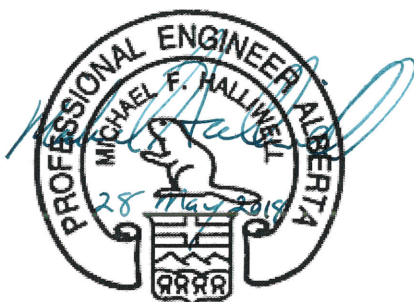




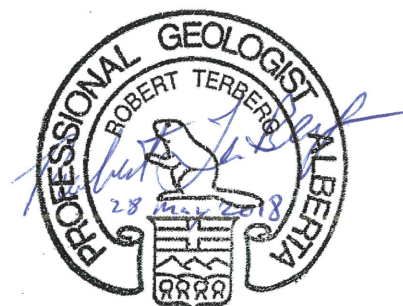
THURBER ENGINEERING LTD.

**REVIEW OF AMENDMENT TO EPEA APPROVAL
10348-03-00 FOR CLEAN HARBORS PROPOSED
LANDFILL EXPANSION, RILEY, ALBERTA
PART II**

Report
to
Village of Ryley



Michael Halliwell, M.Eng., P.Eng.
Environmental Engineer

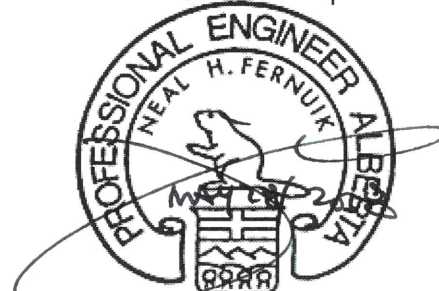


Robert Terberg, M.Sc., P.Geol.
Hydrogeologist

PERMIT TO PRACTICE	
THURBER ENGINEERING LTD.	
Signature	_____
Date	<u>May 28 / 2018</u>
PERMIT NUMBER: P 5186	
The Association of Professional Engineers and Geoscientists of Alberta	

Date: May 28, 2018
File: 22596

Don Proudfoot, M.Sc., P.Eng.
Review Principal



Neal Fernuik, M.Sc., P.Biol., P.Eng.
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STATEMENT OF LIMITATIONS AND CONDITIONS

Appendix A

- Exhibit Table 2-2



1. INTRODUCTION

Thurber Engineering Ltd. (Thurber) was retained by the Village of Ryley (Ryley) to conduct a review on Clean Harbors Canada Inc. (Clean Harbors) report titled *Application for Amendment of App of Approval No.: 10348-03-00 as amended Lateral Expansion of the Ryley Hazardous Waste Landfill and Transfer Facility* September 2017 prepared by TetraTech. This report entails the second component (Part II) of the expanded scope of work and should be read in conjunction with Thurber's May 2018 report¹.

Authorization to undertake the review was provided by Mr. Michael Simpson, Chief Administrative Office of Ryley.

It is a condition of this report that Thurber's performance of its professional services is subject to the attached Statement of Limitations and Conditions.

2. SCOPE OF WORK

The scope of work was outlined in Thurber's May 15, 2018 proposal and can be generally summarized as outlined below:

- Identifying any deficiencies within the existing monitoring and reporting practices at the Clean Harbors Ryley facility
- Provide recommendations for updated monitoring systems.

3. ASSESSMENT

As part of the assessment Thurber reviewed the following reports provided by the Village of Ryley or TetraTech the consultant working on behalf of Clean Harbors;

- Trium, August 2015, *2015 Compliance Audit Summary Report: Alberta Environment Approval 10348-02-00 Clean Harbors, Ryley Facility*
- CH2MHILL February 2013, *2012 Compliance Audit Summary Report: Alberta Environment and Approval 10348-02-00 Clean Harbors, Ryley Facility*
- Clean Harbors, March 2015, *Fugitive Dust & Odour Best Management Plan*
- Clean Harbors Canada, Ryley, Alberta *2015 Annual Air Monitoring Report Village of Ryley*

¹ Thurber Engineering Ltd., May 15, 2018, *Review of Amendment to EPEA Approval 10348-03-00 for Clean Harbors Proposed Landfill Expansion, Ryley, Alberta.*



- Clean Harbors Canada, Ryley, Alberta *2016 Annual Air Monitoring Report Village of Ryley*
- Clean Harbors Canada, Ryley, Alberta *2017 Annual Air Monitoring Report Village of Ryley*
- GHD Limited, *Alberta Environment and Parks (AEP) 2015 Annual Ambient Air Monitoring Report*
- EBA Engineering Consultants Ltd., January 2010, *2009 Soil Monitoring Report Clean Harbors Class 1 Waste Management Facility AEPEA Approval No. 10348-02-00 SE 09-050-17 W4M Ryley Alberta*
- TetraTech EBA, January 2015, *2014 Soil Monitoring Report Clean Harbors Class 1 Waste Management Facility AEPEA Approval No. 10348-02-00 SE 09-050-17 W4M Ryley Alberta*

3.1 Audits

While the 2012 Audit did find non-compliance items with regards to the Approvals in place for the landfill Thurber agrees with the auditor's comments that the items *do not represent serious and immediate risk to the local environment; and, they could not be construed as a deliberate attempt to circumvent responsible management of the landfill and transfer station.*

The 2015 Audit provided an Exhibit Table 2-2, reproduced in Appendix A, on Summary of Opportunities for Improvement. These items should be considered for the lateral expansion approval to improve the overall landfill operation and reduce some of the non-compliance items found due predominantly wording of the approval.

3.2 Fugitive Dust and Odor Best Management Plan

The Fugitive Dust and Odor Best Management Plan (BMP) outlines both an internal and external form to be used when dust or odors are evident. This is a useful Fugitive Dust and Odor BMP that should form part of Clean Harbors reporting process if not already implemented.

3.3 Air Monitoring

As part of the Approval for the Ryley Industrial Waste Management Facility, Clean Harbors is required to implement the Ambient Air Monitoring Program and has been doing so since the existing landfill opened. It is understood that a mandated Alberta Environment and Protection (AEP) air monitoring location is present on Highway 854, at a location generally downwind of the landfill (note: directions are referenced to the prevailing winds). Clean Harbors has established two additional sampling points: one upwind at the landfill's administration building and one cross-wind at the Ryley School.



The air monitoring reports are well presented, and the monitoring program appears to meet provincial requirements for sampling frequency, duration and analyses. To improve the air monitoring program Thurber proposes the following;

- The particulate matter analyses for the AEP site is for PM₁₀ (particulate matter with a mean diameter less than 10 µm) while the locations in the Village of Rley report present readings for Total Particulate Matter (TMP, all particulate matter with an upper limit in size of 100 µm). A uniform particulate monitoring package at all three locations would allow comparison of data from all three locations and permit better identification of background / regional or localized air quality fluctuations.
- Thurber noted instances in the Village of Rley reports where the particulate readings did not meet the *Alberta Ambient Air Quality Guidelines* (AAAQG) and were generally explained as background concentrations (from background sources, roadways or agricultural land). During some of these events, the similarly shaped plots of particulate concentrations at the two locations show distinct differences between the air quality results (i.e. divergent plots when they usually follow the same general shape). Utilizing the weather data and information from all three monitoring locations, it may be possible to provide additional explanations regarding the sampling events that do not meet the AAAQG. For example, where the administration building TPM values high in May and the Rley School values were low, it may be possible to indicate the wind was from the southeast to the northwest, add in that the AEP site was also high and cite a possible cause of off-site agricultural activity to the southeast. Without the additional data, alternative potential sources for the divergent readings could be possible (i.e. wind from the southeast with excessive dust generation from the landfill site itself).

3.4 Ground Water Monitoring

Overall the groundwater monitoring program provisions in the Application were complete. We noted the following items for clarification with TetraTech's response outlined in *italics*:

1. What's driving the work? Please reference the AEP request for the changes in this Amendment to the Approval 10348-03-00; list the specific changes requested or provide them as an Appendix.

The proposed monitoring program is identical to that which is currently implemented for the existing Rley Facility, with the exception of a proposed amendment to the frequency of detection level sampling (see response to question 3 below).

2. What's driving the compliance? Please reference the target guidelines for compliance. These may be in the original Approval, but we couldn't find an obvious section describing applicable guidelines and modifications, if any. i.e. February 2010 "Standards for Landfills in Alberta"; February 2016 "Alberta Tier 1 Soil and Groundwater Remediation Guidelines".
3. The Application and PGWMP flow chart would benefit from a clear statement or reference of what guidelines will govern the work going forward. It is not immediately clear that there is a gap whereby supporting documents in the Application for Amendment are governed by a one-year extension of Approval 10348-02-00 to March 2017 which complies to Canadian Environmental Quality Guidelines (CEQG) for drinking water; while Approval 10348-03-00 complies to February 2016 "Alberta Tier 1 or 2 Soil and Groundwater Remediation Guidelines". We recognize that background levels are pending assessment and will govern guidelines, nevertheless it would help to have a separate section clarifying the current status and proposed guidelines moving forward.

Response to 2 and 3: The target guidelines for compliance are not yet set, and will not be set until the background level monitoring is complete. The background level monitoring will be undertaken to establish water quality representative of pre-development conditions. Section 1.2.4(a) of the proposed program describes how we will evaluate the results of detection level monitoring, including use of the results of the program to develop control limits.

4. Detection level monitoring frequency in Application for Amendment GMP is once/year when baseline monitoring is not (typo?) being undertaken.
5. AEP February 2010 "Standards for Landfills in Alberta" for landfills with a liner and leachate collection system specifies detection level monitoring frequency is twice/year and once per year when background parameters are being sampled. If this is the proposed change to groundwater monitoring, please introduce it as such with reference to the original requirement.

Response to 4 and 5: We are suggesting a modification to the Standards once the initial baseline program (i.e. first four years, or until baseline levels have been established) is complete. As noted in Section 1.2.1, any consideration of modification of parameters for the detection level program would be verified with AEP prior to initiation of the detection level program; we would extend this intent also to the frequency of detection level monitoring, and would verify with AEP that our recommended frequency for the detection



level program is appropriate prior to initiation of that program, based on the results of the baseline program.

3.5 Geotechnical and Landfill Design

Thurber recommends that during the detailed design phase of work, a detailed slope stability assessment be carried out to confirm that the design landfill cell, berm, waste and final cover (cap) slopes will remain stable at various phases of waste filling to avoid future instabilities that could affect the functionality of the landfill. The results will need to confirm that there will be an adequate factor of safety for the various slope inclinations shown on the current design drawings.

Clarification on subdrains, closure plan and Construction Quality Assurance Plan and a Construction Quality Control Plan were provided by TetraTech.

3.6 Soil Monitoring Program

Both the 2009 and 2014 soil monitoring program are as per the Approval reporting process of five years. There were some polycyclic aromatic hydrocarbons (PAH) concentrations in surficial soil samples that did not meet the guidelines. A plan should be in place to address the potential source of PAHs or other constituents that do not meet the guidelines or background conditions rather than deferring to the next soil monitoring program that are at five year intervals.

STATEMENT OF LIMITATIONS AND CONDITIONS

1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT THURBER'S WRITTEN CONSENT AND SUCH USE SHALL BE ON SUCH TERMS AND CONDITIONS AS THURBER MAY EXPRESSLY APPROVE. Ownership in and copyright for the contents of the Report belong to Thurber. Any use which a third party makes of the Report, is the sole responsibility of such third party. Thurber accepts no responsibility whatsoever for damages suffered by any third party resulting from use of the Report without Thurber's express written permission.

5. INTERPRETATION OF THE REPORT

- a) Nature and Exactness of Soil and Contaminant Description: Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) Reliance on Provided Information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) Design Services: The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) Construction Services: During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

6. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

7. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes but is not limited to decisions made to develop, purchase or sell land.



Appendix A

Exhibit Table 2-2

EXHIBIT 2-2
SUMMARY OF OPPORTUNITIES FOR IMPROVEMENT

	Associated Audit Finding Numbers	Approval References	Approval Requirements	Audit Findings	Opportunity for Improvement
1	99	3.3.2	The landfill operator conducts annual visual inspections for corrosion and ultrasonic testing to monitor the thickness of the steel plate in within the Class 1 Cell.	The landfill operator does conduct visual inspections of the steel plate for the waste stabilization pit annually, but the last ultrasonic test was conducted in 2013. The landfill operator notes that it was never their intent to perform ultrasonic testing annually; an appropriate interval between tests would be every three years.	The approval condition should be updated in the next renewal to clarify that visual inspections of the steel plate should be conducted annually, and the ultrasonic tests should be completed every three years.
2	111	4.1.7 a.1	The Landfill Operations Plan contains at a minimum, operational procedures for the waste stabilization area.	An operational summary was provided in Section 4.4 of the Landfill Operations Plan 2015. This section, however, seems like an overview of the operation of the waste stabilization area rather than an operational procedure.	It is suggested that the operational plan contains at least a reference to a detailed operational procedure for the waste stabilization area and process and a summary of the operation of the stabilization process.
3	131	4.1.7 g)	The Landfill Operations Plan includes an updated plan of the landfill layout with survey records for the location of all structural components including final cover elevations and contours	The 2014 Plan indicates that the Contingency Plan is in Appendix A, which is currently the Facility Layout Diagram. The Contingency Plan is currently in Appendix B. The landfill layout drawing doesn't seem to address the location of all structural components including final cover elevations and contour. This information might be found in Figure 2 of the Landfill Operations Plan.	The appendix references in the 2015 and subsequent Landfill Operations Plans should be corrected and the survey record information should be consolidated on the updated plan. The plan should include the location of all structural components, final cover elevations and contours.
4	138, 143, 149	4.2.1, 4.2.2 e), and 4.2.5 c)	No effluent streams are released to the atmosphere except as provided by the approval. Acceptable emissions are listed in Item 4.2.2 of the approval.	The landfill introduced passive vents to release landfill gases to atmosphere following an explosion in the Cell 3B Leachate Building. There were no file records to indicate that the landfill gas vent emissions were authorized, however Clean Harbors did submit and incident report to AEP following the explosion and identified the plan to vent landfill gas to prevent further issues. AEP hasn't voiced any objection to the new emission and is aware of the landfill gas vents, but has not officially authorized the new emission	The up-coming approval renewal should include landfill gas vents in its list of permissible emission sources. It is also recommended that AEP should provide acknowledgement and a director's authorization for the vent emissions for the duration of the current approval.

EXHIBIT 2-2

SUMMARY OF OPPORTUNITIES FOR IMPROVEMENT

	Associated Audit Finding Numbers	Approval References	Approval Requirements	Audit Findings	Opportunity for Improvement
				source.	
5	164	4.2.13 c)	Upon receipt of an odours complaint from outside the facility boundaries, the operator activates the Odour Response Program as specified in the Landfill Operations Plan, Section 4.1.7f)	The current Landfill Operations Plan no longer has a Section 4.1.7f. The best reference for this approval item seems to be Section 5.1 of the Fugitive Dust and Odour Best Management Plan.	The correct reference to the Odour Response Program should be updated in the upcoming approval renewal. The approval should likely avoid direct reference to a numbered section and use a section title to allow flexibility during Landfill Operations Plan revisions.
6	184	4.2.19 e)	Annual Air Monitoring Summary Reports contain an overview of the operation and performance of air pollution abatement equipment and procedures at the facility.	The annual report indicated that there were "no issues with the air pollution abatement equipment to report." However, the report doesn't really describe the operation of the air pollution abatement equipment and procedures.	Future reports should include a brief overview of the pollution abatement controls used at the facility in addition to the performance of the systems. Performance in this context could include the percent of "up-time" compared to the total hours that the system should have been available for operation, removal efficiencies, or other statements that identify how well the abatement systems performed against specific objectives.
7	208	4.3.10	The acceptable leachate head in any cell is not exceeded after 15 August 2008.	This approval term was flagged for noncompliance in all of the audits completed at the Ryley facility since 2009. Clean Harbors does report each incidence in accordance with the operating approval. Although it is clear that leachate head had been exceeded in the previous 12 month period, the lead auditor elected not to flag this item for noncompliance because it has already been reported by the facility as a noncompliance to AEP, and no further action is required.	By context, it seems that the Director acknowledges that leachate head exceedances are inevitable from year to year because of unpredictable weather and pumping equipment failure. It is suggested that the wording of the term be amended in the forthcoming approval to require the approval holder to report all cases where the acceptable leachate head in any cell has been exceeded. The noncompliance condition will therefore be predicated on a failure to report an incident, rather than the occurrence of the incident over which the landfill operator currently can exert little control.
8	210	4.3.12	The volume of liquid in the leak detection system, as monitored according to Table 4.5-B of the Approval, does not exceed the action leakage rate of 790 liters/ha/day in any cell.	Action leakage rates were exceeded four times in 2014, and each occurrence was reported to AEP in accordance with the Operating Approval and Provincial Regulations. However, Clean Harbors demonstrated that the exceedances resulted from activities above the liner systems, not because of primary liner integrity issues. The issue was investigated and corrected to prevent a recurrence.	This term also causes perennial noncompliance that is picked up in 3rd party compliance audits in a similar fashion as leachate head exceedances, and there is no remedy to prevent further occurrences. Therefore, it is recommended that this term be amended in the next approval to read: "The approval holder shall report all instances when the Action Leakage Rate of 790 liters/ha/day is exceeded in any cell."
9	211	4.3.13	The industrial runoff control system is monitored as required	The Annual Industrial Run-Off report is not clear about which sampling locations were	Future annual reports should adopt the conventions

EXHIBIT 2-2

SUMMARY OF OPPORTUNITIES FOR IMPROVEMENT

Associated Audit Finding Numbers	Approval References	Approval Requirements	Audit Findings	Opportunity for Improvement
		in Table 4.3-D.	selected for the collection of samples. The format of the amending approval suggests that Sampling Points "A" or "C" should be indicated as a reference point for sample collection from either the original or the New Surface Water Detention Pond. The report does indicate that the source of discharge was from the original pond and therefore Point A can be assumed.	provided in Table 4.3-D.
10 218, and 220	4.3.15 f) and 4.3.15 h)	These clauses identify temperature and holding time limits for acute lethality sample testing for runoff samples.	Lab documentation and information provided by Clean Harbors' senior chemist indicate that acute lethality samples are not always continuously kept chilled when shipped to the lab. One sample was received by the laboratory at 16 degrees C which is outside the temperature range indicated in the approval. However, the senior chemist points out that the water quality should deteriorate at warmer temperature, thus increasing potential for test specimen mortality. There were no mortalities recorded in the sample that was received warm. If mortalities had been recorded, the test could have been declared inconclusive because of potential quality deterioration after sample collection.	The approval specification for sampling handling should be clarified in the next approval. It should be stated that samples must be transported and stored in a continuously chilled state at temperatures between 1 and 8 degrees C. The maximum sample holding time should not exceed 5 days after sample collection at the specified sample holding temperatures. If either temperature or holding times exceed these limits, new samples should be collected and submitted for testing.
11 244	4.5.1	All incoming materials to the facility are classified in accordance with the Waste Control Regulation AR192/96 (WCR)) and the Alberta User Guide for Waste Managers (May 1995, as amended).	The operational procedures observed at the facility substantially comply with this requirement; however, Section 2 of the Landfill Operating Plan doesn't explicitly state that the wastes and recyclables are classified using the definitions in the WCR or user guide. For purposes of annual reports, the Uniform Waste Codes specified under the Basel Convention are used.	Ryley facility waste profile sheets, which are maintained on the WinWeb corporate database, seem to be the only place where the WCR and User Guide waste classifications are referenced. It is recommended that relevant sections of the standard operating procedures and the Landfill Operations Plan reference the WCR and the User Guide as part of the waste profiling process.
12 251	4.5.2 g)	Municipal or domestic waste is not acceptable at the Ryley facility.	Section 2 (Waste Acceptance) of the Landfill Operations Plan does not specifically include this prohibition anymore.	The Landfill Operations Plan should be updated to prohibit accepting municipal or domestic waste in Section 2 (Waste Acceptance).

EXHIBIT 2-2
SUMMARY OF OPPORTUNITIES FOR IMPROVEMENT

	Associated Audit Finding Numbers	Approval References	Approval Requirements	Audit Findings	Opportunity for Improvement
13	253 and 263	4.5.4 and 4.5.9	These clauses address the storage of hazardous waste and recyclables at the facility. They require materials to be stored in accordance with the Hazardous Waste Storage Guidelines (Alberta Environment, 1988) and that containers of waste have adequate aisle space between them for inspections and access by emergency personnel.	Containers of waste (excluding bulk shipments) are stored inside the transfer station and in dedicated staging areas. The container staging areas are marked on floors with yellow lines to easily identify aisle space requirements. Periodically, a container or object was observed to be placed in an aisle space.	Signs or floor markings could be introduced into the waste container staging areas to indicate that aisle spacings must be kept clear.
14	284	4.5.15 c)	Detailed waste chemical and physical data is obtained prior to landfill disposal when a waste is received for the first time from a different location associated with a known waste generator.	This specific requirement is not explicitly stated in the Landfill Operations Plan; however, the plan stipulates that detailed waste chemical and physical data is required from the waste generator for each new waste stream.	The Operations Plan should add the requirement to obtain chemical and physical data prior to landfill disposal when a waste is received for the first time from a different location associated with a known waste generator.
15	330	4.5.40 b)	An Annual Landfill Operation Report is compiled, which includes landfill inspection records as required in Item 4.5.33.	Clean Harbors maintains detailed inspection records on their WinWeb database. The volume of records is too large to be shipped in hard copy and cannot be transmitted electronically using conventional email methods.	The inspection records mentioned in this clause were not sent to AEP in the 2009 and 2012 audits as well, and ministry officials have indicated that they are content with Clean Harbors records management. It is recommended that this clause be removed from the next approval renewal.
16	357 and 358	4.8.8 a) and b)	For the groundwater monitoring program, if a sample cannot be obtained from a monitor well due to damage or other reasons, the groundwater monitor well is cleaned, repaired or replaced. If the well cannot be sampled during the regular sampling event, a sample must be collected from the repaired well or its replacement and analyzed prior to the next sampling event.	The 2014 groundwater monitoring report indicated that monitoring well MW15B "appeared to be damaged and could not be sampled." There is no indication that the well was cleaned, repaired or replaced. However, the report Executive Summary notes that 3 wells were decommissioned (including MW 15B) and that ten new monitoring wells were installed to "complete" the monitoring network on site. The ten wells were sampled and analyzed in the fall of 2014.	The 2014 Groundwater Monitoring Report should clarify that MW15B was replaced by one of the new wells installed in the fall of 2014.
17	365, 366, 367, and 373	4.8.10 b), c), d) and j)	The Annual Groundwater Monitoring report must include a topographic map of the facility, provide a description of the industrial activity and processes, include a map showing the location of all surface and	The annual groundwater monitoring report contained some topographic information for the site in Figure 2 (Regional Information Plan) however; the contour interval was rather large to be useful. It did not appear that the intent was to provide topographic information. Some	It is suggested that information requirements from Item 4.8.10 be addressed directly in the report. If dedicated sections are not used in the report that are consistent with the approval terms, then specific references to the requirements of 4.8.10 could be inserted into the text to help locate the information. It would advisable to use Item 4.8.10 as a check list during the quality review of

EXHIBIT 2-2

SUMMARY OF OPPORTUNITIES FOR IMPROVEMENT

Associated Audit Finding Numbers	Approval References	Approval Requirements	Audit Findings	Opportunity for Improvement
		groundwater users and summarize any changes made to the groundwater monitoring program since the last groundwater monitoring report.	information concerning the activity and processes at the site was provided in Section 1.1 (General) but this section did not include details about the transfer station and the waste stabilization process. Based on the approval requirements, it was expected that dedicated sections would have been provided in the report to address the locations of surface and groundwater users and the summary of changes since the previous year's monitoring program. In general, it was difficult to match information requirements stipulated in approval item 4.8.10 with sections from the report.	the annual groundwater monitoring report.
18 403	4.9.8	Two copies of the soil-monitoring program are sent to AEP for the second soil monitoring report no later than January 31, 2015.	One copy of the report was emailed to the industrial reporting repository at AEP on January 30, 2015.	It was confirmed with an AEP official that all reporting submitted to AEP should be sent to the AEP reporting repository (aenvindustrialreporting@gov.ab.ca) This term is obsolete and should be omitted from the new approval.