker, Associate  
Counsel.

**PARTICIPANTS:**

**Appellant:** Dr. Amil Shapka, represented by Ms. Eva  
Chipiuk, Ackroyd LLP.

**Approval Holder:** Evergreen Regional Waste Management  
Services Commission, represented by Mr.  
William Barclay, Reynolds Mirth Richards &  
Farmer LLP.

**Director:** Mr. Kem Singh, Director, Northern Region,  
Environmental Management, Alberta  
Environment, represented by Ms. Michelle  
Williamson, Alberta Justice.

**Intervenor:** Mr. Robert Tomlinson.

**WITNESSES:**

**Appellant:** Dr. Amil Shapka; and Mr. Roger Clissold,  
Hydrogeological Consultants Ltd.

**Approval Holder:** Mr. Alan McCann, Omni-McCann Consultants  
Ltd.; and Mr. Dennis Bergheim, Manager,  
Evergreen Regional Waste Management  
Services Commission.

**Director:** Mr. Kem Singh, Director, Northern Region,  
Environmental Management, Alberta  
Environment; Mr. Rasel Hossain, Municipal  
Approvals Team Leader, Northern Region,  
Environmental Management, Alberta  
Environment; and Mr. Dustin Shauer,  
Contaminant Hydrogeologist, Northern  
Region, Environmental Management, Alberta  
Environment.

**Intervenor:** Mr. Robert Tomlinson.

## EXECUTIVE SUMMARY

Alberta Environment issued Approval No. 248406-00-00 under the *Environmental Protection and Enhancement Act* to the Evergreen Regional Waste Management Services Commission, authorizing the construction, operation, and reclamation of the Evergreen Regional Landfill (Class II), where more than 10,000 tonnes per year of non-hazardous waste is disposed of in the County of St. Paul, Alberta. The Approval replaced the Registration under which the landfill was previously authorized.

The Board received an appeal from Dr. Amil Shapka and intervenor status was granted to Mr. Robert Tomlinson. The Board heard evidence and received submissions from the parties on two issues:

1. Does the Approval adequately address the potential impacts of the expanded landfill on the groundwater and the local wells?
2. Did Alberta Environment adequately consider the potential impacts of the expanded landfill on surface water run-off and surrounding watersheds?

After reviewing the submissions and hearing evidence at the hearing, the Board recommended the Approval be varied. The Board concluded that the Approval provided the conditions necessary to protect the surface and groundwater resources in the area around the landfill. The Board also found, however, that the hydrogeological analyses conducted in 2003, when the Commission applied for and received the Registration, may no longer be complete. To ensure the data and analyses are correct going forward, the Board recommended the Approval be amended to include a requirement that the Commission provide Alberta Environment with an updated written explanation of the hydrological analyses current to 2010. Further, it was suggested at the hearing that, in some circumstances, surface water from a portion of the landfill site could make its way into off-site water bodies. Therefore, the Board also recommended the Approval include a requirement for the Commission to provide a written plan, to be approved by Alberta Environment, which can be implemented to ensure any potential uncontrolled releases will not reach off-site water bodies.

## **TABLE OF CONTENTS**

I.	BACKGROUND .....	1
II.	SUBMISSIONS .....	4
A.	Appellant.....	4
B.	Intervenor.....	8
C.	Approval Holder .....	10
D.	Director .....	11
III.	ANALYSIS.....	20
IV.	RECOMMENDATIONS.....	25
V.	COSTS .....	26

## I. BACKGROUND

[1] On December 30, 2008, the Director, Northern Region, Environmental Management, Alberta Environment (the “Director”), issued Approval No. 248406-00-00 (the “Approval”) to the Evergreen Regional Waste Management Services Commission (the “Approval Holder” or the “Commission”) authorizing the construction, operation, and reclamation of the Evergreen Regional Landfill (Class II),<sup>1</sup> where more than 10,000 tonnes per year of non-hazardous waste is disposed of at W-15-56-10-W4M in the County of St. Paul, Alberta. The Approval was issued under the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12 (“EPEA”). The Landfill previously operated under Registration No. 189305-00-00 (the “Registration”). Attached as Appendix A is a schematic drawing indicating the different phases and cells of the Landfill.

[2] On January 30 and February 2 and 4, 2009, the Environmental Appeals Board (the “Board”) received Notices of Appeal from Mr. Robert and Ms. Yvonne Tomlinson<sup>2</sup> and Dr. Amil Shapka (the “Appellant”) appealing the Approval.

[3] On February 2 and 5, 2009, the Board wrote to the Appellant, the Approval Holder, and the Director (collectively the “Parties”) acknowledging receipt of the Notice of Appeal and notifying the Approval Holder and the Director of the appeal. The Board also requested the Director provide the Board with a copy of the record (the “Record”) relating to the appeal, and that the Parties provide available dates for a mediation meeting, preliminary motions hearing, or hearing. The Record was received on March 12, 2009, and provided to the Appellant and Approval Holder.

[4] According to standard practice, the Board wrote to the Natural Resources Conservation Board, the Energy Resources Conservation Board, and the Alberta Utilities Commission asking whether this matter had been the subject of a hearing or review under their respective legislation. The boards all responded in the negative.

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<sup>1</sup> Class II landfill is defined in the *Waste Control Regulation*, Alta. Reg. 192/96, as “...a landfill for the disposal of waste, not including hazardous waste.”

<sup>2</sup> On October 23, 2009, the Board notified the Parties and Mr. and Ms. Tomlinson that the appeal of Ms. Tomlinson was dismissed for failing to file a Statement of Concern. Mr. Tomlinson was found to be not directly affected, and therefore his appeal was also dismissed.

[5] On March 6, 2009, the Approval Holder requested the Board determine whether the Appellant was directly affected by the Approval and to determine which of the issues raised by the Appellant were within the Board's jurisdiction and which issues, if any, would be heard by the Board.

[6] On March 12, 2009, the Director made a motion to the Board that: first, the appeal of Ms. Tomlinson should not be accepted because she did not submit a Statement of Concern as required under section 91(1)(a)(i) of EPEA; and second, the Board determine the issues to be heard or mediated as, in the Director's view, many of the statements made were too vague or were matters outside the Board's jurisdiction.

[7] The Board asked the Parties and Mr. and Ms. Tomlinson to hold the motions in abeyance and proceed to a mediation meeting. They agreed, even though the Approval Holder was concerned "...the mediation would be futile..."<sup>3</sup> After consulting with the Parties and Mr. and Ms. Tomlinson, the Board scheduled a mediation meeting for April 23, 2009, in St. Paul, Alberta. An additional meeting was held as part of the mediation process, but no resolution was reached.

[8] On July 27, 2009, the Board set a process to receive submissions on the preliminary motions that were raised by the Approval Holder and Director. Submissions were received in respect to four motions.<sup>4</sup>

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<sup>3</sup> Approval Holder's letter to the Board, dated March 25, 2008.

<sup>4</sup> The four motions as stated in the Board's July 27, 2009 letter were:

- “1. Did the appellants file a statement of concern with Alberta Environment? In this case, a statement of concern must have been filed with Alberta Environment, a pre-requisite to filing a Notice of Appeal pursuant to section 91(1)(a)(i) of the Environmental Protection and Enhancement Act (EPEA).
2. Are the appellants directly affected by the Approval under appeal? In this case, pursuant to section 91(1)(a)(i) of EPEA, an appeal may only be submitted by a person who is directly affected by the Director's decision.
3. What are the issues in the Notices of Appeal that are within the Board's jurisdiction to address?
4. What are the issues that should be considered at the hearing, if one is held?”

A motion for a stay was requested by Mr. Tomlinson on July 22, 2009, and the request was subsequently added as part of the submission process. As stated, Mr. and Ms. Tomlinson's appeals were dismissed and, therefore, the stay was denied. See: *Tomlinson and Shapka v. Director, Northern Region, Environmental Management, Alberta Environment*, re: *Evergreen Regional Waste Management Services Commission* (10 February 2010), Appeal Nos. 08-036-038-ID1 (A.E.A.B.).

[9] On October 23, 2009, the Board notified the Parties that the Appellant's appeal was found to be valid, and the issues to be heard at the Hearing were determined to be:

1. Does the Approval adequately address the potential impacts of the expanded landfill on the groundwater and the local wells? and
2. Did the Director adequately consider the potential impacts of the expanded landfill on surface water run-off and surrounding watersheds?

[10] In consultation with the Parties, the Board scheduled the Hearing for January 18 and 19, 2010 in St. Paul, Alberta.

[11] The Board's Notice of Hearing was published in various publications and locations.<sup>5</sup> In response to the notice, the Board received an intervenor application from Mr. Robert Tomlinson.

[12] On October 29, 2009, the Appellant asked the Board to establish a process for information requests, order the Approval Holder to allow the Appellant's consultant access to the Landfill, and order interim costs. On October 30, 2009, the Board notified the Parties that the Board does not have a discovery process involving interrogatories, and therefore denied the application for a process for information request. The Board set a schedule to receive submissions on the intervenor request and the other requests filed by the Appellant. Submissions were received from the Parties and Mr. Tomlinson between November 6, 2009 and November 23, 2009.

[13] On December 1, 2009, the Board notified the Parties and Mr. Tomlinson that intervenor standing would be given to Mr. Tomlinson (the "Intervenor"). The Board stated it did not have jurisdiction to order the Commission to allow a site visit by the Appellant's consultant. The Board allowed interim costs for the Appellant in the amount of \$11,760, to offset costs for

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<sup>5</sup> The Notice of Hearing was published in the Lamont Farm 'n' Friends, Redwater Review, Bonnyville Nouvelle, Elkpoint Review, St. Paul Journal, and the Smoky Lake Signal. It was also provided to the Saddle Lake First Nations, the Municipal District of Bonnyville, the County of St. Paul, and the Town of St. Paul. A news release was forwarded to the Public Affairs Bureau for distribution to media throughout the Province and placed on the Board's website.

the preparation of and attendance at the Hearing by the Appellant's consultant, Mr. Roger Clissold. The costs were to be paid by the Approval Holder.<sup>6</sup>

[14] The Intervenor provided his written submission on the issues on December 31, 2009. The Parties provided their written submissions on January 6, 2010. The Hearing proceeded as scheduled on January 18 and 19, 2010, in St. Paul, Alberta.

## **II. SUBMISSIONS**

### **A. Appellant**

[15] The Appellant stated the Commission was established in 2000 and operated under a Registration for a Class II landfill under the Code of Practice for Landfills (the "Code"). The Appellant noted the Code outlines minimum requirements for landfills that accept 10,000 tonnes or less per year of non-hazardous and inert waste. The Appellant stated that, since the Landfill started accepting waste in 2005, the total waste accepted ranged from 10,472 tonnes to 13,853 tonnes, thereby demonstrating the Approval Holder accepted more waste than permitted under the Registration.

[16] The Appellant stated the Approval Holder held a public meeting in January 2007, as part of the requirement to expand the Landfill, and informed residents that waste would be accepted from outside the boundaries of the Commission. The Appellant stated the residents were advised the expansion was necessary to avoid a significant tax levy. He stated the residents were unaware the Commission had entered into an agreement with the Beaver River Regional Waste Management Commission even though it did not have authority to accept waste outside its boundary.

[17] The Appellant submitted the Approval violates the original intent of the Landfill which was to meet the needs of the founding members of the Commission. He stated the

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<sup>6</sup> See: *Shapka v. Director, Northern Region, Environmental Management, Alberta Environment*, re: *Evergreen Regional Waste Management Services Commission* (10 February 2010), Appeal No. 08-037-ID2 (A.E.A.B.).



Landfill went in unopposed because residents were led to believe the amount of waste to be accepted would be relatively small.

[18] The Appellant stated his property is approximately two kilometres from the Landfill, and he has one domestic water well approximately 30 feet deep. The Appellant stated he has, and will, continue to experience environmental, social, and economic impacts from the Landfill. He submitted that he was not happy about living near a landfill but understood the need for such a facility, providing his water well and the environmental integrity of the area are not compromised.

[19] On the issue of whether the Approval adequately addresses the potential impacts of the expanded Landfill on the groundwater and local wells, the Appellant, through his consultant, provided the following evidence:

- (a) There were no data to show the existence of an underlying “exceptional aquifer,”<sup>7</sup> but there also were no meaningful data confirming the absence of an exceptional aquifer. If the aquifer is exceptional, then the Landfill does not meet the Draft Standards for Landfills in Alberta 2007 (the “Standards”).
- (b) The general area of the Landfill has no well developed surface water drainage pattern, suggesting the groundwater recharge is significant.
- (c) The water level monitoring results in 2003 show a water level rise in the late spring/early summer indicative of groundwater recharge. The piezometers vary in depth, clearly indicating groundwater recharge in the vicinity of the Landfill is very active, at least to a depth of 24.4 metres below ground level.
- (d) According to the Regional Groundwater Assessment for the County of St. Paul prepared by Hydrogeological Consultants Ltd. in 1998, the area immediately west of the Landfill was an area where the risk for groundwater contamination from surface activities was high.

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<sup>7</sup> The Draft Standards for Landfills in Alberta 2007 define an “exceptional underlying aquifer” as: “a hydrostratigraphic unit with a transmissivity of greater than  $2.5 \times 10^{-3} \text{ m}^2/\text{sec}$  yielding water with a total dissolved solids (TDS) concentration not exceeding 4000 mg/L.”

- (e) From 2004 to 2007, there was a general rise in the water levels in 15 piezometers with the largest rise in the piezometer located less than 200 metres from the centre of the storm water retention pond and the smallest rise in the piezometer located more than 900 metres from the centre of the pond. The greater the distance from the pond, the smaller the water level rise, suggesting the rise in water levels was a result of a leaking storm water retention pond and not a result of increased precipitation.
- (f) Chemical analysis of groundwater collected from one piezometer (Piezometer No. DS04-42), shows an increase in chloride concentration, suggesting that leachate may be present in the groundwater at a depth between 4.9 and 8.5 metres below ground level in glacial till. Permeability tests at a nearby borehole found the till to have a permeability of  $9.7 \times 10^{-10}$  metres per second, which suggests the till is more permeable than other permeability tests indicate or conditions are different at Piezometer No. DS04-42.
- (g) Data show a tributary to the Vegreville Valley Aquifer extending eastward, passing two kilometers north of the Landfill, then going south into the eastern half of 22-56-10-W4M. A tributary to the tributary extends south to the boundary of the Landfill.
- (h) The Landfill is situated in an unsuitable area. This is supported by the Director's decision to not allow expansion into Phases III and IV until further hydrogeological studies have been completed.
- (i) To ensure there is no risk to groundwater quality, the Landfill must be properly designed, constructed, and operated, and the process to develop the Landfill needs to be open and transparent. The design of the Landfill needs upgrading regarding the characterization of the materials below the Landfill, the thickness of the liner required, the functioning of the storm water retention pond, and a better fluid management plan.
- (j) The Approval Holder's hydrogeological data warrants further investigation to determine the extent to which a shallow sand aquifer underlies the Landfill. A

detailed hydrogeological investigation should have been completed prior to issuing the Approval or prior to development on the north half of Phase I and the northern third of Phase II.

- (k) Given the hydrogeology underlying the Landfill, the Approval can fundamentally change the local groundwater and surface water regimes and must be investigated further before development of the cells further north.

[20] On the second issue as to whether the Director adequately considered the potential impacts of the expanded Landfill on surface water run-off and surrounding watersheds, the Appellant, through his consultant, provided the following evidence:

- (a) There is a potential for the Approval to impact surrounding watersheds. According to the Alberta Geological Survey Sand and Gravel Deposit Number 5253 map, there is a clean gravelly sand deposit occupying 1,941 hectares within Township 56, Range 10, west of the Fourth Meridian. The Landfill is completely within the areal extent of this deposit.
- (b) The sand and gravel deposits underlying the Landfill and surrounding area provide permeable material for contaminants to move downward and into the watershed and groundwater, thereby affecting the Appellant's water well.
- (c) The leachate management program requires further investigation given the increase in the recorded leachate volumes and the Approval Holder's inability to control them. The Approval Holder must be required to identify the cause of the increased leachate levels, assess the adequacy of the cell design, and establish appropriate leachate monitoring programs. If the increase is due to a higher water table, then the cell design is not water tight and the integrity of the liner may be compromised.
- (d) The leachate groundwater monitoring program is not adequate and should include an automatic weather reporting station at the site, accurate measurement of the volume of leachate removed from each cell and, where the leachate is being disposed, more frequent measurement of water levels in piezometers adjacent to each cell, and any other parameter necessary to establish a fluid balance. This

strengthened monitoring program will provide nearby landowners with confidence the groundwater resource is not compromised.

[21] The Appellant requested the Board reverse the Director's decision to grant the Approval until there are no outstanding technical, environmental, or health concerns. In the alternative, the Appellant requested the Board recommend that the Approval be varied by including the following conditions:

- (a) Prior to further development, the Approval Holder must determine conclusively whether the aquifer underlying the Landfill is hydraulically connected to an exceptional aquifer.
- (b) The Approval Holder must identify the cause of the increased leachate levels and assess the adequacy of the cell design.
- (c) Include in the leachate/groundwater monitoring program: an automatic weather reporting station; accurate measurement of the volume of leachate removed from each Landfill cell and indication of where the leachate is being disposed; more frequent measuring of water levels in the piezometers adjacent to each cell; and inclusion of parameters to establish a fluid balance at the Landfill.
- (d) A consultation and communication program be established to provide residents with information on the Landfill operations, discuss issues, and provide a means to resolve outstanding issues in a collaborative fashion.

**B. Intervenor**

[22] The Intervenor argued the Director was aware:

- (a) The Landfill did not meet the Standards under section 2.1(e)(i) and its design would have to be upgraded to meet section 2.1(e)(i).
- (b) The shallow groundwater was compromised when leachate levels were not contained by the cell design.
- (c) Chloride levels were increasing and BTXs (benzene, toluene, and xylene) were detected on site.

- (d) The Director did not address the potential impacts on local water wells, surface water run-off, and surrounding watersheds.
- (e) The Approval Holder did not provide written evidence to the Director that the surficial sand unit beneath Phase I of the Landfill is not an exceptional aquifer.
- (f) The application for the Approval should not have been considered because the detailed design report, operation plan, and closure plan were not signed by an engineer.
- (g) The as-built drawings were not reviewed in their entirety by the Director. The as-built drawings for Cells 1 and 2 were not complete.
- (h) The Quality Assurance and Quality Control (“QA/QC”) reports were not complete and did not meet the requirements of the Standards. The QA/QC reports provided to the Director were in summary format.
- (i) The construction activity summary, monitoring, and testing of Cells 1 and 2 construction did not have a number of protocol items required for QA/QC compliance, including identifying the cell size and depth, clay liner, tie-in provisions, leachate collection piping, construction of the protective corner and location, and type and amount of cover material.
- (j) The Approval Holder had the onus of convincing the Director that the Landfill was constructed to meet all requirements to ensure the protection of groundwater resources, public health, the environment, and the interests of those in the vicinity of the Landfill for as long as the waste in the Landfill represents a threat.
- (k) There have been controlled and uncontrolled leachate breakouts at the Landfill.
- (l) The Director must determine the exact cause of the high leachate level in the existing cells in 2007, whether it was due to a heavy storm, run-off control system failure, or groundwater infiltration.
- (m) There are concerns whether the Landfill cells were constructed according to the design. The cells are the first defence against leachate migration.

**C. Approval Holder**

[23] The Approval Holder explained the Landfill has been in continuous operation since it received its Registration in 2004. It stated it was foreseeable the Approval would be required in the future, so the facilities were designed and constructed to meet or exceed approval standards from the outset. The Approval Holder stated the Landfill was constructed with a leachate collection system, groundwater monitoring system, run-off and run-on controls, and compacted clay lined cells.

[24] The Approval Holder retained Omni McCann Consultants Ltd. (“Omni”) to design and supervise the construction of the Landfill and provide ongoing advice regarding operations.

[25] The Approval Holder noted the Approval does not expand the footprint of the Landfill, because it is the same size as contemplated in the Registration. The Approval Holder stated that since the Approval allows a greater amount of waste to be accepted in any given year, the Landfill will close sooner than otherwise would have been the case.

[26] The Approval Holder noted:

- (a) The Landfill’s design, operations, monitoring, and reporting meet or exceed legislated standards.
- (b) Construction has been carried out under continuous supervision to ensure cells are constructed as designed and all QA/QC standards are met.
- (c) A comprehensive operations plan, detailed record keeping system, and rigorous monitoring system are in place to safeguard public health and the environment.
- (d) No water quality issues have been detected since the Landfill started operating.
- (e) No surface water problems have been identified to date.
- (f) The detailed hydrogeological information gathered by Omni is more detailed and extensive than the general information previously available for the area.
- (g) There is no evidence an exceptional aquifer exists beneath the Landfill.

- (h) Hydraulic gradients at the Landfill are relatively shallow and groundwater movement is near lateral and generally to the southwest. Water movement rates are about 4 to 5 meters per 1,000 years. Combined with the compacted clay liner and leachate collection and removal systems, the naturally slow groundwater movement rates and predominately lateral flow provide a high level of environmental protection.
- (i) The Approval imposes a number of conditions to further protect the environment that would not have been applicable under the Registration.

[27] The Approval Holder submitted the Landfill poses no material risk to the environment, and therefore, there are no reasonable grounds to recommend the Approval be revoked.

#### **D. Director**

[28] The Director explained the Registration contemplated several phases of development. The Landfill was sited, designed, and considered in accordance with the Standards, and a detailed hydrogeological investigation report was provided in support of the application for the Registration. The Director required the Landfill have a liner and leachate collection system. The Landfill replaced 17 small garbage dumps and landfills.

[29] The Director stated the Approval application included several reports and provided lithologic data from boreholes drilled every 200 metres across the entire site as well as other hydrogeological and hydrologic data. The footprint of the Landfill allowed under the Approval is the same as the footprint under the Registration, and the Approval does not change the type of waste the Landfill would receive.

[30] The Director stated environmental specialists reviewed the application for potential impacts on the groundwater, surface water, and soils. In response to concerns regarding fish and wildlife in the area, experts from Sustainable Resource Development were consulted to comment on potential impacts on fish and wildlife habitats.

[31] The Director explained Alberta Environment's Policy Branch was consulted, and it advised the Director to characterize the application as an application for a laterally expanding

landfill as opposed to a new landfill application because the Class II landfill already existed. Therefore, the Director considered section 2.1(e) of the Standards in making his decision.

[32] The Director stated the lithologic information from a few of the boreholes revealed occasional sand units within 30 metres of the base of the Landfill, but there was insufficient information to make any sound conclusions. The Director explained a key issue considered during the review of the application was the adequacy of the delineation and characterization of the material beneath the Landfill and the surficial sand units. This was done to assess the risk to groundwater and any potential for an underlying exceptional aquifer.

[33] The Director stated the regional hydrologist examined the drainage for the area and made the following conclusions: (i) only drainage from the northwest corner of the Landfill could possibly reach Lac Sante,<sup>8</sup> and (ii) surface water from the Landfill could not reach the Appellant's property because of a creek running between the Landfill and his property.

[34] The Director was advised of a past performance issue with respect to leachate levels at the Landfill that required additional information to determine the cause. It was determined the high leachate levels were the result of a high precipitation event and not due to a problem with the liner or other operational issues.

[35] After receiving supplementary information from the Approval Holder, the Director was satisfied there was no surficial sand unit beneath Phases I and II so an Approval was issued for the development of cells in Phases I and II only. The Director explained additional hydrogeological assessments are required before any cells can be developed in Phases III and IV.

[36] The Director explained the Policy Branch confirmed an engineered option was the preferred option at the Landfill to provide the appropriate level of assurance at this site instead of 30 metres of material between the Landfill and any exceptional underlying aquifer.

[37] The Director explained the hydrologist compared the nature of the surficial sand unit beneath Phase I to the thicker surficial sand unit beneath Phase III and was satisfied the two units were different and the sand unit beneath Phase I was not an exceptional aquifer. The

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<sup>8</sup> The northwest corner of the Landfill, referred to as Phase V, includes a Class III landfill cell for inert waste and a segregation, recycling facility.



Director stated the hydrologist was also satisfied that it is unlikely an exceptional aquifer exists within 30 metres below ground level of Phases III and IV, but additional hydrogeological investigation is needed to confirm this before the development of Phases III and IV can proceed. The Director confirmed an amendment to the Approval would be required before Phases III and IV can proceed.

[38] The Director stated the Compliance Division conducted an inspection of the site in December 2008, and there were no issues or non-compliance matters identified. The Director stated that failure to monitor and report as required by the Approval is a serious offence, and monitoring and reporting is controlled to assure reliability and accuracy of the data. The Director confirmed the reporting and monitoring data submitted to Alberta Environment pursuant to an approval is also required to be available to the public from the approval holder.

[39] The Director submitted the Appellant's position that the Landfill is sited in an area that violates section 2.1(e)(i) of the Standards is without merit. The Director stated the Standards outline the minimum requirements for the development, operation, closure, and post-closure of landfills in Alberta. The Director explained the Standards are intended to minimize the cumulative effects of waste management, provide assurance regarding the protection of groundwater and surface water, and manage nuisances associated with landfill development. The Director stated the hydrogeological investigation confirmed there is no exceptional aquifer underlying the Landfill so section 2.1(e)(i) of the Standards does not apply.

[40] The Director explained that even if section 2.1.(e)(i) of the Standards did apply, it is possible for an applicant to prove groundwater quality will meet the required standards at the Landfill boundary by: (i) conducting groundwater modeling to assess how the leachate will move in the subsurface; (ii) incorporating additional engineered controls to inhibit flow rates such as a multi-barrier liner; or (iii) installing a facility incorporating cut-off trenches, a French drain system, or other control structures.

[41] The Director stated several clauses were added to the Approval in order to address concerns raised by the Statement of Concern filers regarding the Landfill.

[42] In response to the issue of whether the Approval adequately addresses the potential impacts of the expanded Landfill on the groundwater and local wells, the Director noted the following provisions in the Approval:

- (a) The Landfill must be constructed in accordance with the application which specified a one-metre thick compacted clay liner or a composite liner, leachate collection and removal systems, a groundwater monitoring system, stormwater run-on and run-off control systems, and a subsurface landfill gas monitoring system. These systems must be operated and maintained.
- (b) Leachate quality is controlled because the waste that can be disposed of at the Landfill is restricted to non-hazardous wastes and incompatible waste must not mix.
- (c) Leachate parameters must be monitored semi-annually, and BOD<sub>5</sub><sup>9</sup> and metals were added to the parameters typically required to be monitored at a Class II landfill.
- (d) Leachate quantity is minimized by:
  - (i) Domestic wastewater, bulk liquid wastes, and wastes containing free liquid cannot be disposed of at the Landfill.
  - (ii) Leachate levels must be monitored weekly and leachate must be removed regularly in order not to exceed the limit of not greater than 0.3 metres above the liner.
  - (iii) Leachate cannot be re-circulated through the Landfill. Recirculation is usually permitted, but it was removed from the Approval in this case to respond to Statement of Concern filers' concerns regarding high levels of leachate accumulating at the Landfill.
  - (iv) The size of the working face must be minimized.

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<sup>9</sup> BOD<sub>5</sub> (biological oxygen demand) is the amount of dissolved oxygen consumed in five days by biological processes breaking down organic matter.

- (v) Waste must be compacted immediately after it is deposited on the working face and waste placed in the Landfill must be covered each day.
  - (vi) A barrier layer consisting of at least 0.6 m of compacted clay and having a maximum hydraulic conductivity of  $1 \times 10^{-7}$  m/s or less must be installed within 180 days after the Landfill reaches its final design elevation or after no waste is received for disposal within 180 days.
- (e) Leachate migration is minimized by:
- (i) Construction of the one-metre thick compacted clay liner with an in-place hydraulic conductivity of  $1 \times 10^{-9}$  m/s or composite liner to achieve an in-place hydraulic conductivity of  $1 \times 10^{-9}$  m/s or less.
  - (ii) Operating and maintaining the leachate collection and removal systems.
- (f) If leachate migrates through the liner or barrier layer, groundwater monitoring, surface run-off monitoring, and subsurface landfill gas monitoring will ensure early detection so proper corrective action can be taken to eliminate or at least minimize off-site impacts.
- (g) Leachate can only be disposed of at an authorized wastewater treatment facility or deep well.
- (h) Groundwater quality must be monitored bi-annually and must meet limits established by Alberta Environment at the boundaries of the Landfill. If the groundwater quality does not meet the limits, the Approval Holder must report it to the Director immediately and the Approval Holder must immediately implement the Groundwater Contingency Plan described in the application.
- (i) Subsurface landfill gases must meet limits established by Alberta Environment. If the subsurface landfill gas does not meet the explosive gas limits in the Approval, the Environmental Response Plan in the application must be implemented.
- (j) The Approval Holder must disclose annually to the Director the results of the groundwater monitoring, the leachate management, and landfill gas monitoring. If a condition is breached, it must be reported immediately.

- (k) Additional information is required in the Annual Operations Report to capture information related to groundwater issues, including the mapping of buried valley and channel networks, an interpretation of groundwater flow patterns, and hydraulic conductivity analysis. The Annual Operations Report must be submitted to the Director.
- (l) The Operations Plan must be implemented and updated. Failure to adhere to the Operations Plan puts the Approval Holder in breach of the Approval.
- (m) An amendment of the Approval is required prior to the construction and operation of Phases III and IV. The amendment application will require an additional hydrogeological investigation report and detailed landfill design. It will be processed in much the same way as the application for the Approval.

[43] The Director explained the hydrogeology of the Landfill as follows:

- (a) The Landfill is located in the North Saskatchewan River basin. The shallow groundwater flow in the region is generally to the North Saskatchewan River, which is about five kilometres southwest of the Landfill.
- (b) The Vegreville Buried Valley, where the regional aquifer is located, is approximately five to eight kilometres northwest of the Landfill.
- (c) The site is underlain by 10.8 to 19.5 metres of sandy or clayey till with a range of hydraulic conductivities from  $3 \times 10^{-7}$  m/s to  $9 \times 10^{-11}$  m/s. Some sand/silt lenses exist within the till and the hydraulic conductivity of the till with sand/silt lenses ranges from  $8.1 \times 10^{-7}$  m/s to  $2.3 \times 10^{-11}$  m/s.
- (d) The bedrock slopes from north to south, and the top of the bedrock generally ranges between 15 and 20 metres below ground level.
- (e) The water table slopes generally to the southwest at a horizontal gradient of approximately 0.015. Horizontal groundwater flows in the till range from approximately 0.0001 m/year to 0.7 m/year.

[44] The Director stated he was satisfied the Landfill will not adversely impact the groundwater system because:

- (a) The Landfill is constructed with a compacted, engineered clay liner and leachate collection and removal system capable of containing any leachate that may be produced.
- (b) Leachate cannot be re-circulated and only minimal levels are allowed to accumulate in the Landfill at any given time.
- (c) In the unlikely event of a liner failure, the stratigraphy of the area underlying the Landfill does not present a significant or unmanageable risk to groundwater contamination given: (i) the hydrogeological investigation properly delineated the underlying stratigraphy and ruled out the existence of any shallow aquifer within 30 metres vertically of the Landfill; (ii) there is a natural till barrier of at least 10 metres in depth underlying the Landfill; (iii) hydraulic conductivity data obtained from slug tests indicate a low permeability of the till barrier; and (iv) waste containment modeling conducted by the Approval Holder confirmed the migration of any leachate would be slow enough to be easily picked up by monitoring wells before traveling off site and the leachate would decrease in concentration while traveling through the till barrier.
- (d) A groundwater monitoring system is in place to detect any potential leachate that may reach groundwater. If groundwater contamination is detected, the Approval Holder must initiate the Groundwater Contingency Plan that would include: re-sampling the monitoring wells to confirm data; establishing the extent of contamination; and developing a risk management plan or remediation plan in consultation with Alberta Environment to ensure any potential impacts are mitigated.

[45] In response to the Appellant's assertion that small stringers of silty sand underlay the northern parts of the Landfill, the Director stated:

- (a) There is no evidence to suggest these stringers are connected to the regional alluvial aquifer or the Appellant's water well. Even if they were, the risk of migration of contaminants is minimal because the shallow groundwater flow is

generally to the southwest, away from the regional alluvial aquifer and the Appellant's water well, and the hydraulic conductivity of the stringers is low.

[46] In response to the second issue of whether the Director adequately considered the potential impacts of the expanded Landfill on surface water run-off and surrounding watersheds, the Director noted many of the same provisions referenced in response to the first issue. In addition, the Director noted the following conditions in the Approval:

- (a) The Landfill is to be constructed according to the application, which includes the surface water management systems.
- (b) Nothing can be released from the run-off control system unless authorized by the Approval. Releases from the run-off control system to the surrounding watershed are not permitted unless the release meets the limits for the parameters specified in the Approval.
- (c) Run-on<sup>10</sup> cannot enter the active landfill area so it is kept clean.
- (d) Run-off<sup>11</sup> must be kept separate from run-on and be directed to the storm water detention pond. Water in the storm water detention pond is monitored and the results reported to the Director annually.
- (e) The Approval Holder must annually assess and report on the location of all surface water users within three kilometres of the Landfill and determine the surface drainage patterns within the Landfill.

[47] The Director stated the surface water flow is generally from the northeast to southwest, but surface water flow from the northern most part of the Landfill may flow north and northwest to meet a creek which runs between the Appellant's land and the Landfill. The Director stated the water may reach Lac Poitras in high precipitation events. The Director explained the elevation of Lac Sante is 612 meters and the lake next to the Appellant's property

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<sup>10</sup> In the Standards, run-on is defined as "any rainwater or meltwater that drains as surface flow onto the active landfill area."

<sup>11</sup> In the Standards, run-off is defined as "any rainwater or meltwater that drains as surface flow from an active landfill area."

is 644 metres, so if there is flow between the lakes, it would be from the lake next to the Appellant's property toward Lac Sante.

[48] The Director argued the potential impacts on surface water receptors are minimal because:

- (a) The Landfill has been constructed with a run-on control system that prevents rainwater and meltwater from contacting any waste and directs it to natural drainage channels.
- (b) The Landfill has been constructed with a run-off control system that collects and conveys rainwater and meltwater that comes in contact with any waste to the storm water detention pond.
- (c) The storm water detention pond has a controlled discharge valve and pond water is not allowed to be released until it meets Approval limits. If the pond water cannot meet the limits the Approval Holder is required to implement a storm water management contingency plan described in the Approval application.
- (d) Leachate collection and removal system is separate from the run-on and run-off systems, and leachate is required to be disposed of in an authorized wastewater treatment facility or deep well.
- (e) The Landfill is not located in an area designated as environmentally sensitive. There is no surface water body within 300 metres of the Landfill.
- (f) There are no anticipated impacts or concern for fish or wildlife from the operation of the Landfill.
- (g) The 2005-2007 annual reports did not show any evidence that environmental integrity of the area has been impacted by the Landfill.

[49] The Director stated the conditions in the Approval adequately address any potential impacts. The Director submitted the appeal should be dismissed.

### III. Analysis

[50] Although the Board identified two separate issues for the Hearing, the submissions and evidence presented by the Parties and Intervenor demonstrated how these issues can be interrelated. Therefore, the Board will consider the issues together in its analysis.

[51] After the close of the Hearing, counsel for the Director wrote to the Board to clarify that a liner is required for laterally expanding landfills unless it is considered a small Class II landfill (less than 5 hectares in areal extent). The Director did not suggest the Landfill is a small Class II landfill. The Board received responses from the Intervenor, the Approval Holder, and the Appellant. The Board understands a liner is in place in the existing cells and will be included in the construction of the new cells. The Board appreciates being notified of the misstatement.

[52] The Appellant raised the issue of whether there was an “exceptional aquifer”<sup>12</sup> that underlies the Landfill or that a tributary to an exceptional aquifer is beneath the Landfill. The question of whether there is an exceptional underlying aquifer is important, because the Standards require additional measures be taken when constructing a landfill if such an aquifer exists under the landfill site.<sup>13</sup>

[53] Evidence was provided regarding sand lenses found during the drilling of the boreholes, piezometers, and water wells. The Appellant’s contention was that there was insufficient data to state categorically that no exceptional aquifer was beneath the Landfill. Mr. Clissold argued it was possible the sand lenses were connected, but the appropriate data were not collected to show the connection. The Approval Holder and Director explained boreholes were

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<sup>12</sup> The Standards define an “exceptional underlying aquifer” as: “a hydrostratigraphic unit with a transmissivity of greater than  $2.5 \times 10^{-3}$  m<sup>2</sup>/sec yielding water with a total dissolved solids (TDS) concentration not exceeding 4000 mg/L.”

<sup>13</sup> Section 2.1(e) of the Standards states:

“Unless the person responsible provides evidence in writing to the Director that the groundwater quality will not exceed the performance standards at the compliance boundary, the new waste footprint of a laterally expanding Class I or Class II landfill shall not be situated where there exists one or more of the following conditions:

(i) there is less than 30 metres of geologic materials between the base of the landfill and an exceptional aquifer where the geologic material has an equivalent vertical hydraulic conductivity greater than  $1 \times 10^{-8}$  metres/second....”



drilled every 200 metres across the site to increase the possibility of finding connections between the sand lenses and for detecting indicators of an exceptional aquifer. However, in response to the question of whether he believed there was an exceptional aquifer, Mr. Clissold responded he did not believe it underlies the Landfill.<sup>14</sup>

[54] The Appellant raised concern as to whether there was a possibility the sand lenses were connected. The boreholes drilled showed discreet sand lenses. The transmissivity rates provided indicate that, even if there was an aquifer, it cannot be considered an exceptional underlying aquifer because the transmissivity rate of the sand lenses is 25 times less than what is required to meet the definition to be considered an exceptional aquifer.

[55] The area that received the most attention regarding possible sand lenses capable of transmitting contaminants was in the northern portion of the Landfill (Phases III and IV will be constructed). As noted above, it is clear the Approval Holder will have to apply for an amendment to the Approval prior to any construction taking place in this part of the Landfill site. There was uncertainty as to the extent of some of the sand lenses in this area. As a result, the Director will require additional hydrogeological investigations to be conducted prior to allowing the construction of cells in Phases III and IV. The Board views this approach as reasonable as it

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<sup>14</sup> At the Hearing, in response to questions from the Board, Mr. Clissold stated:

“Dr. Kennedy: We just gave you a copy of the Standards for Landfills. On page 2 of that Standard, there is a definition at section ‘t.’ The definition is for an ‘exceptional underlying aquifer.’ Do you see that?”

Mr. Clissold: Yes.

Dr. Kennedy: And then if you see that and you agree with that definition, if I take you to page 4 of your report that we were just questioning you on, are you suggesting that there could be an exceptional underlying aquifer under this Landfill according to the definition in this matter?”

Mr. Clissold: No. The position that we took originally was that the well that is in the SE of 23 which is further removed from this location to the northeast, the aquifer that was encountered there was a significant aquifer. It might even fit the exceptional aquifer definition. We do not have enough control on it, but when a well is pumped at 50 gallons a minute right away, that is fairly high permeability. We do not have any data from it. No data have been provided. The only thing we have is on the drilling report that says they pumped 50 gallons a minute for 2 hours. No water levels. If only half a metre of drawdown occurred during that 2 hours of pumping, we would have an exceptional aquifer.

But that is removed from the site. And part of the discussion that we had in our early stages was if you have an exceptional aquifer, does it have to go right under the Landfill, or does it have to be hydraulically continuous with another aquifer that feeds to it. That was kind of where we were going from at the start.”

will delay development of these phases until such time as more definitive conclusions are reached regarding the extent of any sand lenses beneath the Landfill and whether they are connected to an exceptional or regional aquifer in the area.

[56] The Appellant and Intervenor argued the Approval was issued in contravention of section 2.1(e) of the Standards. Section 2.1(e) allows a landfill to be constructed over an exceptional aquifer if there is sufficient geologic material separating the bottom of the landfill and the aquifer or if the landfill can be constructed in such a way to protect the aquifer. This would include installing an adequately engineered liner in the cells, such as the one-metre compacted clay liner used in this Landfill.

[57] Notwithstanding the doubt expressed by the Appellant's consultant, the Board considers the Director's conclusion that no exceptional aquifer exists beneath Phases I and II of the Landfill to be reasonable based on the data provided. Even if there was an aquifer underlying Phases I and II, there is a liner in place to protect the groundwater, as would be required by section 2.1(e) of the Standards. The Director also took an additional step to ensure groundwater protection by requiring additional testing and analysis before an application to amend the Approval to include Phases III and IV is made.

[58] Mr. Clissold, raised a number of issues regarding the data provided by the Approval Holder in its Approval application. One issue raised was the level of chloride in Piezometer No. DS04-42. According to Mr. Clissold, there has been a steady increase in the level of chloride measured. In the Board's view, Mr. Clissold dealt with this data in isolation and did not provide any analysis of the data from nearby piezometers. The Board notes there is an increase in the levels, but the levels are well below those of concern and are within measured background levels. Chlorides are required to be monitored by the Approval Holder and the results sent to the Director. Now that this apparent trend has been identified, it is expected the Approval Holder and the Director will carefully follow this through continued monitoring and will investigate the possible cause before it becomes an issue.

[59] The Board has a concern arising from the Director's evidence that "...surface water from the proposed landfill could not reach Dr. Shapka's property because of a creek that

runs between the landfill and his property.”<sup>15</sup> The use of a creek as a barrier to contaminants does not support the purpose of EPEA to protect the environment. If there is any chance leachate or surface water that has been in contact with the working faces of the Landfill could leave the site, measures should be taken to intercept such drainage. The Board understands the Approval Holder has such measures in place, however, steps need to be taken to prevent environmental impacts to the creek, tributary, or other water body in the area of the Landfill if an uncontrolled release occurs. Although the Appellant may not be directly affected by such a flow, the environment certainly would be. These steps need to be in place before any such release occurs. Therefore, the Board recommends the Approval be varied to include a condition requiring the Approval Holder to provide the Director for his approval, details of the steps the Approval Holder has taken and will take to prevent uncontrolled releases from reaching any creek, tributary, or other water body outside the Landfill site.

[60] The Appellant and Intervenor raised the issue of increased leachate levels in the Landfill cells. The increased levels occurred while the Landfill was operating under the Registration. Although there were conflicting opinions as to the cause of the increased levels, the Director investigated and attributed the increase to a significant rain event at a time prior to the cell accepting waste. The cells are monitored and leachate balances are computed. The Board expects that, if discrepancies occur, the Approval Holder and the Director will conduct further investigations to determine the cause but, at this stage, the Board has not seen any evidence to indicate the Director’s conclusions were incorrect.

[61] During the Hearing, the Approval Holder’s consultant explained that some of the conclusions reached from the data collected in 2002 and 2003 for the Registration have been found to be inaccurate. For example, some of the groundwater movement in the northern part of the Landfill flows to the northeast, not the southwest as previously believed. The Board understands that, as more data become available, a clearer understanding of the hydrology of the area will develop. Any such data, together with the analysis and conclusions based thereon, should be clearly and promptly communicated to the Director. The Board recommends the Approval be varied to require the Approval Holder to correct any inaccuracies resulting from data collected subsequent to the Registration application. The Board recommends the Approval

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<sup>15</sup> Director’s submission, received January 6, 2010, at paragraph 16.

Holder promptly update the Director on any inaccuracies found as a result of continued data collection.

[62] The Approval requires the Approval Holder to have run-off and run-on control systems capable of handling a 1-in-25 year 24-hour duration rainfall event. There have been issues regarding excess water accumulating in the cells in the past due to high precipitation events. The Board encourages the Approval Holder to develop a response plan to deal with 1 in 100 year precipitation events. By having such a plan developed in advance, response times to such an event can be quicker and effects mitigated more rapidly. This would also provide additional reassurance to neighbouring residents that steps are in place to protect their properties and the environment.

[63] The Landfill has been operating at the same site since 2004. As noted above, it was previously operating under a Registration, but the Approval Holder was required to apply for the Approval in order to accept a greater volume of waste. The Director used the 2007 draft Standards as a basis for his decision. At this time there are no other standards available. As noted at the Hearing, an expansion of a registered landfill to an approved landfill with no increase in the footprint of the operation, was not contemplated in the definition of landfills in the Standards. The Standards refer to new landfills and laterally expanding landfills. This Landfill does not fall into either of these definitions. The Director consulted with the Policy Branch of Alberta Environment to assist in interpreting the Standards for the purpose of this Landfill application. The Policy Branch advised the Director to treat the application as being for a laterally expanding landfill. The Director explained his approach to the application would not have differed had the Landfill been defined in another manner.

[64] The Director noted in his evidence that the Standards are currently under review. In the Board's view, it would be beneficial if the new Standards considered the situation in which the operator of an existing landfill operating under a registration wishes to apply for an approval. Although this may not have been a common occurrence to date, the development of regional landfills will lead to more of these situations in the future as municipalities work jointly to minimize the number of landfills. Incorporating clear definitions into the Standards will provide an understanding to applicants and the public as to how an application will be treated.

[65] Concerns were raised that the current wording of section 2.1(e) of the Standards is unclear. It says “groundwater quality will not exceed the performance standards.” This could be interpreted to suggest the water quality must not exceed the standards. In other words, groundwater of an excellent quality could be regarded as non-compliant. This is clearly not the intent of the section. When revisiting the Standards, the wording could be clarified to ensure there is no ambiguity or opportunity for misinterpretation.

[66] The Appellant and Intervenor raised concerns regarding access to information from the Approval Holder. The Board considers it appropriate that the complete application for an approval or licence should be available to the public at no charge. Annual reports and data information that is required to be provided to the Director pursuant to the Approval are public documents and should be obtainable from either the Approval Holder or the Director at no cost to the party seeking the information.

#### **IV. RECOMMENDATIONS**

[67] The Board recommends the Approval be varied as follows:

1. The Approval Holder shall provide the Director, in writing by September 1, 2010, with a report on any inaccuracies resulting from data collected subsequent to the Registration application and promptly update the Director on any inaccuracies found as a result of continued data collection. This shall include an analysis of the possible consequences of the reconsideration of the data.
2. The Approval Holder shall provide the Director, in writing, for his approval, by September 1, 2010, with details of the steps the Approval Holder has taken and will take to prevent uncontrolled releases from reaching any creek, tributary, or other water body outside the Landfill site.

[68] With respect to sections 100(2) and 103 of EPEA, the Board recommends that copies of this Report and Recommendations, and of any decision by the Minister, be sent to the following persons:

1. Ms. Eva Chipiuk, Ackroyd LLP, on behalf of Dr. Amil Shapka;
2. Ms. Michelle Williamson, Alberta Justice, on behalf of Mr. Kem Singh, Director, Northern Region, Environmental Management, Alberta Environment;
3. Mr. William Barclay, Reynolds Mirth Richards & Farmer LLP, on behalf of the Evergreen Regional Waste Management Services Commission; and
4. Mr. Robert Tomlinson.

## V. COSTS

[69] The Appellant and Approval Holder reserved their right to apply for costs. The Board requests the Appellant and Approval Holder provide their applications for costs 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 the applications before making its decision.

Dated on February 18, 2010, at Edmonton, Alberta.

"original signed by"

Alex G. MacWilliam  
Board Member & Panel Chair

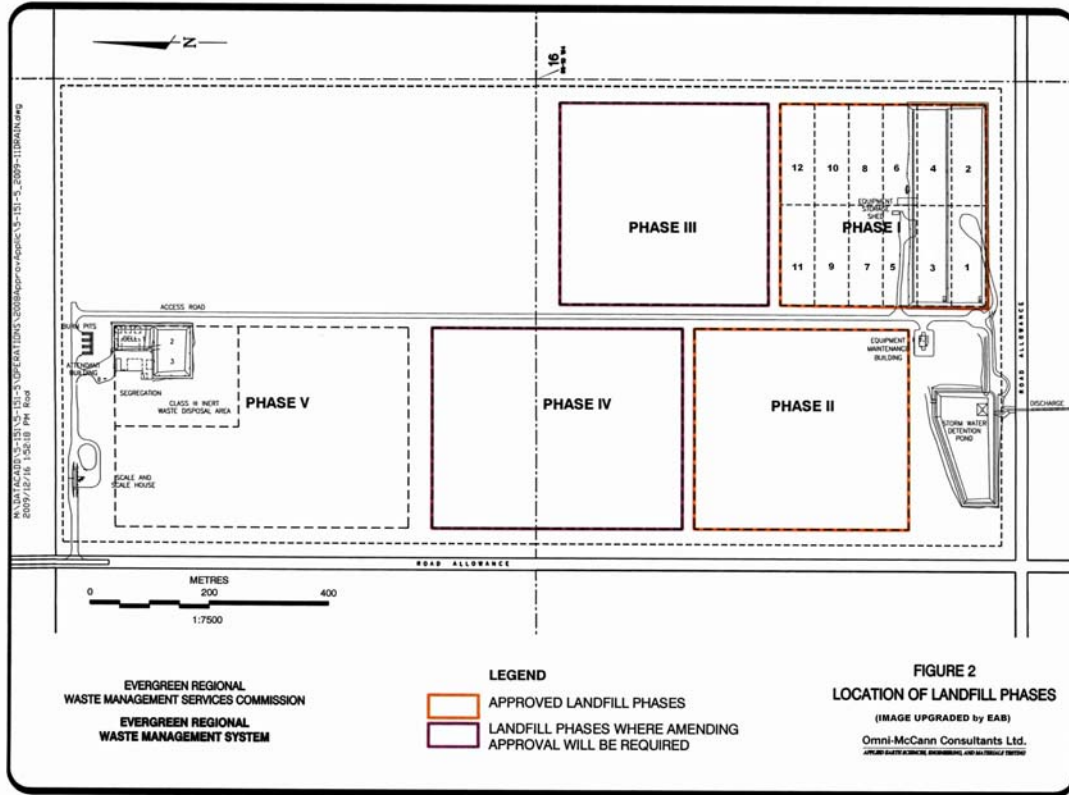
"original signed by"

Alan J. Kennedy  
Board Member

"original signed by"

Dan L. Johnson  
Board Member

## APPENDIX A Landfill Schematic



Extracted from: Approval Holder's submission, dated January 6, 2010. "Omni-McCann Consultants Ltd., *Evergreen Regional Waste Management Facility, Hydrogeological Review Brief, Alberta Environmental Appeals Board, Project 5-151-5* (January 2010)."

Note: Image upgraded by the Environmental Appeals Board.



ALBERTA  
ENVIRONMENT

*Office of the Minister  
MLA, Medicine Hat*


**Ministerial Order**  
**08/2010**

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

**Order Respecting Environmental Appeals Board**  
**Appeal No. 08-037**

I, Rob Renner, 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 No. 08-037.

Dated at the City of Edmonton, in the Province of Alberta, this 1 day of March, 2010.

  
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Rob Renner  
Minister

Alberta



## Appendix to Ministerial Order 03/2010

### Order Respecting Environmental Appeals Board Appeal No. 08-037

With respect to the decision of the Director, Northern Region, Environmental Management, Alberta Environment (“Director”), to issue Approval No. 248406-00-00 (“Approval”), under the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12, to the Evergreen Regional Waste Management Services Commission, I, Rob Renner, Minister of Environment, order that the decision of the Director to issue the Approval is varied as follows:

1. In condition 4.10.7 delete the phrase “Annual Groundwater Monitoring Report” and replace it with the phrase “Annual Groundwater Monitoring Program Report”.
2. Add the following conditions immediately after condition 4.10.7:

#### **“SECTION 4.11: ADDITIONAL REPORTING**

4.11.1 By September 1, 2010, the approval holder shall provide the Director with a written Update Report that:

- (a) reports and considers all hydrological and hydrogeological data available for the period February 1, 2004 to December 31, 2009 regarding the landfill;
- (b) corrects and updates the analysis and conclusions in all documents filed with Alberta Environment up to December 31, 2009 regarding the hydrology and hydrogeology of the landfill; and
- (c) based on the updated and corrected conclusions, discusses all potential impacts the landfill may have on groundwater and surface water within at least a five kilometre radius of the landfill.

4.11.2 In each of the Annual Groundwater Monitoring Program Reports filed after March 31, 2010, the approval holder shall:

- (a) report and consider all hydrological and hydrogeological data available for the previous year regarding the landfill;
- (b) correct and update the analysis and conclusions in all documents filed with Alberta Environment up to December 31 of the previous year regarding the hydrology and hydrogeology of the landfill; and
- (c) based on the updated and corrected conclusions, discusses all potential impacts the landfill may have on groundwater and surface water within at least a five kilometre radius of the landfill.

4.11.3 By September 1, 2010, the approval holder shall provide the Director for approval, a written plan that details the steps the approval holder has taken and shall take to prevent uncontrolled releases of leachate, run-off, or run-on from reaching any creek, tributary, or other water body outside the landfill.”