# 2015 Compliance Audit Summary Final Report: Alberta Environment Approval 10348-02-00 Clean Harbors, Ryley Facility

**August 2015**

*Submitted for:*

**Clean Harbors Canada, Inc.**
P.O. Box 390
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*Prepared by:*

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**Proposal Number: P15-388-CHC**

**Project Number: T15-248-CHC**

TRIUM

# EXECUTIVE SUMMARY

Clean Harbors Canada Ryley Inc. (Clean Harbors) is obligated to complete a compliance audit of its Alberta Environment and Parks (AEP) operating approval 10348-02-00 with amendments 01 through 04 ( hereafter referred to as the Approval) at least once every 3 years. Clause 4.1.2 of the AEP Approval specifies that "the approval holder shall cause the facility to be audited by an independent third-party consultant or organization to assess compliance with the terms and conditions of this approval." Results of the audit must be submitted to AEP with the Annual Landfill Operations Report. TRIUM Environmental Inc (TRIUM) visited the facility in July 2015 to complete the current audit cycle.

Approval amendments since the previous 2012 compliance audit have expanded the Ryley audit protocol to a total of 496 discrete statements. Amending Approval 10348-02-04, introduced in February 2014, added 19 new statements for the 2015 audit. However, 26 statements in the overall protocol were found to provide information or guidance, and were therefore not auditable. These statements are retained in the audit protocol to maintain consistency and provide the proper context for the auditor during the evaluation of associated approval conditions. Furthermore, 108 approval conditions were found to be not applicable at the time of the audit often because they applied to future operational stages that haven't yet occurred, such as closure of the Ryley Facility or they regulated practices that Clean Harbors simply has not implemented at the facility. The remaining 362 statements were evaluated by TRIUM's lead auditor over the period from June 22$^{nd}$ to July 10$^{th}$ 2015.

The auditor noted one non-compliant finding that had existed after the commissioning of Landfill Cell3E in October 2014. Approval Clause 4.5.23.4 from Amending Approval 10348-02-04 required the Approval Holder to not place waste in newly constructed Cell 3E until the financial security had been "updated." Although a calculation of the required increase to the financial security for facility closure had been submitted to AEP, the closure bond amount was not adjusted to reflect the new closure cost requirements until the renewal of the bond in April 2015. The adjusted bond amount was confirmed to meet the current closure requirement estimates, and no further follow up was deemed necessary to re-establish compliance at the time of the audit. However, Clean Harbors should identify the discovery of the previous issue in conformance with Clauses 2.1.1 and 2.1.2 of the Approval.

Unlike the previous two compliance audits, AEP declined to respond to questions from the auditor concerning vague approval terms. The AEP agent directed the auditor to use "professional judgment" rather than seek clarification from the AEP Regulatory Approval Team concerning 26 approval clauses that were subject to interpretation or seemingly irrelevant in context of the activities executed at the Ryley facility. The findings from these 26 items were attributed to 17 discrete events or conditions and were assessed to be "opportunities for improvement" based on the professional judgment of the auditor.

The renewal application for the Ryley Facility Approval in 2016 presents a timely opportunity to amend 11 of the approval statements that were considered vague or obsolete. In some cases, relatively simple wording changes would clarify these terms mutually for regulator and the approval holder, improve regulatory conformance, and reduce effort in future compliance audits. Other opportunities address practices that could be improved to address due diligence and operational efficiencies. These opportunities are summarized in Exhibit 2-2 of this report.

It is important to keep in mind that an audit provides a “snapshot in time” of the state of a facility’s regulatory compliance status. In keeping with standard auditing practice, supporting evidence has been cited to justify the auditor’s assessment of each finding, which may similarly reflect a finite timeline. Therefore, items verified by the auditor’s direct observation were evaluated based on the conditions present and observed during the site visit conducted July 9th and 10th 2015.

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Please note that the provincial ministry formerly known as Alberta Environment and Sustainable Resource Development (AESRD) and also Alberta Environment (AENV) is now known as Alberta Environment and Parks (AEP); instances of 'AESRD' and 'AENV' in this document have been edited to read 'AEP' for consistency, as required.

## LIST OF EXHIBITS



## LIST OF TABLES



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# 1 INTRODUCTION

Clean Harbors Canada Ryley Inc. (Clean Harbors) is obligated to complete a compliance audit of its Alberta Environment and Parks (AEP, formerly Alberta Environment and Sustainable Resource Development) operating approval at least once every 3 years as a condition of operating approval 10348-02-01. TRIUM Environmental Inc (TRIUM) was retained to perform the audit for the 2015 operating year. The site visit associated with the audit was conducted on July 9 and 10, 2015. In preparation for this exercise, an audit protocol was assembled in accordance with standard environmental auditing practice. The auditor then reviewed documentation, visually inspected facility equipment and areas, and interviewed site staff to confirm each auditable statement. The results of this audit are presented and summarized in this report.

## 1.1 Objectives/Scope of Audit

The overall goal of this report is to address the requirements of Clauses 4.1.2 and 4.1.3 of AEP Operating Approval 10348-02-00 (Approval). These conditions specify that "the approval holder shall cause the facility to be audited by an independent third-party consultant or organization to assess compliance with the terms and conditions of this approval" and further require the compliance audit to be completed at least once every 3 years after the initial audit completed in 2009. Results of the Approval compliance audits must be submitted to AEP with the Annual Landfill Operations Report.

The objective of the audit was to establish whether or not the Clean Harbors Ryley facility (Facility) was compliant with all terms and conditions of the Approval during the time interval of the audit. Therefore, the terms and conditions of the approval were assembled into a set of assessment criteria referred to as the audit protocol. By the conclusion of the audit, each statement in the protocol was assessed according to one of the following status descriptions:

- In compliance
- Not in compliance
- Not applicable (at the time of the audit)
- Opportunity for Improvement.

For the purposes of the Facility Approval Compliance Audit, it was necessary to develop a protocol consisting of 496 auditable statements. Each statement was stated in a clear manner; that is, worded in such a way that the response was intended to be 'yes' or 'no', or only one of 'true' or 'false'. Therefore, it was mandatory to develop each statement as a single compliance criterion item (that is, statements with more than one item that could be answered yes or no were not acceptable).
Some conditions in the Approval were recognized to offer information or definitions only; other conditions specified a future requirement: such conditions were excluded from consideration. With the exception of the above-noted situations and excepting Clause 1.1.2 (which provides definitions for terminology and acronyms used throughout the Approval), the remaining conditions within the Approval were converted to single compliance criterion items.

In addition to establishing compliance with any statement, the auditor had to indicate the supporting information used to render the judgment for each statement. Documents and records were the preferential evidence to support an assessment of any of the audit statements. This information generally provides irrefutable evidence that can be revisited in case of discrepancy. The documentation reviewed during the execution of this exercise included the following:

- Monitoring records
- Inspection records
- Annual and monthly summary reports
- File documents and logs
- Correspondence with regulatory officials

In some cases, it was appropriate for the auditor to render assessment on an audit statement based on a visual observation or inspection. Accordingly, the lead auditor must have the appropriate credentials and experience to provide a correct evaluation or a skillful interpretation.

In the absence of documentation, or if it was impossible to verify an audit statement through visual observation or inspection, the last recourse available to the auditor was an interview of Facility staff to verify the status of the item. Persons interviewed to verify the status of an audit statement had to be identified in the supporting evidence for the audit. At the discretion of the auditor, it was occasionally preferable to interview more than one person for corroboration.

Unlike the previous audits completed for the Ryley Facility, AEP declined to offer clarification for approval terms and conditions that were difficult to interpret, or otherwise seemed outside the scope of operations occurring at the facility. The AEP agent directed the auditor to use “professional judgment” to assess items in the approval of such a vague nature. Therefore, the new assessment category “Opportunity for Improvement” was added to the 2015 audit protocol. This was done to flag items that were not necessarily compliant with the wording of the approval but the observed practice(s) provided an adequate or better level of due diligence in the opinion of the auditor. Conversely, this assessment could be applied to a term or condition that was observed to be compliant, but seemed to be inappropriate or providing less due diligence than typical industry practice(s). Some of the opportunities for improvement pointed to terms and conditions that could be revised for clarity in the up-coming approval renewal for 2016.

It was not within the scope of this audit to assess or report any issues that were not directly associated with the Approval or the Alberta Environmental Protection and Enhancement Act.

# 2 DISCUSSION

Three amendments to the operating approval have occurred since the first Compliance Audit completed in 2009. These amendments address the implementation and operation of the waste stabilization process and an updated Ambient Air Monitoring Program. The latest amendments were issued February 28, 2014, to address expansion of the landfill to include Cells 3D and 3E and construction of a new runoff detention pond.

As observed in the 2009 and 2012 audits, some Approval terms presented concerns for continuing compliance issues, and a single historical incident could trigger multiple instances of noncompliance. For example, a record missing from documentation (that must be maintained for inspection for a minimum period of 10 years) will always show up as a noncompliance issue in subsequent audits until the archive period is completed. The scope of the 2015 Compliance Audit considered records generated following the 2012 Compliance Audit.

Furthermore, the Approval and its recent amendments still contained terms that did not consistently portray the operating practices actually utilized at the Facility. This situation may also suggest noncompliance with the Approval. As an example, Clause 4.5.32(b)(ii) stipulates that landfill inspections be completed immediately after a storm event, rather than on the next day of operation. If the storm event occurs on a holiday or weekend, this condition cannot be typically met at the Facility, because no staff members are on site. AEP's Approval writers acknowledged, in this instance, that the term "immediate" in this Approval condition was not to be taken literally. AEP's intent for this particular clause is consistent with Clean Harbors' approach: inspections are completed after a trigger event on the next day when the facility is staffed.

## 2.1 Summary of Findings

Exhibit 1 summarizes the overall status of the audit findings as of July 28, 2015.

**EXHIBIT 1**
**SUMMARY OF COMPLIANCE AUDIT (AEP APPROVAL 10348-02-00) FINDINGS AT THE FACILITY**

| Finding Result | Number of Findings |
|---|---|
| Confirmed compliant | 333 |
| Confirmed non-compliant | 1 |
| Information only items (non-auditable) | 26 |
| Items not applicable at the time of the audit | 110 |
| Opportunities for Improvement | 26 |
| **Total audit statements** | **496** |

Only one noncompliant item with respect to the AEP Approval was verified at the Facility. Item 4.5.23.4 from Amending Approval 10348-02-04 required the Approval Holder to not place waste in newly constructed Cell 3E until the financial security had been "updated." While there was evidence to confirm that the increase in financial security had been reported to AEP several months prior to bringing Cell 3E into service, it was also evident that the required increase in the closure bond provided as security to AEP was not updated until April of 2015. This single incident was perceived to be an administrative error associated with a task that is done routinely in the spring each year, just prior to the expiry of the closure bond, and not a willful attempt to

circumvent regulation or the terms and conditions of the operating approval. The current closure bond was verified to address the current closure estimates.

Clean Harbors maintains a logbook of all approval contraventions. Compliance issues related to leachate head and action leakage rate contraventions related to Findings 208 and 210 respectively in Exhibit 2-2 were properly recorded in the log and included in the annual landfill operations reports. The logs verify that the proper follow and reporting had been completed, thus these past compliance incidents were considered addressed and not compliance issues in the current audit. However, these findings were flagged as potential opportunities to simplify efforts for future compliance audits through slight modification to the approval terms. These modifications and other opportunities for improvement are discussed later in this section.

A significant portion of the audit protocol (110 items out of 496 audit statements, or approximately 22 percent) could not be evaluated. In general, these items were not applicable within this audit for two reasons, as follows:

- Terms referred to a future event, conditions that were not currently applicable to the approval holder, or requirements that were not yet approved or declared in force by AEP.
- Terms involved specifications or limitations on a practice that was not currently being used at the Facility.

Specific clauses of the approval that were not applicable for this cycle of the compliance audit are summarized in Appendix 3.

It became apparent that significant portions of the Approval will not have compliance concerns until the closure and post-closure care phase of the Facility life-cycle is initiated. The effort to complete future compliance audits will also be periodically impacted by new cell construction, cell closure activities, and soil monitoring events.

The audit identified opportunities for improvement based on assessment of 17 incidents or operating conditions associated with 26 items in the Approval. In previous audits, provincial regulatory contacts associated with the approval had provided input to establish the environmental ministry's perspective on items that were subject to interpretation, or on operating practices didn't match the approval term exactly, but still appeared to be valid practices. Conversely, some of the items noted were based on practices or incidents that met the wording of the approval, but could be improved to provide a higher level of environmental protection, due diligence or operational efficiency. These incidents and suggested opportunities for improvement are summarized in Exhibit 2-2.

The forthcoming renewal of the operating approval provides a timely opportunity to review the terms and conditions of the approval and make adjustments that would best reflect the current and desired operating practices for the facility. Eleven of the 17 consolidated observations identified below suggest opportunities to clarify approval terms leading to improved regulatory compliance and reduced auditing effort.

**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.<br>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 exceedences 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 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)<br>This term is obsolete and should be omitted from the new approval. |

## 2 Discussion

The AEP Approval is located in Appendix 2 as a reference for this report. The full summary of audit findings is appended to this report as Appendix 3.

# 3 CONCLUSIONS

The Compliance Audit of AEP Approval 10348-02-00 revealed that one finding did not meet the approval terms and conditions over a period of time from October 2014 to April 2015. Approval clause 4.5.23.4 (from Amending Approval 10348-02-04) requires that financial security be updated prior to placing waste in newly constructed landfill cell 3E. Financial security estimates calculated in March 2014 indicated that an adjustment to the closure bond was required as a result of the commissioning and use of Cell 3E. The bond was updated in April 2015, approximately 6 months after the cell became operational.
In accordance with approval clauses 2.1.1 and 2.1.2, Clean Harbors has an obligation to report the noncompliance to the AEP Director. No further follow up should be necessary however, as the financial security requirement meets the current closure requirements.

Twenty-six findings were grouped into 17 opportunities to improve due diligence, address vague or obsolete approval requirements, or simplify compliance monitoring were identified during the course of the audit. As in past audits, AEP was contacted to attempt to obtain perspective on approval terms that appeared to lack context or were subject to interpretation. However, AEP's representative directed the lead auditor to "use professional judgment" and assess the approval conditions without ministry input. Many of the opportunities for improvement identified in this audit could be construed to be non-compliant with the wording used in the approval terms. However, the auditor considered the nature of the remedial follow up necessary to address these items in exercising professional judgment and asserted that these items were either obsolete, were compliant with the Approval but could be modified to improve due diligence and/or operational efficiencies, or suggested an opportunity to focus the wording of approval terms to be consistent with the mutual intent of the both regulator and approval holder. Review of these opportunities is timely, because the Approval will be renewed in 2016. Therefore, there is also an opportunity to revise terms in the new approval.

# 4 CLOSURE

This audit and report have been completed observing accepted industry practices subject to the limitations stated in Appendix 1. Any questions or concerns regarding the content of this report should be directed to the undersigned.

Respectfully submitted,

**TRIUM Environmental Inc.**

***Prepared by:***

Morley M. Kostecky, P.Eng
Lead Auditor

mmk/md

# 5 REFERENCES


Alberta Environment and Sustainable Resource Development (AESRD). 2010. *Standards for Landfills in Alberta.*

Alberta Environment, 2008. Approval 10348-02-00, Construction, Operation, and Reclamation of the Ryley Industrial Waste Management Facility, Consisting of a Class 1 and Class 2 Industrial Landfill, and a Hazardous Waste/Recyclable Storage and Processing Facility.

# Appendix 1

# Limitations

## Limitations

1. The work performed in this report was carried out in accordance with the Terms of Reference (TOR) dated April 7, 2015 and allowance to review opportunities for improvement post-audit.
2. The report has been prepared in accordance with generally accepted environmental study and/or engineering practices. No other warranties, expressed or implied, are made as to the professional services provided under the TOR and included in this report.
3. The services performed and outlined in this report were based, in part, upon visual observations of the Facility and attendant structures. TRIUM's opinion cannot be extended to portions of the Facility which were unavailable for direct observation, as this is reasonably beyond the control of TRIUM.
4. The objective of this report is to assess the environmental conditions at the Facility at the time of this report, given the context of TRIUM's contract, with respect to existing environmental regulations within the applicable jurisdiction. Compliance of past owners with applicable local, provincial, and federal government laws and regulations was not included in TRIUM's TOR for services.
5. The Facility history research performed herein relies on information supplied by others as well information supplied to TRIUM by the client. No attempt has been made to independently verify the accuracy of such information, unless specifically noted in TRIUM's report.
6. TRIUM's visual observations relating to potential contaminant materials in the environment at the Facility are described in this report. No testing was performed. It should be noted that other compounds or materials may be present in the Facility environment.
7. The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the Facility in locations not specifically investigated. Should such an event occur, TRIUM must be notified in order to determine if modifications are necessary to the conclusions and recommendations presented herein.
8. This report is for the sole use of Clean Harbors Canada (Ryley) to whom this report is specifically addressed. This report, in whole or in part, shall not be used by others than the above-mentioned client without the written consent of TRIUM.

# Appendix 2
# AEP Approval 10348-02-00 and Amendments

# APPROVAL

## PROVINCE OF ALBERTA

## *ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT*
## R.S.A. 2000, c.E-12, as amended.

APPROVAL NO. 10348-02-00

APPLICATION NO. 005-10348

EFFECTIVE DATE: February 29, 2008

EXPIRY DATE: March 31, 2016

APPROVAL HOLDER: Clean Harbors Canada, Inc.

ACTIVITY: **CONSTRUCTION, OPERATION AND RECLAMATION OF THE**

Ryley Industrial Waste Management Facility, consisting of a Class I and Class II Industrial Landfill and a Hazardous Waste/Recyclable Storage and Processing Facility,

**IS SUBJECT TO THE ATTACHED TERMS AND CONDITIONS.**

Designated Director under the Act David Helmer

Date Signed February 29, 2008

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## PART 1: DEFINITIONS

### SECTION 1.1: DEFINITIONS

1.1.1 All definitions from the Act and the regulations apply except where expressly defined in this approval.

1.1.2 In all PARTS of this approval:

(a) "Act" means the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c.E-12, as amended;

(b) “active landfill area" means the area of the landfill that has received or is receiving waste and has not been closed and that is being used for disposal, storage, processing, transport or handling of waste;

(c) “air contaminant” means any solid, liquid or gas or combination of any of them in the atmosphere resulting directly or indirectly from activities of man;

(d) “APEGGA” means the Association of Professional Engineers, Geologists and Geophysicists of Alberta;

(e) "application" means the written submissions to the Director in respect of application number 005-10348;

(f) “cell” means a designed or designated area of the landfill comprised of an excavation or earthen structure in which waste is enclosed by a cover;

(g) “closure” means the construction of a final cover for a landfill phase or cell including placement of previously conserved upper surface soil and re-vegetation as required for the intended future use of the landfill;

(h) “composite liner system” means a liner system that consists of 80 mil high density polyethylene (HDPE) geomembrane primary and secondary liners, a leachate collection system, and a leak detection system underlain by a compacted clay liner, placed at the base and at the sides of a landfill or a cell to restrict the migration of leachate;

(i) "container" means any portable device in which a substance is kept, including but not limited to the following:

(i) drums, barrels and pails which have a capacity greater than 18 litres but less than 210 litres,

(ii) 320 litre overpack drums, and

(iii) 1000 litre tote tanks or sacks;

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(j) “cover” means soil or other material that is used to cover compacted wastes in a cell;

(k) "day" means any sampling period of 24 consecutive hours unless otherwise specified;

(l) "decommissioning" means the dismantling and decontamination of the facility undertaken subsequent to the termination or abandonment of any activity or any part of any activity regulated under the Act;

(m) "decontamination" means the treatment or removal of substances from the facility and affected lands;

(n) "Director" means an employee of the Government of Alberta designated as a Director under the Act;

(o) "dismantling" means the removal of buildings, structures, process and pollution abatement equipment, vessels, storage facilities, material handling facilities, railways, roadways, pipelines and any other installations that are being or have been used or held for or in connection with the facility;

(p) “existing ambient air monitoring program” means the ambient air monitoring program conducted under Subsections 4.1.5, 4.1.6, and 4.1.7 of *Environmental Protection and Enhancement Act* Approval No. 10348-01-00, which includes but is not limited to the following:

  (i) ambient air monitoring for suspended particulate once every 12 days for a 24 hour period, and

  (ii) monitoring of wind speed and direction whenever hazardous waste is being landfilled;

(q) “existing cells” means Cell 1, Cell 2, Cell 3A, Cell 3B, and Cell 3C as designated and described in the application;

(r) “facility” means all buildings, structures, process and pollution abatement equipment, vessels, landfills, storage and material handling facilities, industrial runoff control systems, railways, roadways, pipelines, monitoring wells and other installations, and includes the land, located on the SE 1/4 of Section 9, Township 050, Range 17, West of the 4$^{th}$ Meridian, that is being or has been used or held for or in connection with the Ryley Industrial Waste Management Facility;

(s) "facility developed area" means the areas of the facility used for the storage, treatment, processing, transport, or handling of raw material, intermediate product, by-product, finished product, process chemicals, or waste material;

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(t) ”final closure” means the period of time when waste will no longer be placed in the defined portion of the landfill and activities are undertaken to complete the final cover system and decommission components and facilities that are no longer required, and this period of time includes the construction of any additional components or monitoring systems that are necessary for post-closure;

(u) "final cover" means soils and other material used on the surface of a landfill that is completed to its maximum designated waste elevation;

(v) "fugitive emissions" means emissions of substances to the atmosphere other than ozone depleting substances, originating from a facility source other than a flue, vent, or stack but does not include sources which may occur due to breaks or ruptures in process equipment;

(w) "geomembrane" means a sheet of manufactured synthetic material designed to control the migration of liquid;

(x) "grab sample" means an individual sample collected in less than 30 minutes and which is representative of the substance sampled;

(y) “groundwater” means groundwater as defined in the *Water Act*;

(z) “Hazardous Waste/Recyclable Storage and Processing Facility” means all buildings, structures, process and pollution abatement equipment, vessels, storage and material handling facilities, and other installations, and includes the portion of land within the facility that is being or has been used or held for or in connection with the Hazardous Waste/Recyclable Storage and Processing Facility;

(aa) “hydraulic conductivity” means the ease with which a fluid can be transported through a material;

(bb) “hydrocarbon” means a chemical compound that consists entirely of carbon and hydrogen;

(cc) “ISO 17025” means the international standard, developed and published by International Organization for Standardization (ISO), specifying management and technical requirements for laboratories;

(dd) "incompatible wastes or incompatible hazardous recyclables" means substances which when mixed can produce effects which are harmful to human health or the environment such as heat, pressure, fire, explosion, violent reaction, toxic dusts, mists, fumes or gases, or flammable fumes or gases, and include those substances listed in Appendix 5 of the *Guidelines for Industrial Landfills*, Alberta Environment, June 1987, as amended;

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(ee) "industrial runoff" means precipitation that falls on or traverses the facility developed area;

(ff) "industrial runoff control system" means the parts of the facility that collect, store or treat industrial runoff from the facility and includes but is not limited to a surface water collection ditch, surface water detention pond, and tank farm bermed area;

(gg) "industrial wastewater" means the composite of liquid wastes and water-carried wastes, any portion of which results from any industrial process carried on at the facility;

(hh) “landfill” means the area at which waste is disposed of by placing it in a cell and includes all soil stock piles, trenches, berms, fences, run-on control systems, run-off control systems, leachate collection systems, leak detection systems, and other installations, and includes the portion of land within the facility that is being or has been used or held for or in connection with the Class I and Class II Industrial Landfill;

(ii) “lateral expansion” means an expansion of the waste boundaries of a landfill beyond the property area approved for landfilling by this approval;

(jj) “leachate” means a liquid that has been in contact with waste in any cell and has undergone chemical or physical changes;

(kk) “leachate collection system” means a system that gathers leachate so that it may be removed from a landfill and includes a permeable drainage material, a network of perforated pipes, and sumps or manholes from where leachate can be removed;

(ll) “leak detection liquid” means any liquid within the leak detection system;

(mm) “leak detection system” means a system that gathers liquids between a primary liner and a secondary liner system and consists of drainage material and sumps from where liquid can be removed;

(nn) “liner” means a continuous layer of synthetic material or natural clay soils placed beneath and at the sides of a cell to restrict the migration of leachate;

(oo) "local environmental authority" means the Department of Environment, in the Province of Alberta, or the agency that has the equivalent responsibilities for any jurisdiction outside the Province;

(pp) “maximum acceptable leachate head” means the head of leachate above the lowest part of the primary liner, not including the sumps or leachate pipe trenches and is either:

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(i) a maximum of 1.0 m in existing cells during landfill operations, closure and post-closure, or

(ii) a maximum of 0.3 m in each new cell during landfill operations, closure and post-closure;

(qq) “maximum designated waste elevation” means the maximum elevation of waste in metres above sea level, as proposed in the letter dated February 22, 2007 from Clean Harbors Canada, Inc. as part of the application;

(rr) "monitoring system" means all equipment used for sampling, conditioning, analyzing or recording data in respect of any parameter listed or referred to in this approval including equipment used for continuous monitoring;

(ss) "monitoring well" means a well drilled at a site to measure groundwater levels and collect groundwater samples for the purpose of physical, chemical, or biological analysis to determine the concentration of groundwater constituents;

(tt) "month" means calendar month;

(uu) “new cell” means Cell 3D or Cell 3E as designated in the application;

(vv) “points of compliance” means the location or locations of the groundwater monitoring wells where measurements of groundwater quality are taken to assess landfill and waste treatment performance;

(ww) “post-closure” means the longest of the following periods of time:

(i) 25 years from the final closure of the landfill,

(ii) so long as groundwater quality in groundwater monitoring wells does not meet the quality objectives specified in the approval, or

(iii) so long after final closure as leachate is generated from the leachate collection system at the landfill;

(xx) “primary liner” means the uppermost geomembrane liner;

(yy) "QA/QC" means quality assurance and quality control;

(zz) “quality assurance” means a planned system of activities that provide assurances that the facility was constructed as specified in the design;

(aaa) “quality control” means a planned system of inspections that are used to monitor and control the quality of a construction project;

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(bbb) "quarter year" means a time period of three consecutive months designated as January, February, and March; or April, May, and June; or July, August, and September; or October, November, and December;

(ccc) "representative grab sample" means a sample consisting of equal volume portions of water collected from at least four sites between 0.20 & 0.30 metres below the water surface within the surface water detention pond of the industrial runoff control system;

(ddd) “run-off” means any rainwater or melt water that drains as surface flow from the active landfill area;

(eee) “run-off control system means any parts of the landfill that collect, store or treat run-off;

(fff) “run-on” means any rainwater or melt water that drains as surface flow into the active landfill area;

(ggg) “run-on control system” means parts of the landfill that divert run-on away from the active landfill area;

(hhh) “secondary liner” means the lowermost geomembrane liner;

(iii) "soil" means unconsolidated mineral or organic surficial materials that can be, have been, or are being altered by weathering, biological processes, or human activity;

(jjj) "storm event" means a 1 in 10 year precipitation event that occurs over 24 hours at Ryley, Alberta;

(kkk) "subsoil" means the layer of soil directly below the topsoil layer that consists of the B and C horizons as defined in *The Canadian System of Soil Classification*, Third Edition, 1998, as amended;

(lll) "suitable quality" means topsoil having a good, fair or poor rating as described in the *Soil Quality Criteria Relative to Disturbance and Reclamation,* Alberta Agriculture March, 1987, as amended;

(mmm) "tank" means a stationary device, designed to contain an accumulation of a substance, which is constructed primarily of non-earthen materials that provide structural support;

(nnn) “TDG” means the *Transportation of Dangerous Goods Regulations* (SOR/2001-286) made under the *Transportation of Dangerous Goods Act*, 1992 (Canada), as amended;

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(ooo) “third-party hazardous waste” means hazardous waste generated on property that is not owned by the approval holder;

(ppp) “topsoil” means the uppermost layers of soil that consist of the L, F, H, O, and A horizons as defined in *The Canadian System of Soil Classification*, Third Edition, 1998, as amended;

(qqq) "waste storage area" means the areas designated for waste and hazardous recyclable container storage, and/or waste and hazardous recyclable tank storage, as described in the application;

(rrr) "week" means any consecutive 7-day period unless otherwise specified;

(sss) “working face” means that portion of the active landfill area where waste is currently being deposited, spread and compacted; and

(ttt) “year” means a calendar year, unless otherwise specified.

## PART 2: GENERAL

### SECTION 2.1: GENERAL

2.1.1 The approval holder shall immediately report to the Director by telephone any contravention of the terms and conditions of this approval at 1-780-422-4505.

2.1.2 The approval holder shall submit a written report to the Director within 7 days of the reporting pursuant to 2.1.1.

2.1.3 The terms and conditions of this approval are severable. If any term or condition of this approval or the application of any term or condition is held invalid, the application of such term or condition to other circumstances and the remainder of this approval shall not be affected thereby.

2.1.4 The approval holder shall immediately notify the Director in writing if any of the following events occurs:

(a) the approval holder is served with a petition into bankruptcy;

(b) the approval holder files an assignment in bankruptcy or Notice of Intent to make a proposal;

(c) a receiver or receiver-manager is appointed;

(d) an application for protection from creditors is filed for the benefit of the approval holder under any creditor protection legislation; or

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(e) any of the assets, which are the subject matter of this approval, are seized for any reason.

2.1.5 If the approval holder monitors for any substances or parameters which are the subject of operational limits as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval.

2.1.6 All abbreviations used in this approval follow those given in *Standard Methods for the Examination of Water and Wastewater* published jointly by the American Public Health Association, the American Water Works Association, and the Water Environment Federation, 1998, as amended, unless otherwise specified in this approval.

2.1.7 *Environmental Protection and Enhancement Act* Approval No. 10348-01-00, as amended, is cancelled.

## SECTION 2.2: RECORD KEEPING

2.2.1 The approval holder shall record and retain all the following information in respect of any sampling conducted or analyses performed in accordance with this approval for a minimum of ten years, unless otherwise authorized in writing by the Director:

(a) the place, date and time of sampling;

(b) the dates the analyses were performed;

(c) the analytical techniques, methods or procedures used in the analyses;

(d) the names of the persons who collected and analyzed each sample; and

(e) the results of the analyses.

2.2.2 The approval holder shall record and retain all of the following information for a minimum of ten years:

(a) the name and addresses of all persons who discover any contravention for a minimum of ten years;

(b) the names and addresses of all persons who take any remedial actions arising from the contravention of the Act, the regulations or this approval; and

(c) a description of the remedial measures taken in respect of a contravention of the Act, the regulations or this approval.

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## SECTION 2.3: ANALYTICAL REQUIREMENTS

2.3.1 With respect to any sample required to be taken pursuant to this approval, the approval holder shall ensure that:

(a) collection;
(b) preservation;
(c) storage;
(d) handling; and
(e) analysis;

shall be conducted in accordance with the following unless otherwise authorized in writing by the Director:

(i) for air monitoring:

(A) the *Alberta Stack Sampling Code,* Alberta Environment, 1995, as amended;

(B) the *Methods Manual for Chemical Analysis of Atmospheric Pollutants*, Alberta Environment, 1993, as amended;

(C) the *Air Monitoring Directive*, Alberta Environment, 1989, as amended; and

(D) the *CEMS Code*;

(ii) for industrial wastewater, industrial runoff, run-on, run-off, leachate, leak detection liquid, dugout and water well, groundwater and domestic wastewater parameters:

(A) the *Standard Methods for the Examination of Water and Wastewater*, published jointly by the American Public Health Association, American Water Works Association, and the Water Environment Federation, 2005, as amended;

(iii) for whole effluent toxicity tests:

(A) the *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout*, Environment Canada, Environmental Protection Series 1/RM/13, July 1990, as amended;

(B) the *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia Magna*, Environment Canada, Environmental Protection Series 1/RM/14, July 1990, as amended;

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(C) the *Biological Test Method: Growth Inhibition Test Using the Freshwater Alga Selenastrum capricornutum*, Environment Canada, Environmental Protection Series, November 1992, as amended;

(D) the *Biological Test Method: Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia*, Environment Canada, Environmental Protection Series 1/RM/21, February 1992, as amended;

(E) the *Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows*, Environment Canada, Environmental Protection Series 1/RM/22, February 1992, as amended; and

(F) the Chlorinated Phenolic Compounds in Bleached Kraft Mill Effluents and Receiving Waters (Method No. AE130.0) available, as amended from time to time, from the chemistry division, Alberta Environmental Centre, Vegreville, sample preservation shall be with sulphuric acid (one half vial of 12 N per one litre sample) instead of nitric acid;

(iv) for soil samples:

(A) *Soil Sampling and Methods of Analysis*, Lewis Publishers, 1993, as amended;

(B) the *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, USEPA, SW-846, September 1986, as amended;

(C) the *Soil Quality Criteria Relative to Disturbance and Reclamation*, Alberta Agriculture, March 1987, as amended;

(D) the *Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites – Volume I: Main Report*, CCME EPC-NCS62E, 1993, as amended; and

(E) the *Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites – Volume II: Analytical Method Summaries*, CCME EPC-NCS66E, 1993, as amended; and

(v) for waste analysis:

(A) the *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, USEPA, SW-846, September 1986, as amended; or

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(B) the *Methods Manual for Chemical Analysis of Water and Wastes*, Alberta Environmental Centre, Vegreville, Alberta, 1996, AECV96-M1 as amended; or

(C) the *Toxicity Characteristic Leaching Procedure (TCLP)* USEPA Regulation 40 CFR261, Appendix II, Method No. 1311, as amended; or

(D) the *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, American Water Works Association, and the Water Environment Federation, as amended.

2.3.2 The approval holder shall analyze all samples that are required to be obtained by this approval in a laboratory accredited pursuant to ISO 17025, as amended, for the specific parameter(s) to be analyzed, unless otherwise authorized in writing by the Director.

2.3.3 The approval holder shall comply with the terms and conditions of any written authorization issued by the Director under 2.3.2.

**SECTION 2.4: OTHER**

2.4.1 All above ground tanks shall conform to the *Guideline for Secondary Containment for Above Ground Storage Tanks,* Alberta Environment, 1997, as amended, unless otherwise authorized in writing by the Director.

**PART 3: CONSTRUCTION**

**SECTION 3.1: LANDFILL**

3.1.1 The approval holder shall construct each new cell of the Class I Industrial Landfill in accordance with the following, unless modifications are authorized in writing by the Director:

(a) the application; and

(b) in a way that each new Class 1 cell shall consist of the following components, at a minimum:

(i) a composite liner system that consists of:

(A) a 1.5 meter clay liner compacted to achieve an in-place hydraulic conductivity of $1 \times 10^{-7}$ cm/s or less;

(B) a 80 mil HDPE (High Density Polyethylene) geomembrane liner (secondary liner) overlying the clay liner;

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(C) a geocomposite drainage layer with a transmissivity of at least $1 \times 10^{-2}$ cm/s placed over the secondary liner;

(D) a 80 mil HDPE geomembrane liner (primary liner) placed over top of the geocomposite drainage layer;

(E) a geocomposite drainage layer with a transmissivity of at least $1 \times 10^{-2}$ cm/s placed over top of the primary liner; and

(F) a 0.45 meter thick cover of clean sand/soil placed over top of the geocomposite layer;

(ii) a leachate collection system:

(A) placed over the primary liner system;

(B) capable of maintaining the maximum acceptable leachate head; and

(C) consisting of:

(I) a geocomposite drainage layer with a transmissivity of at least $1 \times 10^{-2}$ cm/s, and

(II) a primary leachate collection system sump(s) and a network of perforated collection pipes;

(iii) a leak detection system placed over the secondary liner system;

(iv) a run-on control system; and

(v) a run-off control system.

3.1.2 The composite liner system for the landfill shall be constructed on a foundation or base such that there shall be no failure of the liners due to settlement, compression, or uplift.

3.1.3 The approval holder shall implement the QA/QC monitoring program in accordance with the following:

(a) the Waste Management Unit 2 Construction Specifications and Construction Quality Assurance Program as described in the application; or

(b) equivalent as the program is revised.

3.1.4 The approval holder shall submit the following information to the Director prior to the construction of each new cell identified in the application:

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(a) a Design Plan and Specifications, stamped and signed by a professional registered with APEGGA;

(b) an up-to-date copy of the QA/QC monitoring program;

(c) any proposed changes to the groundwater monitoring system;

(d) any proposed changes to the landfill run-on and run-off control systems; and

(e) any proposed changes to the facility industrial runoff control system.

3.1.5 The approval holder shall construct each new cell only as authorized in writing by the Director.

3.1.6 The approval holder shall not make any deviation that results in an adjustment to the Design Plan and Specifications, as submitted under 3.1.4(a), unless the following conditions are met:

(a) the deviation results in a minor adjustment to the Design Plan and Specifications in 3.1.4 (a) to suit field conditions encountered; and

(b) the deviation will not reduce the design performance of the landfill.

3.1.7 Prior to commencing the operation of any new cell following construction, the approval holder shall submit to the Director a summary report of the QA/QC monitoring program results stamped and signed by a professional registered with APEGGA.

3.1.8 The summary report in 3.1.7 shall contain the following:

(a) confirmation that the landfill has been constructed according to:

(i) the Design Plan and Specifications, and

(ii) the QA/QC monitoring program;

(b) documentation of any minor deviations as per 3.1.6;

(c) confirmation by the professional registered with APEGGA, that deviations as per 3.1.6 will not reduce landfill performance; and

(d) as-built plans for the constructed cell(s).

3.1.9 The approval holder shall maintain the following at all times after construction is complete:

(a) the integrity of the liners;

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(b) the integrity of the leachate collection system; and

(c) the integrity of the leak detection system.

3.1.10 The approval holder shall notify the Director in writing at least 14 days prior to commencing operations of any new cell.

**SECTION 3.2: SOIL CONSERVATION**

3.2.1 The approval holder shall conserve all topsoil from disturbed land at the landfill.

3.2.2 The topsoil in 3.2.1 shall be used for reclamation of the landfill.

3.2.3 The approval holder shall not use topsoil for daily cover of the working face.

3.2.4 The approval holder shall salvage, from disturbed land, sufficient subsoil to meet the subsoil replacement requirements for closure of each cell.

3.2.5 The approval holder shall locate all topsoil stockpiles at the landfill.

3.2.6 The approval holder shall stockpile all topsoil as follows:

(a) on stable foundations; and

(b) in a manner that prevents admixing with subsoil.

3.2.7 The approval holder shall stockpile all subsoil as follows:

(a) on stable foundations; and

(b) in a manner that prevents admixing with topsoil.

3.2.8 When topsoil and subsoil are stockpiled, the stockpile shall be constructed as follows:

(a) topsoil and subsoil shall be stockpiled separately from each other;

(b) stockpile foundations must be stable;

(c) stockpiles shall be stabilized to control wind and water erosion;

(d) stockpiles shall be accessible and retrievable; and

(e) stockpiles shall be revegetated.

3.2.9 The approval holder shall immediately suspend topsoil and subsoil salvage when:

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(a) wet or frozen field conditions will result in the admixing, degradation, or compaction of topsoil or subsoil; or

(b) high wind velocities, any other field conditions or facility operations will result in the admixing, degradation, or loss of topsoil or subsoil.

3.2.10 The approval holder shall only recommence topsoil and subsoil salvage when suspended under section 3.2.9, if field conditions referred to in section 3.2.9 no longer exist.

## PART 4: OPERATIONS, LIMITS, MONITORING AND REPORTING

### SECTION 4.1: GENERAL

4.1.1 The approval holder shall restrict access to the facility to only personnel authorized by the approval holder.

### FACILITY AUDIT

4.1.2 The approval holder shall cause the facility to be audited by an independent third-party environmental consultant or organization to assess compliance with the terms and conditions of this approval:

(a) at least once every three years; and

(b) commencing on or before October 1, 2009 for the first audit.

4.1.3 The approval holder shall submit the Audit Report specified in 4.1.2, in the Annual Landfill Operations Report as required in 4.5.40(j).

4.1.4 The requirements in 4.1.2 and 4.1.3 do not relieve the approval holder of any duty under the Act or its regulations or this approval.

### LANDFILL OPERATIONS PLAN

4.1.5 The approval holder shall:

(a) develop;

(b) maintain; and

(c) implement

a Landfill Operations Plan that does not contravene the requirements of this approval.

4.1.6 The approval holder shall:

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(a) retain a copy of the Landfill Operations Plan at the facility at all times; and

(b) update the Landfill Operations Plan on an annual basis at a minimum.

4.1.7 The Landfill Operations Plan shall include, at a minimum, all of the following:

(a) operational procedures for waste control, run-on and run-off controls, and nuisance controls;

(b) details on keeping and maintaining an operating record;

(c) a program for detecting and preventing the disposal of unauthorized wastes;

(d) procedures for the acceptance, handling and disposal of wastes, including;
(i) waste characterization and classification at source,
(ii) waste manifesting and tracking,
(iii) QA/QC Waste Acceptance procedures, and
(iv) waste sampling;

(e) procedures for placing waste in a cell including;
(i) compaction,
(ii) working face width,
(iii) lift depth, and
(iv) waste placement location using a grid system;

(f) an Odour Response Program;

(g) procedures for managing contaminated sulphur and sulphur containing wastes;

(h) a monitoring and maintenance program for the scale house and heavy operational equipment;

(i) a groundwater monitoring program;

(j) a remediation plan to deal with groundwater quality deterioration;

(k) a leachate monitoring and management program;

(l) a leak detection liquid monitoring and management program;

(m) a cell cover system;

(n) a health and safety program;

(o) an emergency response program, including procedures for handling fires, releases to the environment and health concerns;

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(p) an up-to-date plan of the landfill layout with survey records giving the location of all structural components of the landfill including final cover elevations and contours; and

(q) procedures for placing leachate, leak detection liquid, or other authorized wastes and liquids over the surface of the active landfill area for the purpose of evaporation or dust suppression.

4.1.8 The approval holder shall submit to the Director an up-to-date Operations Plan when requested in writing by the Director.

**SECTION 4.2: AIR**

**OPERATIONS**

4.2.1 The approval holder shall not release any effluent streams from the facility to the atmosphere except as provided in this approval.

4.2.2 The approval holder shall only release effluent streams to the atmosphere from the following sources:

(a) the air emission scrubber exhaust stack;

(b) building vents which include but are not limited to lab hoods, building fans and shop exhausts;

(c) tank heaters;

(d) building furnaces; and

(e) any other source authorized in writing by the Director.

4.2.3 The approval holder shall not operate any process equipment unless and until the pollution abatement equipment associated with the process equipment is:

(a) operational; and

(b) operating.

4.2.4 Except as provided for by the Director in writing, the approval holder shall control fugitive emissions and any source not specified in 4.2.2 in accordance with 4.2.5 of this approval.

4.2.5 With respect to fugitive emissions and any source not specified in 4.2.2, the approval holder shall not release a substance or cause to be released a substance that causes or may cause any of the following:

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(a) impairment, degradation or alteration of the quality of natural resources; or

(b) material discomfort, harm or adverse affect to the well being or health of a person; or

(c) harm to property or to plant or animal life.

4.2.6 The approval holder shall exhaust air from the exhaust stacks through a caustic scrubber and an activated carbon filter while:

(a) hazardous waste or hazardous recyclables are being processed;

(b) hazardous waste or hazardous recyclables are being transferred; or

(c) containers of hazardous waste or hazardous recyclables are open.

4.2.7 The exhaust stacks in 4.2.6 are defined as the ones in the following buildings:

(a) drum processing building, as designated in the application; and

(b) staging building, as designated in the application.

4.2.8 The activated carbon in the filter referred to in 4.2.6, shall be replaced immediately when the concentration of total petroleum hydrocarbons in the stack exhaust exceeds 50 ppm.

4.2.9 The exhaust stacks referred to in 4.2.6 shall be sampled and measured weekly using the total petroleum hydrocarbon sampler/analyzer.

4.2.10 The portable, total petroleum hydrocarbon sampler/analyzer shall:

(a) have a detection limit of 1.0 ppm or less of total petroleum hydrocarbons; and

(b) be located within the exhaust stack, 1 metre downstream of the blower, but before the gas exists the exhaust stack.

4.2.11 Each caustic scrubber referred to in 4.2.6 shall be:

(a) monitored for pH daily; and

(b) maintained at a pH value of 8.0, or greater.

4.2.12 The approval holder shall not burn any debris by means of an open fire unless authorized in writing by the Director.

4.2.13 If the approval holder receives complaints of offensive odours beyond the facility boundaries, the approval holder shall:

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(a) place restrictions on waste disposal types, and volumes of waste being deposited that are causing those odours;

(b) increase the frequency of cover placement and modify waste handling activities at the landfill to reduce the release of those odours; and

(c) activate the Odour Response Program as specified in the Landfill Operations Plan 4.1.7(f).

**MONITORING AND REPORTING**

4.2.14 The approval holder shall monitor the ambient air for the facility in accordance with the existing ambient air monitoring program until the new ambient air monitoring program is implemented.

4.2.15 By July 1, 2008, the approval holder shall submit to the Director a proposal for a new ambient air monitoring program for the facility.

4.2.16 The proposal for the new ambient air monitoring program shall include the following monitoring parameters at a minimum:

(a) total hydrocarbons;

(b) volatile organic compounds;

(c) particulate matter;

(d) wind speed; and

(e) wind direction.

4.2.17 If the proposal for the new ambient air monitoring program is found deficient by the Director, the approval holder shall correct all the deficiencies as outlined by the Director within 120 days of the deficiency letter.

4.2.18 The approval holder shall implement the proposal for the new ambient air monitoring program as authorized in writing by the Director.

4.2.19 The approval holder shall report to the Director the results of the new ambient air monitoring program as specified in writing by the Director.

4.2.20 Notwithstanding 4.2.19, the approval holder shall submit to the Director an Annual Air Monitoring Report on or before March 31 each year on the information collected in the previous year.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## SECTION 4.3: INDUSTRIAL RUNOFF AND INDUSTRIAL WASTEWATER

### OPERATIONS

4.3.1 The approval holder shall not release any substances from the facility to the surrounding watershed except as authorized by this approval.

4.3.2 The approval holder shall operate and maintain the following in accordance with the Landfill Operations Plan:

(a) a run-on control system to prevent flow onto the active landfill area from at least the peak discharge from a 1 in 25 year, 24 hour duration precipitation event at the landfill; and

(b) a run-off control system for the active landfill area to collect and control at least the run-off volume resulting from a 1 in 25 year, 24 hour duration precipitation event at the landfill.

4.3.3 All industrial runoff from the facility developed area shall be directed to the industrial runoff control system, as described in the application.

4.3.4 Subject to 4.3.8, the approval holder shall make or permit a release from the surface water detention pond of the industrial runoff control system only at the discharge point as designated in the application, which:

(a) is located in the south west corner of the surface water detention pond;

(b) discharges the water through a pump and discharge hose over the south berm and into the natural drainage area located south and east of the surface water detention pond; and

(c) is referred to as sampling location “A” in 4.3.15

unless an alternative location for (a) or (b) is authorized in writing by the Director.

4.3.5 The approval holder is only authorized to dispose of industrial wastewater and industrial runoff from the sources listed in TABLE 4.3-A to one or more of the following facilities:

(a) facilities holding a current Approval, Registration or as otherwise authorized under the Act to accept such waste;

(b) facilities approved by a local environmental authority outside of Alberta to accept such waste; or

(c) a deep well approved by the Energy Resources Conservation Board.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

### TABLE 4.3-A: SELECTED SOURCES OF INDUSTRIAL WASTEWATER AND INDUSTRIAL RUNOFF

| SOURCES |
|---|
| Industrial wastewater from the caustic scrubber |
| Industrial runoff that exceeds any of the parameters listed in TABLE 4.3-B or TABLE 4.3-C |
| Industrial runoff for which the results of parameters listed in TABLE 4.3-B or TABLE 4.3-C are unavailable at the time that the industrial wastewater and industrial runoff must be disposed of |
| Industrial wastewater removed from bulk tanks |
| Industrial wastewater from the storage and process building sumps |

## LEACHATE COLLECTION AND LEAK DETECTION SYSTEMS

4.3.6 The approval holder shall only dispose of leachate removed from the leachate collection system by one or more of the following methods:

(a) disposal to facilities holding a current Approval, Registration or as otherwise authorized under the Act to accept such waste;

(b) disposal to facilities approved by a local environmental authority outside of Alberta to accept such waste;

(c) disposal to a deep well approved by the Energy Resources Conservation Board; or

(d) placing leachate over the surface of the active landfill area for the purpose of evaporation, as described in the application.

4.3.7 The approval holder shall only dispose of liquid removed from the leak detection system by one or more of the following methods:

(a) disposal to facilities holding a current Approval, Registration or as otherwise authorized under the Act to accept such waste;

(b) disposal to facilities approved by a local environmental authority outside of Alberta to accept such waste;

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(c) disposal to a deep well approved by the Energy Resources Conservation Board; or

(d) placing leak detection liquid over the surface of the active landfill area for the purpose of evaporation, as described in the application.

**INDUSTRIAL RUNOFF LIMITS**

4.3.8 Releases of industrial runoff from the surface water detention pond of the industrial runoff control system, to the surrounding watershed, shall comply with the limits specified in TABLE 4.3-B.

4.3.9 Releases of industrial runoff from within the tank farm bermed area of the industrial runoff control system, to the surrounding watershed, shall comply with the limits specified in TABLE 4.3-C.

**TABLE 4.3-B: INDUSTRIAL RUNOFF LIMITS FOR THE SURFACE WATER DETENTION POND**

| PARAMETER | LIMITS Maximum unless otherwise indicated |
|---|---|
| Chemical Oxygen Demand | 50 mg/L |
| Total Suspended Solids | 25 mg/L |
| Ammonia, dissolved (expressed as Nitrogen) | 5 mg/L |
| pH | 6.0 – 9.5 pH units |
| Oil or other substances | Not present in amounts sufficient to create a visible film or sheen |
| 96-Hour Multiple Concentration Acute Lethality Test Using Rainbow Trout (*Oncorhynchus mykiss*) | 50% or greater survival |
| 48-Hour Static Acute Lethality Test Using *Daphnia magna* | Result must “PASS” test |

**TABLE 4.3-C: INDUSTRIAL RUNOFF LIMITS FOR THE TANK FARM BERMED AREA**

| PARAMETER | LIMITS Maximum unless otherwise indicated |
|---|---|
| Chemical Oxygen Demand | 50 mg/L |
| Total Suspended Solids | 25 mg/L |
| Ammonia, dissolved (expressed as Nitrogen) | 5 mg/L |
| pH | 6.0 – 9.5 pH units |
| Oil or other substances | Not present in amounts sufficient to create a visible film or sheen |

**LEACHATE COLLECTION SYSTEM AND LEAK DETECTION SYSTEM LIMITS**

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.3.10 Effective August 15, 2008, the approval holder shall not exceed the maximum acceptable leachate head in any cell.

4.3.11 Notwithstanding 4.3.10, the leachate head shall only exceed the maximum acceptable leachate head for a maximum duration of 14 days subsequent to a precipitation event, unless otherwise authorized in writing by the Director.

4.3.12 The volume of liquid in the leak detection system, as monitored in TABLE 4.5-B, shall not exceed the action leakage rate of 790 litres/ha/day in any cell.

**INDUSTRIAL RUNOFF MONITORING AND REPORTING**

4.3.13 The approval holder shall monitor the industrial runoff control system as required in TABLE 4.3-D.

4.3.14 The approval holder shall report to the Director the monitoring results of the industrial runoff control system as required in TABLE 4.3-D.

4.3.15 For the purpose of TABLE 4.3-D:

(a) sampling location A is defined as the surface water detention pond; and

(b) sampling location B is defined as industrial runoff collected within the tank farm bermed area.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## TABLE 4.3-D: INDUSTRIAL RUNOFF CONTROL SYSTEM MONITORING AND REPORTING

| MONITORING | | | | REPORTING | |
|---|---|---|---|---|---|
| **Parameter, Test, Event, Study Proposal or Reporting Requirement** | **Frequency** | **Sample Type** | **Sampling Location** | **Monthly** | **Annually** |
| **Surface Water Detention Pond:** | | | | Monthly Industrial Runoff Report<br><br>for each month where discharge occurs<br><br>(Due on or before the end of the month following the month in which the information was collected)<br><br>Number of Copies Required 1 | Annual Industrial Runoff Report<br><br>(Provide annual summary of data by March 31 of the year following the year in which the information was collected)<br><br>Number of Copies Required 1 |
| Flow (in cubic meters per day) | Daily | Estimate | A | | |
| 96-Hour Multiple Concentration Acute Lethality Test Using Rainbow Trout (*Oncorhynchus mykiss*) | Once per month during the first discharge | Grab | A | | |
| 48-Hour Static Acute Lethality Test Using *Daphnia magna* | | Grab | A | | |
| pH | Once per batch discharge, prior to discharge | Representative Grab | A | | |
| Chemical Oxygen Demand | | Representative Grab | A | | |
| Total Suspended Solids | | Representative Grab | A | | |
| Ammonia, dissolved (expressed as nitrogen) | | Representative Grab | A | | |
| Oil or other substances | Daily during discharge | Visual | A | | |
| **Tank Farm Bermed Area:** | | | | | |
| pH | Once per batch discharge, prior to discharge to Industrial Runoff Control System | Grab | B | | |
| Chemical Oxygen Demand | | Grab | B | | |
| Total Suspended Solids | | Grab | B | | |
| Ammonia, dissolved (expressed as nitrogen) | | Grab | B | | |
| Oil or other substances | | Grab | B | | |
| Volume (cubic meters) | Total batch volume discharged | Estimate | B | | |

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

The approval holder shall comply with the following requirements regarding Acute Lethality Testing:

(c) perform a 96 hour static acute bioassay using rainbow trout as the test organism on grab samples collected from the surface water detention pond;

(d) perform the 48-hour static acute bioassay using Daphnia magna as the test organism on grab samples collected from the surface water detention pond;

(e) all samples for static acute bioassays must be transported and received by the laboratory within 48 hours of collection;

(f) if any sample has been continuously chilled at a temperature between $1^0$C to $8^0$C, then testing on that sample shall begin no later than 5 days after collection;

(g) should any control response exceed 10% in any bioassay, that bioassay shall be repeated; and

(h) any deviations from the recommended conditions and procedures for culturing, test conditions, and procedures as outlined in the test methods specified in 2.3 shall be repeated upon submission of the results to the Director.

4.3.16 The approval holder shall repeat a bioassay if notified in writing by the Director that, in the Director's opinion, significant deviations from the conditions and procedures in the analytical methods in 2.3 have occurred.

4.3.17 In the event that less than 50% of the rainbow trout survived in the 100% concentration sample, the approval holder shall:

(a) immediately implement a program to identify the source of the toxicity; and

(b) submit to the Director within 90 days after the analytical result above, a proposed program to reduce the toxicity of the industrial runoff.

4.3.18 In addition to the monthly reporting in TABLE 4.3-D, the Monthly Industrial Runoff Report shall include, at a minimum, all of the following information:

(a) an assessment of the monitoring results relative to the limits in TABLE 4.3-B;

(b) an assessment of the monitoring results relative to the limits in TABLE 4.3-C;

(c) an assessment of the performance of each of the industrial runoff control system, pollution abatement equipment and monitoring equipment;

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(d) a summary of industrial runoff contraventions reported pursuant to 2.1.1; and

(e) any other information as required in writing by the Director.

4.3.19 In addition to the annual reporting in TABLE 4.3-D, the Annual Industrial Runoff Report shall include, at a minimum, all of the following information:

(a) an overview of the operation and performance of the industrial runoff control system, pollution abatement equipment and monitoring equipment; and

(b) any other information as required in writing by the Director.

4.3.20 The approval holder shall analyze a representative grab sample from the surface water detention pond of the industrial runoff control system at least once per year for the parameters outlined in TABLE 4.3-E.

4.3.21 The approval holder shall submit the results of the analyses in 4.3.21 to the Director on or before March 31 of the following year.

**TABLE 4.3-E: ANNUAL MONITORING OF SURFACE WATER DETENTION POND**

| PARAMETERS | | | |
|---|---|---|---|
| Chemical Oxygen Demand | Phenol | Boron, dissolved | Lead, dissolved |
| Total Suspended Solids | Polychlorinated biphenyls, total | Cadmium, dissolved | Manganese, dissolved |
| Ammonia, dissolved (expressed as Nitrogen) | Total chlorinated phenol | Chromium, dissolved (hexavalent) | Mercury, total |
| pH | Total organic halogens | Chromium, total | Molybdenum, dissolved |
| Oil or other substances | Aluminum, dissolved | Cobalt, dissolved | Nickel, dissolved |
| | Antimony, dissolved | Copper, dissolved | Selenium, dissolved |
| | Arsenic, dissolved | Cyanide (weak acid dissociable) | Tin, dissolved |
| | Barium, dissolved | Fluoride, dissolved | Zinc, dissolved |

**LEACHATE COLLECTION AND LEAK DETECTION SYSTEMS MONITORING AND REPORTING**

4.3.22 Subject to TABLE 4.3-F, the approval holder shall monitor the

(a) leachate; and

(b) leak detection liquid

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

at the landfill as required in TABLE 4.5-B.

**TABLE 4.3-F: LEACHATE AND LEAK DETECTION LIQUID MONITORING**

| PARAMETERS | |
|---|---|
| pH (field and laboratory) | Nutrients |
| Electrical Conductivity (field and laboratory) | Chemical Oxygen Demand |
| Major Ions | Dissolved Organic Carbon |
| Trace Metals (dissolved) | Petroleum Hydrocarbons Fractions, F1 and F2 |

4.3.24 If the volume of liquid removed from the leak detection system exceeds the action leakage rate of 790 litres/ha/day, in addition to reporting pursuant to 2.1.1, the approval holder shall submit a response action plan to the Director within 30 days of the excess.

4.3.25 The approval holder shall report to the Director the results of the leachate and leak detection liquid monitoring as required in TABLE 4.5-B.

## SECTION 4.4: SPECIAL MONITORING AND REPORTING

4.4.1 The approval holder shall

(a) collect a representative sample from:

(i) each dugout within an approximate 1.6 kilometre radius, and

(ii) each of the wells within an approximate 1.6 kilometre radius around the facility; and

(b) analyze the sample for parameters listed in TABLE 4.4-A

unless the approval holder is not granted access by the landowner.

4.4.2 The monitoring required in 4.4.1 shall be conducted once each year in October unless otherwise authorized in writing by the Director.

4.4.3 The approval holder shall record the analytical results of the sampling information required in 4.4.1 in an Annual Dugout and Water Well Sampling Program Report.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.4.4 The Annual Dugout and Water Well Sampling Program Report shall be submitted to the Director by March 31 of each year following the year in which the information was collected.

**TABLE 4.4-A: DUGOUT AND WATER WELL MONITORING**

| PARAMETERS | |
|---|---|
| pH (field and laboratory) | Nutrients |
| Electrical Conductivity (field and laboratory) | Chemical Oxygen Demand |
| Major Ions | Dissolved Organic Carbon |
| Trace Metals (dissolved) | Petroleum Hydrocarbons, F1 and F2 |

## SECTION 4.5: WASTE MANAGEMENT AND LANDFILL OPERATIONS

### GENERAL

4.5.1 The approval holder shall classify all materials entering the facility in accordance with the *Waste Control Regulation (AR 192/96)* and *The Alberta User Guide For Waste Managers*, May 1995, as amended.

4.5.2 The approval holder shall not receive or dispose of any of the following wastes:

(a) explosives (Class 1 *Transportation of Dangerous Goods Regulation* (TDGR) wastes) at the facility;

(b) radioactive wastes regulated under the *Canadian Nuclear Safety Act* (Canada) at the facility;

(c) radioactive wastes (Class 7 TDGR wastes) at the facility;

(d) biological, biomedical and/or pathological waste (as defined in the *Waste Control Regulation, AR 192/96*, as amended) at the facility;

(e) waste containing free liquids (as determined by the US EPA Method 9095 Paint Filter Liquids Test, specified in Test Methods for Evaluating Solid

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

Wastes Physical/Chemical Methods, US EPA Publication No. SW-846, as amended) at the landfill;

(f) material containing ozone depleting substances at the landfill; or

(g) domestic or municipal wastes at the facility.

4.5.3 All wastes or hazardous recyclables shall be transferred only at designated transfer areas designed to contain spills and leaks.

4.5.4 Hazardous waste or hazardous recyclables stored in containers or tanks shall be stored in accordance with the *Hazardous Waste Storage Guidelines*, June 1988, Alberta Environment, as amended.

4.5.5 All tanks within the tank farm shall be equipped, at a minimum, with all of the following:

(a) sensors for detecting the level in each tank;

(b) high level alarms that activate when a tank overfill is imminent;

(c) automatic shut-off devices or sufficient free board space above the high level sensor to allow operators time to prevent overfill from occurring; and

(d) earthen dikes or equivalent secondary containment structures capable of containing 110% of the volume of the largest tank within the bermed area plus 10% of the aggregate capacity of all other tanks in the bermed area.

4.5.6 Effective July 31, 2009, all tanks containing hazardous waste or hazardous recyclables in each building shall be equipped, at a minimum, with all of the following:

(a) sensors or gauges for detecting the level in each tank;

(b) a written operating procedure to prevent tank overfill; and

(c) secondary containment structures capable of containing 110% of the volume of the largest tank within the building plus 10% of the aggregate capacity of all other tanks containing hazardous waste or hazardous recyclables in the same building.

4.5.7 All wastes or hazardous recyclables that are unloaded shall be immediately transferred to the waste storage area.

4.5.8 All containers and unrinsed empty containers shall be stored in the waste storage area.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.5.9 The approval holder shall provide and maintain an adequate aisle space between containers in the waste storage area to allow inspection, unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of the waste storage area. Inspection aisles shall be arranged such that each container is exposed to view from at least one side.

4.5.10 Incompatible wastes or incompatible hazardous recyclables shall be prevented from mixing.

4.5.11 The approval holder shall use the following when transferring substances to, from, or between containers, tanks, or trucks:

(a) couplings equipped with seals that are compatible with the substance transferred;

(b) the necessary precautions to prevent spills when the couplings are disconnected;

(c) emergency shut-off valves;

(d) established transfer areas and associated curbing, paving and catchment areas;

(e) drip trays to capture potential losses under coupling devices and other connections; and

(f) manual inspections of the transfer area for leaks and spills during and after waste transfer.

4.5.12 The approval holder shall only carry out the following activities at the facility in relation to hazardous waste or hazardous recyclables as follows:

(a) commingling of hazardous waste or hazardous recyclables shall be conducted only:

(i) to make maximum use of available container or tank capacity, and

(ii) if the resultant mixture has the same TDG hazard classification as any one of the individual components;

(b) phase separation by gravity settling shall be conducted only without the addition of any chemicals designed to accelerate settling;

(c) dispersion of solids into liquids by natural or mechanical means shall be conducted only if the resultant mixture has the same TDG hazard classification as the original waste;

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(d) physical segregation of hazardous from non-hazardous articles or components from the same container shall be conducted only if, no process equipment is used;

(e) washing of drums and other objects shall be conducted only for the purpose of removing hazardous residue;

(f) crushing and shredding of used filters, rags, absorbent materials, and empty containers shall be conducted only for the purpose of volume reduction and liquid recovery unless otherwise authorized in writing by the Director; and

(g) treatment of third-party hazardous waste only as authorized in writing by the Director.

4.5.13 Notwithstanding 4.5.12(g), the approval holder shall not incinerate hazardous waste at the facility.

4.5.14 The approval holder shall dispose of waste generated at the facility only to facilities holding a current Approval, Registration or as otherwise authorized under the Act, or to facilities approved by a local environmental authority outside of Alberta.

**LANDFILL**

4.5.15 The approval holder shall obtain, at a minimum, a detailed chemical and physical representative analysis of the wastes prior to disposal into the landfill at the following times:

(a) the first time a waste is received from a new generator;

(b) the first time a delivery is received from a different process associated with a known waste generator;

(c) the first time a waste is received from a different location associated with a known waste generator; and

(d) when the nature or composition of the waste that was previously characterized by the generator changes.

4.5.16 The approval holder shall not dispose of hazardous waste in any Class II cell.

4.5.17 The approval holder shall dispose of asbestos wastes in accordance with *Guidelines for the Disposal of Asbestos Waste*, Alberta Environmental Protection, as amended.

4.5.18 The approval holder shall dispose of wastes that the landfill is not authorized to dispose of only to a facility holding a current Approval, Registration or as otherwise authorized under the Act, or to facilities approved by a local environmental authority outside of Alberta.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.5.19 The approval holder shall remove all waste that the landfill is not authorized to dispose of within 7 days of receiving the waste.

4.5.20 The approval holder shall restrict the working face of each cell to the smallest practicable area.

4.5.21 For any waste disposed of at the landfill that is subject to wind dispersal, the approval holder shall:

(a) wet the waste to prevent dispersal of particulate matter; or

(b) immediately apply cover on top of the waste to minimize entrainment of particulate matter.

4.5.22 Notwithstanding 4.5.2(e), the approval holder is authorized to place the following wastes over the surface of the active landfill area for the purpose of dust suppression:

(a) leachate;

(b) leak detection liquid;

(c) sump waste of car wash bays or similar operations;

(d) waste from hydrovac excavation operations; and

(e) any other waste authorized by *The Alberta User Guide For Waste Managers,* May 1995, as amended.

4.5.23 Prior to placement of final cover, the elevation of waste in the landfill shall not exceed the maximum designated waste elevation.

**LIMITS**

4.5.24 The approval holder shall not store more than a cumulative total of 752,500 litres of all hazardous recyclables and hazardous waste at the Hazardous Waste/Recyclable Storage and Processing Facility at any time.

4.5.25 In addition to the storage limits in 4.5.24, the approval holder shall not exceed the waste storage limits as specified in TABLE 4.5-A.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

**TABLE 4.5-A: STORAGE LIMITS FOR HAZARDOUS WASTE/RECYCLABLES AT THE HAZARDOUS WASTE/RECYCLABLE STORAGE AND PROCESSING FACILITY**

| Waste/Recyclable Type | Material | Maximum Quantity |
|---|---|---|
| **Containers:**<br><br>Hazardous waste, hazardous recyclables | TDG classification 2,3,4,5,6,8 and 9 waste type only | 512,500 litres<br><br>(consisting of 2500 drums of 205 litre capacity) |
| **Bulk Tanks:**<br><br>Hazardous waste, hazardous recyclables | Waste flammable liquids, used oil, wastewaters<br><br>TDG classification 3,5,6,8 and 9 waste type only | 240,000 litres<br><br>(consisting of 135 $m^3$ in the tank farm and a 105 $m^3$ total inside the buildings) |

4.5.26 Containers other than 205 litre drums shall be prorated to 205 litre drum equivalents based on their nominal volumes (e.g. 10 X 20 litre pails = 1 X 205 litre drum).

4.5.27 The limits referred to in 4.5.24 and 4.5.25 shall be calculated based on:

(a) summing nominal volumes of all containers at the Hazardous Waste/Recyclable Storage and Processing Facility and filled tank capacities; and

(b) treating all partially filled containers as if they were full.

4.5.28 The approval holder shall keep a daily total and inventory of all materials being stored at the Hazardous Waste/Recyclable Storage and Processing Facility.

4.5.29 The daily total and inventory records in 4.5.28 shall be available at all times for inspection by the Director or an inspector.

## WASTE AND LANDFILL MONITORING

4.5.30 The approval holder shall:

(a) identify;

(b) characterize; and

(c) classify;

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

all hazardous recyclables and waste streams, generated and received at the facility, not including industrial wastewater streams or air effluent streams.

4.5.31 The approval holder shall measure or, when not feasible to measure, estimate, the quantity of each waste and hazardous recyclable identified in 4.5.30 each year.

4.5.32 The approval holder shall inspect the landfill, at a minimum:

(a) weekly; and

(b) immediately after each storm event to:

(i) detect evidence of any deterioration of the composite liner system,

(ii) detect any malfunction or improper operation of the run-on and run-off control systems, leachate collection system or leak detection system, and

(iii) take corrective measures to repair any damage to the composite liner system, run-on and runoff control systems, leachate collection system or leak detection system.

4.5.33 The approval holder shall:

(a) keep a record of inspections conducted pursuant to 4.5.32;

(b) have the record of inspections available for review at the site upon request from a representative of the Director; and

(c) immediately report any deficiencies detected by the inspection in 4.5.32 to the Director in writing along with any corrective measures taken or proposed.

4.5.34 The approval holder shall monitor the landfill as required in TABLE 4.5-B.

**WASTE AND LANDFILL REPORTING**

4.5.35 The approval holder shall submit a Monthly Waste Management Report to the Director within 30 days following the month in which the information was collected.

4.5.36 The approval holder shall compile all of the information required by 4.5.37 in the Monthly Waste Management Report as indicated by TABLE 4.5-C.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## TABLE 4.5-B: LANDFILL MONITORING AND REPORTING REQUIREMENTS

| MONITORING AND REPORTING | | | | | |
|---|---|---|---|---|---|
| **Parameter, Test, Event, Study, Proposal or Reporting Requirement** | **Frequency** | **Sample Type** | **Sampling Location** | **Reporting** | **Report to** |
| Volume and type of waste received | Continuously (when operating) | Measured or estimated | At entrance to landfill | Annually on or before March 31 of the year following the year in which the information was collected. | Director |
| Volume and type of material removed | Continuously (when operating) | Measured or estimated | At entrance to landfill | | |
| General location of waste deposited | Continuously (when operating) | As per survey or using grid system | At the active landfill area of each cell or survey | | |
| Leachate head | Effective May 1, 2008, at least once every three working days and immediately prior to leachate removal | Measured or calculated | At primary leachate collection system sumps of existing cells | | |
| | | Measured | At leachate collection system sump(s) of each new cell | | |
| Leachate analysis, as per TABLE 4.3-F | At least once every quarter year | Grab sample | At each primary leachate collection system sump | | |
| Volume of leachate removed from the leachate collection system | As removed | Measured or calculated | At leachate collection system sump(s) | | |
| Leak detection liquid analysis, as per TABLE 4.3-F | At least once every quarter year | Grab sample | At each leak detection system sump | | |
| Volume of leak detection liquid removed from the leak detection system | At least once every working day, as removed | Measured or calculated | At leak detection system sump(s) | | |
| Final cover | When cover is applied, as per 6.3.6 | Final cover by survey cores and/or test pits | On each completed cell | | |

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## TABLE 4.5-C MONTHLY WASTE INVENTORY REPORT (by waste class)

**Fax to: (780) 422-3625**

**COMPANY NAME: _____ APPROVAL NO.: _____**
**REPORT PERIOD: MONTH _____ YEAR_____**

| CLASS | UNIT (Kg OR L) | OPENING BALANCE | + RECEIVED IN PROVINCE | + RECEIVED OUT OF PROVINCE | - SHIPPED* | | - ON-SITE DISPOSAL | + or - ADJUSTMENT ** | CLOSING BALANCE | APPROVAL LIMIT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | RECYCLING/ PRODUCT | OFF-SITE DISPOSAL | | | | |
| **2** | | | | | | | | | | |
| **3** | | | | | | | | | | |
| **4** | | | | | | | | | | |
| **5** | | | | | | | | | | |
| **6.1** | | | | | | | | | | |
| **8** | | | | | | | | | | |
| **9.1** | | | | | | | | | | |
| **9.2** | | | | | | | | | | |
| **9.3** | | | | | | | | | | |
| **PCB** | | | | | | | | | | |
| **NR** | | | | | | | | | | |
| **TOTAL** | | | | | | | | | | **XXXXX** |
| | | | | | | | **No. of Containers On site** | | | **XXXXX** |
| | | | | | | | **Total Litres in Bulk Tanks** | | | **XXXXX** |

**Name of Company Official:_____ Title:_____ Signature:_____**
**Report Date: _____**

* Provide a list of the recycling and disposal locations

** Identity the amount and reason for each adjustment.
Adjustments include consolidation/reclassification, losses to processing, spills, volume miscalculations, or any other circumstances, which would affect the mass balance of the monthly inventory report.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.5.37 The Monthly Waste Management Report referred to in 4.5.35 by shall contain the following information:

(a) an opening waste and hazardous recyclables inventory balance in kilograms or litres by waste class or material type;

(b) the amount and type of waste and hazardous recyclables received within the province and from outside the province;

(c) the amount and type of waste and hazardous recyclables shipped for recycling/product, shipped off-site for disposal, and disposed on-site;

(d) any adjustments including consolidation and processing adjustments;

(e) closing balance in kilograms or litres;

(f) a summary of contraventions reported pursuant to 2.1.1 related to waste and hazardous recyclables; and

(g) any other information as required in writing by the Director.

4.5.38 The approval holder shall compile all the information required by 4.5.30 and 4.5.31 in an Annual Waste Management Summary Report:

(a) as specified in TABLE 4.5-D; and

(b) in accordance with *Industrial Waste Identification and Management Options*, Alberta Environment, May 1996 as amended, and the *Alberta User Guide for Waste Managers*, Alberta Environment, August 1996, as amended.

**TABLE 4.5-D: ANNUAL WASTE MANAGEMENT SUMMARY**

| Hazardous Recyclable or Waste Name | Uniform Waste Code | | | | Quantity (kg or L) | | Stored | Recycled | | Disposed | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | WC | PIN | Class | Mgmt | Hazardous | Non-hazardous | On-site | On-site | Off-site | On-site | Off-site |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | TOTAL | | | | | | | |

4.5.39 The Annual Waste Management Summary Report shall be submitted to the Director by March 31 of each year following the year in which the information was collected.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.5.40 The approval holder shall compile an Annual Landfill Operations Report which shall include, at a minimum, all of the following:

(a) a summary of all of the information collected as required in TABLE 4.5-B;

(b) the landfill inspection records as required in 4.5.33;

(c) any revisions to the Landfill Operations Plan from the previous year;

(d) a summary of the performance of the run-on and run-off control systems;

(e) any operational problems and emergencies and how they were handled;

(f) a summary of the performance of the leachate collection system, including a comparison to the maximum acceptable leachate head;

(g) a summary of the performance of the leak detection system, including a comparison to the action leakage rate limit;

(h) the name of the person responsible for the facility;

(i) an up-to-date financial security estimate in accordance with 5.1.2;

(j) the results of any audit conducted in accordance with 4.1.2 for a given year;

(k) a record of public complaints and the approval holder's responses;

(l) a summary of contraventions reported pursuant to 2.1.1 related to landfill operations; and

(m) any other information as required in writing by the Director.

4.5.41 The Annual Landfill Operations Report shall be submitted to the Director by March 31 of each year following the year in which the information was collected.

## SECTION 4.6: DOMESTIC WASTEWATER

4.6.1 The approval holder shall release domestic wastewater only to the septic tank(s) with subsequent disposal to a wastewater treatment facility holding a current Approval or Registration under the Act.

4.6.2 Sludge produced by the domestic wastewater collection system shall be disposed of only at a facility holding a current Approval or Registration under the Act.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## SECTION 4.7: WATERWORKS

Not used at this time.

## SECTION 4.8: GROUNDWATER

### MONITORING

4.8.1 The approval holder shall continue to implement the Groundwater Monitoring Program as authorized in writing by the Director.

4.8.2 The approval holder shall:

(a) collect a representative groundwater sample from each of the groundwater monitor wells, listed as the Monitoring Well Identification System in the Groundwater Monitoring Program, including the groundwater monitoring wells, designated as point of compliance; and

(b) analyze each sample for the parameters listed in TABLE 4.8-A.

**TABLE 4.8-A: GROUNDWATER MONITORING PROGRAM**

| GROUNDWATER MONITORING WELLS AT POINTS OF COMPLIANCE<br>PARAMETERS | |
|---|---|
| pH (field and laboratory) | Nutrients |
| Electrical Conductivity (field and laboratory) | Chemical Oxygen Demand |
| Major Ions | Dissolved Organic Carbon |
| Trace Metals (dissolved) | Petroleum Hydrocarbons Fractions F1, F2 |

4.8.3 The monitoring required in 4.8.2 shall be conducted at the following frequencies unless otherwise authorized in writing by the Director:

(a) a minimum of once per year during each of the active, closure and post-closure periods; and

(b) a minimum of four times per year following detection of leachate constituents at levels above those specified in 4.8.4, and until the levels specified in 4.8.4 have been met.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.8.4 The groundwater quality in the monitoring wells, designated as points of compliance in the Groundwater Monitoring Program, shall not exceed the higher of:

(a) the objectives established in the water quality objectives in the *Canadian Environmental Quality Guidelines (CEQG)* for drinking water published by the Canadian Council of Ministers of the Environment (CCME), as amended, or;

(b) background groundwater chemistry as determined through a statistical analysis, as a derived alternate groundwater performance standard.

4.8.5 The approval holder shall implement the Remediation Plan as specified in the Landfill Operations Plan, when groundwater quality exceeds the groundwater performance criteria in 4.8.4 (a) and (b).

4.8.6 The samples extracted from the groundwater monitor wells shall be collected using scientifically acceptable purging, sampling and preservation procedures so that a representative groundwater sample is obtained.

4.8.7 All groundwater monitor wells shall be:

(a) protected from damage; and

(b) locked except when being sampled; unless otherwise authorized in writing by the Director.

4.8.8 If a representative groundwater sample cannot be collected because the groundwater monitor well is damaged or is no longer capable of producing a representative groundwater sample:

(a) the groundwater monitor well shall be cleaned, repaired or replaced; and

(b) a representative groundwater sample shall be collected and analyzed prior to the next scheduled sampling event; unless otherwise authorized in writing by the Director.

4.8.9 In addition to the sampling information recorded in 4.8.2, the approval holder shall record the following sampling information for all groundwater samples collected:

(a) a description of purging and sampling procedures;

(b) the static elevations, above sea level, of fluid phases in the groundwater monitor well prior to purging;

(c) the temperature of each sample at the time of sampling;

(d) the pH of each sample at the time of sampling; and

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(e) the specific conductance of each sample at the time of sampling.

4.8.10 The approval holder shall compile an Annual Groundwater Monitoring Program Report which shall include, at a minimum, all of the following information:

(a) a legal description of the facility and a map illustrating the facility boundaries;

(b) a topographic map of the facility;

(c) a description of the industrial activity and processes;

(d) a map showing the location of all surface and groundwater users, and, a listing describing surface water and water well use details, within at least a 1.6 kilometre radius of the facility;

(e) a general hydrogeological characterization of the region within a five kilometre radius of the facility;

(f) a detailed hydrogeological characterization of the facility;

(g) a geological cross-section(s) of the facility;

(h) a map of surface drainage patterns located within the facility;

(i) a map of groundwater monitor well locations and a description of the existing groundwater monitoring program for the facility;

(j) a summary of any changes to the groundwater monitoring program made since the last groundwater monitoring report;

(k) analytical data recorded as required in 4.8.2 and 4.8.9;

(l) a summary of fluid elevations recorded as required in 4.8.9 (b) and an interpretation of changes in fluid elevations;

(m) an interpretation of groundwater flow patterns;

(n) an interpretation of the analytical results including the following:

(i) diagrams indicating the location of any contamination identified,

(ii) probable sources of any contamination, and

(iii) the extent of any contamination identified;

(o) a summary and interpretation of the data collected since the groundwater monitoring program began including:

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(i) control charts which indicate trends in contaminant concentrations, and

(ii) the migration of contaminants, if any;

(p) a description of the following:

(i) contaminated groundwater remediation techniques employed,

(ii) source elimination measures employed,

(iii) risk assessment studies undertaken, and

(iv) risk management studies undertaken;

(q) a sampling schedule for the following year;

(r) recommendations, as follows;

(i) for changes to the groundwater monitoring program to make it more effective, and

(ii) for remediation, risk assessment or risk management of contamination identified.

**REPORTING**

4.8.11 The approval holder shall submit two copies of the Annual Groundwater Monitoring Report to the Director on or before March 31 of the year following the year in which the information on which the report is based was collected, unless otherwise authorized in writing by the Director.

**SECTION 4.9: SOIL**

**MONITORING**

4.9.1 The approval holder shall develop and document proposals for the Soil Monitoring Program in accordance with the *Soil Monitoring Directive*, Alberta Environment, May 1996, as amended.

4.9.2 The approval holder shall submit the Soil Monitoring Program proposals to the Director according to the following schedule:

(a) for the first soil monitoring proposal, no later than, January 31, 2009; and

(b) for the second soil monitoring proposal no later than, January 31, 2014; or

unless otherwise authorized in writing by the Director.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.9.3 If the Soil Monitoring Program proposals are found deficient by the Director, the approval holder shall correct all the deficiencies as outlined by the Director within 120 days of the deficiency letter.

4.9.4 The approval holder shall implement the Soil Monitoring Program proposals as authorized in writing by the Director.

4.9.5 The approval holder shall implement QA/QC provisions in accordance with the *CCME Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites, Volume I*, Report CCME EPC-NCS62E, Winnipeg, Manitoba, December 1993, as amended.

**STANDARDS**

4.9.6 For sampling locations which meet the conditions in C.1 of the *Soil Monitoring Directive*, May 1996, as amended, the concentration of substances in soil shall be compared to values in the following:

(a) for petroleum hydrocarbons, *Alberta Soil and Water Quality Guidelines for Hydrocarbons at Upstream Oil and Gas Facilities*, Alberta Environment, 2001, as amended;

(b) for salt, *Salt Contamination Assessment and Remediation Guidelines,* Alberta Environment, 2001, as amended;

(c) for substances not included in 4.9.6 (a) or (b), *Canadian Environmental Quality Guidelines,* Canadian Council of Ministers of the Environment, PN1299, 1999, as amended, excluding values determined before 1997;

(d) for substances not found in 4.9.6 (a) to (c), for soil which will be remediated to an agricultural, residential, or parkland land use, *Alberta Tier I Criteria for Contaminated Soil Assessment and Remediation*, Alberta Environmental Protection, March 1994, as amended; and

(e) for substances not found in 4.9.6 (a) to (c), for soil which will be remediated to a commercial or industrial land use, the *Interim Canadian Environmental Quality Criteria for Contaminated Sites*, Canadian Council of Ministers of the Environment, EPC-CS34, September 1991, as amended.

4.9.7 For sampling locations which do not meet the conditions in C.1 of the *Soil Monitoring Directive*, May 1996, as amended, or if substances are present that are not listed in the standards referred to in 4.9.6 (a) to 4.9.6 (e), the concentrations of substances in soil shall be compared to values derived using methods in C.2 of the *Soil Monitoring Directive*.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## REPORTING

4.9.8 The approval holder shall submit two copies of each Soil Monitoring Program Report to the Director summarizing the data obtained from the soil monitoring referred to in 4.9.4 according to the following schedule:

(a) for the first soil monitoring report, no later than January 31, 2010; and

(b) for the second soil monitoring report, no later than January 31, 2015; or

unless otherwise authorized in writing by the Director.

4.9.9 The Soil Monitoring Program reports shall be as prescribed in the reporting requirements of the *Soil Monitoring Directive*, May 1996, as amended.

## SOIL MANAGEMENT PROGRAM

4.9.10 If the Soil Monitoring Program, or any other soil monitoring, reveals that there are substances present in the soil at concentrations greater than the applicable concentrations in 4.9.6 or 4.9.7, the approval holder shall develop and document a Soil Management Program Proposal in accordance with the *Guideline for Monitoring and Management of Soil Contamination Under EPEA Approvals*, Chemicals Assessment and Management Division, May 1996, as amended, or as otherwise authorized in writing by the Director.

4.9.11 If required pursuant to 4.9.10, the approval holder shall submit a Soil Management Program Proposal to the Director within six months after the date that the Soil Monitoring Report referred to in 4.9.8 is due.

4.9.12 The Soil Management Program Proposal shall include, at a minimum, all of the following:

(a) steps to be taken to control sources of contamination;

(b) remediation objectives for substances identified by soil monitoring as exceeding the applicable maximum standards in 4.9.6 or 4.9.7;

(c) proposed steps for management of soil contamination; and

(d) a schedule for implementing the Soil Management Program.

4.9.13 If the Soil Management Program Proposal is found deficient by the Director, the approval holder shall correct all the deficiencies as outlined by the Director by the date specified in the deficiency letter.

4.9.14 The approval holder shall implement the Soil Management Program as authorized in writing by the Director.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.9.15 If the approval holder must implement a Soil Management Program pursuant to 4.9.14, the approval holder shall submit a written Soil Management Program Report to the Director on or before March 31 of each year, unless otherwise authorized in writing by the Director.

4.9.16 The Soil Management Program Report shall include, at a minimum, all of the following information:

(a) a summary of actions taken under the Soil Management Program during the previous year;

(b) a description and interpretation of results obtained, including any soil testing, from the Soil Management Program; and

(c) events planned for the current year including any deviations from the program authorized in writing by the Director.

## PART 5: FINANCIAL SECURITY REQUIREMENTS

5.1.1 The approval holder shall annually review and revise the cost estimate for reclamation of the facility including decommissioning, reclamation, closure and post-closure.

5.1.2 The approval holder shall:

(a) adjust the financial security of the facility based on the review in 5.1.1 or due to inflation; and

(b) submit to the Director for review the revised estimate of financial security as part of the Annual Landfill Operations Report in 4.5.40.

5.1.3 The approval holder shall provide additional financial security as required in writing by the Director.

5.1.4 The approval holder shall ensure the required financial security is maintained and renewed for the facility at least 30 days prior to the date it expires.

5.1.5 The approval holder shall renew the financial security for the facility 30 days prior to the date of expiry of the financial security.

## PART 6: DECOMMISSIONING, RECLAMATION, CLOSURE AND POST-CLOSURE

### SECTION 6.1: GENERAL

6.1.1 The approval holder shall reclaim the facility as authorized in writing by the Director.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

## SECTION 6.2: HAZARDOUS WASTE/RECYCLABLE STORAGE AND PROCESSING FACILITY

6.2.1 The approval holder shall apply for an amendment to this approval to reclaim the Hazardous Waste/Recyclable Storage and Processing Facility by submitting a Decommissioning and Land Reclamation Plan to the Director.

6.2.2 The Decommissioning and Land Reclamation Plan referred to in 6.2.1 shall be submitted within six months of the Hazardous Waste/Recyclable Storage and Processing Facility ceasing operation, except for repairs and maintenance, unless otherwise authorized in writing by the Director.

6.2.3 The approval holder shall implement the Decommissioning and Land Reclamation Plan for the Hazardous Waste/Recyclable Storage and Processing Facility as authorized in writing by the Director.

## SECTION 6.3: LANDFILL

### GENERAL

6.3.1 The approval holder shall implement the Closure and Post-Closure Plan as described in the application, unless otherwise directed in this approval or as otherwise authorized in writing by the Director.

6.3.2 The approval holder shall correct any deficiencies in the Closure and Post-Closure Plan as directed in writing by the Director.

6.3.3 The approval holder shall submit any additions, deletions or changes to the Closure and Post-Closure Plan to the Director, and shall be in receipt of a letter of acknowledgement from the Director prior to the implementing of any addition, deletion or change to the plan.

### CLOSURE AND RECLAMATION

6.3.4 The approval holder shall commence closure no later than 180 days of any cell reaching the maximum designated waste elevation, unless as otherwise authorized in writing by the Director.

6.3.5 The approval holder shall notify the Director in writing at least 14 days before commencing closure of any cell.

6.3.6 All cells shall be closed in accordance with the following requirements at a minimum, unless otherwise specified in writing by the Director:

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(a) covering the waste with a soil layer consisting of 600 mm of clay to provide a smooth surface on which to place the geomembrane;

(b) placing a final barrier layer consisting of an 80 mil HDPE geomembrane on top of the clay;

(c) the geomembrane shall be extrusion welded to the primary liner system providing an impermeable seal over the clay;

(d) placing a geotextile cover over the geomembrane;

(e) placing subsoil equal to the natural depths in the area on top of the geotextile;

(f) placing topsoil equal to the natural depths in the area on top of the subsoil;

(g) the final slope shall not exceed 30%;

(h) the area shall be vegetated and contoured such that no water pools over the cells; and

(i) the area shall be reclaimed to a state that returns the cell to the intended use, as described in the application.

6.3.7 By March 31 of the year following the year in which any cell is closed, the approval holder shall submit to the Director an Annual Closure and Reclamation Report.

6.3.8 The Annual Closure and Reclamation Report in 6.3.7 shall include, at a minimum, all of the following:

(a) certified as-built plans and details on the location of cells that have been closed;

(b) certified construction QA/QC procedures employed during cover construction and installation;

(c) survey reports showing the final cover depths; and

(d) details on progress made on meeting all other requirements of the Closure Plan.

6.3.9 The approval holder shall notify the Director of the date of commencement of final closure of the landfill no later than 30 days following commencement of final closure.

6.3.10 The approval holder shall submit a Final Closure Report prepared by a professional registered with APEGGA within 60 days of completion of the final closure of the landfill.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

6.3.11 The Final Closure Report shall include, at a minimum, all of the following:

(a) the date of completion of the final closure;

(b) a statement including supporting evidence that the final closure has been completed in accordance with the final closure plan;

(c) a description of any deviations to the final closure plan and the reasons for the deviations;

(d) a description of the final cover system and the installation methods and procedures used;

(e) an estimate of the maximum quantity of waste placed in the landfill for disposal over the life of the landfill;

(f) a description of how the following elements have been, or will be dealt with

(i) the final use of the closed areas,

(ii) drainage restorations,

(iii) soil replacement,

(iv) final cover slopes,

(v) erosion control,

(vi) re-vegetation and condition of the site, and

(vii) subsidence and differential settlement remediation; and

(g) as-built plans for the landfill showing the location of fill areas, final grades and structural components.

**POST-CLOSURE**

6.3.12 No later than 30 days following commencement of final closure, the approval holder shall submit an up-to-date Post-Closure Plan to the Director.

6.3.13 The approval holder shall include the following in the Post-Closure Plan at a minimum:

(a) a plan for maintaining the integrity of the final cover systems;

(b) a plan for maintaining the run-on and run-off control systems;

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

(c) a plan for maintaining the groundwater monitoring system;

(d) the groundwater monitoring program including performance standards and points of compliance;

(e) a plan for maintaining the leachate collection and leak detection systems;

(f) quantity and quality objectives of leachate and leak detection liquid that show the landfill has stabilized;

(g) a plan for remediating areas affected by subsidence and differential settlement;

(h) a plan for erosion control;

(i) a plan for maintaining vegetative cover; and

(j) any other information requested in writing by the Director.

6.3.14 The approval holder shall monitor in accordance with the Post-Closure Plan, as authorized in writing by the Director, for the duration of the post-closure period.

6.3.15 By March 31 of each year following final closure, the approval holder shall submit to the Director an Annual Post-Closure Report.

6.3.16 The Annual Post-Closure Report in 6.3.15 shall include, at a minimum, all of the following:

(a) details on any repairs and maintenance of the final cover system and vegetation;

(b) a report of any remedial or corrective actions taken;

(c) submission of Annual Groundwater Monitoring Reports as outlined in 4.8.11;

(d) details on progress made on meeting all other requirements of the Post-Closure Plan; and

(e) any other information requested in writing by the Director.

February 29, 2008
DATED

David Helmer
DESIGNATED DIRECTOR UNDER THE ACT

**Government of Alberta** ■

Environment and Water

# AMENDING APPROVAL

## PROVINCE OF ALBERTA

## *ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT*
## R.S.A. 2000, c.E-12, as amended.

APPROVAL NO.: 10348-02-02

APPLICATION NO.: 010-10348

EFFECTIVE DATE: May 1, 2012

EXPIRY DATE: March 21, 2016

APPROVAL HOLDER: Clean Harbors Canada Inc.

Pursuant to Division 2, of Part 2, of the *Environmental Protection and Enhancement Act*, R.S.A.2000, c.E-12, as amended, the approval for the following activity:

is amended as per the attached terms and conditions.

Designated Director under the Act .....
David Helmer, P.Eng.

Date Signed April 27, 2012

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

*Environmental Protection and Enhancement Act* Approval No. 10348-02-01 is hereby amended as follows:

1. Section 3.1.1 (b) is deleted and replaced with the following:

   3.1.1 (b) in a way that each new Class 1 cell shall consist of the following components, at a minimum:

   (i) a composite liner system that consists of:

   (A) a 1.0 meter clay liner compacted to achieve an in-place hydraulic conductivity of 1X10-7 cm/sec or less;

   (B) a GCL (Geosynthetic Clay Liner) placed in direct contact with the underlying compacted clay liner;

   (C) an 80 mil HDPE (High Density Polyethylene) geomembrane liner (secondary liner) overlaying the GCL;

   (D) an 80 mil HDPE geomembrane liner (primary liner) placed on top of the geocomposite drainage layer;

   (E) a 0.45 meter thick cover of clean sand/soil placed over top of the geocomposite layer;

   (ii) a leachate collection system;

   (A) Placed over the primary liner system;

   (B) Capable of maintaining the maximum acceptable leachate head; and

   (C) consisting of:

   (i) geo-composite drainage layer with a transmissivity of at least 1X10-4 cm/sec placed over top of the secondary liner and primary liner,

   (ii) a leachate collection sump placed over the primary liner system, and

   (iii) network of perforated collection pipes,

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

(iii) leak detection system installed over the secondary liner system;

(iv) a run-on control system; and

(v) a run-off control system

April 27, 2012
Date Signed

DESIGNATED DIRECTOR UNDER THE ACT
David Helmer, P.Eng.

Alberta

Environment and Sustainable
Resource Development

# AMENDING APPROVAL

## PROVINCE OF ALBERTA

## *ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT*
## R.S.A. 2000, c.E-12, as amended.

APPROVAL NO.: 10348-02-03

APPLICATION NO.: 011-10348

EFFECTIVE DATE: September 1, 2012

EXPIRY DATE: March 21, 2016

APPROVAL HOLDER: Clean Harbors Canada Inc.

Pursuant to Division 2, of Part 2, of the *Environmental Protection and Enhancement Act*, R.S.A.2000, c.E-12, as amended, the approval for the following activity:

Construction, operation and reclamation of the Ryley Waste Management Facility

is amended as per the attached terms and conditions.

Designated Director under the Act .....
Neil Hollands, P.Eng.

Date Signed August 30, 2012

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

*Environmental Protection and Enhancement Act* Approval No. 1048-02-02 is hereby amended as follows:

1. Section 3.1.1 (b) is deleted and replaced with the following:

3.1.1 (b) in a way that each new Class 1 cell shall consist of the following components, at a minimum:

(i) a composite liner system that consists of:

(A) a 1.0 meter clay liner compacted to achieve an in-place hydraulic conductivity of 1X10-7 m/s or less;

(B) a GCL (Geosynthetic Clay Liner) placed in direct contact with the underlying compacted clay liner;

(C) an 80 mil HDPE (High Density Polyethylene) geomembrane liner (secondary liner) overlaying the GCL;

(D) an 80 mil HDPE geomembrane liner (primary liner) placed on top of the geocomposite drainage layer;

(E) a 0.45 meter thick vover of clean sand/soil placed over top of the geocompostie layer;

(ii) a leachate collection system;

(A) Placed over the primary liner system;

(B) Capable of maintaining the maximum acceptable leachate head; and

(C) consisting of:

(i) geo-composite drainage layer with a transmissivity of at least 1X10-4 m/s placed over top of the secondary liner and primary liner,

(ii) a leachate collection sump placed over the primary liner system, and

(iii) network of perforated collection pipes,

(iii) leak detection system installed over the secondary liner system;

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

(iv) a run-on control system; and

(v) a run-off control system

August 30, 2012
Date Signed

DESIGNATED DIRECTOR UNDER THE ACT
Neil Hollands, P.Eng.

MAR 7 - 2014

Alberta Environment and Sustainable Resource Development

**Provincial Progrrams**
**Regulatory Approvals Centre**
Main Floor, Oxbridge Place
9820 – 106 Street
Edmonton, Alberta T5K 2J6
Canada
Telephone: (780) 427-6311
Fax: (780) 422-0154
www.environment.alberta.ca

February 28, 2014

Don White, Facility General Manager
Clean Harbors Canada, Inc.
BOX 390
RYLEY AB T0B 4A0

Dear Mr. White:

**Re: Ryley Hazardous Waste Storage Facility and Landfill**
**Lateral Expansion of Cell 3E and Surface Water Detention Pond**
**Application No. 012-10348**

Your application for an amendment to an existing approval under the *Environmental Protection and Enhancement Act* (EPEA) has been reviewed and enclosed is Approval No. 10348-02-04.

It is your responsibility to obtain any approvals, permits or licences that are required from other agencies.

The Act may provide the approval holder a right of appeal against any term or condition contained in the approval to the Alberta Environmental Appeals Board. You should note that there are strict time lines for filing an appeal dependent on the type of appeal. If you choose to appeal, please contact the office of the Registrar of Appeals, Environmental Appeals Board of Alberta, 3rd Floor, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8, telephone (780) 427-6207.

If you have any questions, please contact me at (780) 427-9539.

Yours truly,

Elaine Lawrence
Remediation Certificate Coordinator

Enclosure

cc: Fidelma Horgan, Upper Athabasca Region – Spruce Grove

Alberta

Environment and Sustainable Resource Development

# AMENDING APPROVAL

## PROVINCE OF ALBERTA

## *ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT*
## R.S.A. 2000, c.E-12, as amended.

APPROVAL NO.: 10348-02-04

APPLICATION NO.: 012-10348

EFFECTIVE DATE: February 24, 2014

EXPIRY DATE: March 31, 2016

APPROVAL HOLDER: Clean Harbors Canada, Inc.

Pursuant to Division 2, of Part 2, of the *Environmental Protection and Enhancement Act*, R.S.A.2000, c.E-12, as amended, the approval for the following activity:

construction, operation and reclamation of the Ryley Industrial Waste Management Facility, consisting of a Class I and Class II Industrial Landfill and a Hazardous Waste/Recyclable Storage and Processing Facility,

is amended as per the attached terms and conditions.

Designated Director under the Act .....
Neil Hollands, P.Eng.

Date Signed February 14, 2014

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

*Environmental Protection and Enhancement Act* Approval No. 10348-02-00 is hereby amended as follows:

1. Clause 1.1.2 (e) is deleted and replaced with the following:

   1.1.2 (e) "application 005-10348" means the written submissions to the Director in respect of renewal application 005-10348;

2. Clause 1.1.2 (e.1) is inserted after 1.1.2 (e):

   1.1.2 (e.1) "application 012-10348" means the written submissions to the Director in respect of amendment application 012-10348 for the construction and lateral expansion of Cell 3E and the construction of a new surface water detention pond;

3. Clause 1.1.2 (q) is deleted and replaced with the following:

   1.1.2 (q) "existing cells" means Cell 1, Cell 2, Cell 3A, Cell 3B, and Cell 3C as designated and described in application 005-10348;

4. Clause 1.1.2 (ff) is deleted and replaced with the following:

   1.1.2 (ff) "industrial runoff control system" means the parts of the facility that collect, store or treat industrial runoff from the facility and includes but is not limited to surface water collection ditches; two surface water detention ponds (old and new), and the tank farm bermed area;

5. Clause 1.1.2 (qq) is deleted and replaced with the following:

   1.1.2 (qq) "maximum designated waste elevation" means the maximum elevation of waste in metres above sea level (asl). As the historically approved maximum designated waste elevation of 717m asl is not practical with a slope of 30% the revised maximum designated waste elevation for Cells 3A, 3B, 3C, 3D and 3E is 714m asl;

6. Clause 1.1.2 (uu) is deleted and replaced with the following:

   1.1.2 (uu) "new cell" means Cell 3D as designated in application 005-10348 and Cell 3E as designated in application 012-10348;

7. The following is added after 1.1.2 (uu):

   1.1.2 (uu.1) "new surface water detention pond" means the surface water detention pond approved for construction in amending approval 10348-02-04 and described in application 012-10348;

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

1.1.2 (uu.2) "old surface water detention pond" means the surface water detention pond as designated in application 005-10348;

8. Clause 1.1.2 (jjj) is deleted and replaced with the following:

1.1.2 (jjj) "storm event" means a 1 in 25 year precipitation event that occurs over 24 hours at Ryley, Alberta;

9. Clause 1.1.2 (qqq) is deleted and replaced with the following:

1.1.2 (qqq) "waste storage area" means the areas designated for waste and hazardous recyclable container storage, and/or waste and hazardous recyclable tank storage, as described in application 005-10348;

10. Clause 3.1.1 (a) is deleted and replaced with the following:

3.1.1 (a) the applicable application (application 005-10348 for Cell 3D and application 012-10348 for Cell 3E); and

11. Clause 3.1.3 (a) is deleted and replaced with the following:

3.1.3 (a) the Waste Management Unit 2 Construction Specifications and Construction Quality Assurance Program as described in application 005-10348; or

12. Clause 3.1.4 is deleted and replaced with the following:

3.1.4 The approval holder shall submit the following information to the Director prior to the construction of each new cell:

(a) a Design Plan and Specifications, stamped and signed by a Professional registered with APEGGA;

(b) an up-to-date copy of the QA/QC monitoring program;

(c) any proposed changes to the landfill run-on and run-off control systems; and

(e) any proposed changes to the facility industrial run-off control system.

13. Clause 3.1.6.1 is inserted after 3.1.6:

3.1.6.1 If construction of Cell 3E as described in application 012-10348 has not commenced by June 30, 2014, the approval holder shall apply for an amendment to this approval unless otherwise authorized in writing by the Director.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

14. The following is added after 3.1.10:

    3.1.11 The approval holder shall construct the off-loading area (tipping area) as described in "*Ryley Landfill – Cell 3E Draft Approval-Feb 19, 2014*".

15. The following is added after 3.3.2:

    **SECTION 3.4: INDUSTRIAL RUNOFF**

    3.4.1 The approval holder shall construct the new surface water detention pond according to application 012-10348 and shall include, at a minimum, a 40 mil LLDPE liner on a compacted clay base.

    3.4.2 The new surface water detention pond shall be constructed concurrently with the construction and lateral expansion of Cell 3E.

    3.4.3 If construction of the new surface water detention pond as described in application 012-10348 has not commenced by June 30, 2014, the approval holder shall apply for an amendment to this approval unless otherwise authorized in writing by the Director.

    3.4.4 The approval holder shall notify the Director in writing at least 14 days before commencing operation of the new surface water detention pond as described in application 012-10348.

16. Clause 4.2.7 is deleted and replaced with the following:

    4.2.7 The exhaust stacks in 4.2.6 are defined as the ones in the following buildings:

    (a) drum processing building, as designated in application 005-10348; and

    (b) staging building, as designated in application 005-10348.

17. Clause 4.3.3 is deleted and replaced with the following:

    4.3.3 All industrial runoff from the facility developed area shall be directed to the industrial runoff control system as described in application 012-10348.

18. Clause 4.3.4 is deleted and replaced with the following:

    4.3.4 Subject to 4.3.8, the approval holder shall make or permit a release from the old surface water detention pond of the industrial runoff control system only at the discharge point as designated in application 012-10348, which:

    (a) is located in the south east corner of the surface water detention pond;

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

(b) under normal operating conditions: discharges the water through a pump and discharge hose over the south berm and into the drainage control ditch east of the landfill access road to the new surface water detention pond;

(c) under emergency conditions (requiring the old and new surface water detention ponds to be operated and discharged separately): discharges the water through a pump and discharge hose over the south berm directly to the culvert access under highway 854; and

(d) is referred to as sampling location "A" in 4.3.15

unless an alternative location for (a), (b) or (c) is authorized in writing by the Director.

19. The following is added after 4.3.4:

4.3.4.1: Subject to 4.3.8, the approval holder shall make or permit a release from the new surface water detention pond of the industrial runoff control system only at the discharge point as designated in application 012-10348, which:

(a) is located in the north east corner of the surface water detention pond;

(b) discharges the water through a pump and discharge hose over the east berm and into the culvert access under highway 854; and

(c) is referred to as sampling location "C" in 4.3.15

unless an alternative location for (a) or (b) is authorized in writing by the Director.

20. Clause 4.3.6 (d) is deleted and replaced with the following:

4.3.6 (d) placing leachate over the surface of the active landfill area for the purpose of evaporation, as described in application 005-13048.

21. Clause 4.3.7 (d) is deleted and replaced with the following:

4.3.7 (d) placing leak detection liquid over the surface of the active landfill area for the purpose of evaporation, as described in application 005-13048.

22. Clause 4.3.8 is deleted and replaced with the following:

4.3.8 Releases of industrial runoff from the old and new surface water detention ponds of the industrial runoff control system, to the surrounding watershed, shall comply with the limits specified in TABLE 4.3-B.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

23. Clause 4.3.15 (a) is deleted and replaced with the following:

    4.3.15 (a) sampling location A is defined as the old surface water detention pond;

24. The following is added after 4.3.15 (b):

    4.3.15 (b.1) sampling location C is defined as the new surface water detention pond;

    4.3.15 (b.2) monitoring as per TABLE 4.3-D is required for sampling location A if the old surface water detention pond is discharging directly to the surrounding watershed. If the old surface water detention pond is discharging to the new surface water detention pond, monitoring for sampling location C only is required.

25. **TABLE 4.3-D: INDUSTRIAL RUNOFF CONTROL SYSTEM MONITORING AND REPORTING** is deleted and replaced with the following:

**TABLE 4.3-D: INDUSTRIAL RUNOFF CONTROL SYSTEM MONITORING AND REPORTING**

| MONITORING | | | | REPORTING | |
|---|---|---|---|---|---|
| **Parameter, Test, Event, Study Proposal or Reporting Requirement** | **Frequency** | **Sample Type** | **Sampling Location** | **Monthly** | **Annually** |
| **Surface Water Detention Ponds:** | | | | Monthly Industrial Runoff Report<br><br>For each month where discharge occurs<br><br>(Due on or before the end of the month following the month in which the information was collected)<br><br>Number of Copies Required 1 | Annual Industrial Runoff Report<br><br>(Provide annual summary of data by March 31 of the year following the year in which the information was collected)<br><br>Number of Copies Required 1 |
| Flow (in cubic meters per day) | Daily | Estimate | A, C | | |
| 96-Hour Multiple Concentration Acute Lethality Test Using Rainbow Trout (*Oncorhynchus mykiss*) | Prior to discharge, once per month during the first discharge | Grab | A, C | | |
| 48-Hour Static Acute Lethality Test Using *Daphnia magna* | | Grab | A, C | | |
| pH | Once per batch discharge, prior to discharge | Representative Grab | A, C | | |
| Chemical Oxygen Demand | | Representative Grab | A, C | | |
| Total Suspended Solids | | Representative Grab | A, C | | |
| Ammonia, dissolved (expressed as nitrogen) | | Representative Grab | A, C | | |
| Oil or other substances | Daily during discharge | Visual | A, C | | |
| **Tank Farm Bermed Area:** | | | | | |

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

| MONITORING | | | | REPORTING | |
|---|---|---|---|---|---|
| **Parameter, Test, Event, Study Proposal or Reporting Requirement** | **Frequency** | **Sample Type** | **Sampling Location** | **Monthly** | **Annually** |
| pH | Once per batch discharge, prior to discharge to Industrial Runoff Control System | Grab | B | | |
| Chemical Oxygen Demand | | Grab | B | | |
| Total Suspended Solids | | Grab | B | | |
| Ammonia, dissolved (expressed as nitrogen) | | Grab | B | | |
| Oil or other substances | | Grab | B | | |
| Volume (cubic meters) | Total batch volume discharged | Estimate | B | | |

26. Clause 4.3.20 is deleted and replaced with the following:

    4.3.20 The approval holder shall analyze a representative grab sample from each of the surface water detention ponds of the industrial runoff control system at least once per year for the parameters outlined in TABLE 4.3-E.

27. The following is added after 4.5.23:

    4.5.23.1 The approval holder shall not stockpile waste higher than the maximum designated waste elevation of each landfill cell.

    4.5.23.2 The approval holder shall maintain a publicly available 24 hour "HOTLINE" number for a prompt response during an emergency.

    4.5.23.3 The approval holder shall manage landfill progression as described in "*Ryley Landfill – Cell 3E Draft Approval-Feb 19, 2014*".

    4.5.23.4 The approval holder shall not place waste in Cell 3E until financial security has been updated as described in the supplemental information request email titled *"Clean Harbors Ryley Financial Security Estimate-Feb 06, 2014"*.

    4.5.23.5 Mud tracking off site from vehicles and equipment leaving the facility is prohibited.

28. The following is added after 4.8.1:

    4.8.1.1 The approval holder shall revise and expand the Groundwater Monitoring Program as described in Section 4.1 of application 012-10348.

# TERMS AND CONDITIONS ATTACHED TO APPROVAL

29. Clause 6.3.1 is deleted and replaced with the following:

6.3.1 The approval holder shall implement the Closure and Post-Closure Plan as described in application 005-10348, unless otherwise directed in this approval or as otherwise authorized in writing by the Director.

30. Clause 6.3.6 (i) is deleted and replaced with the following:

6.3.6 (i) the area shall be reclaimed to a state that returns the cell to the intended use, as described in application 005-10348.

February 14, 2014
Date Signed

DESIGNATED DIRECTOR UNDER THE ACT
Neil Hollands, P.Eng.

# Appendix 3
# Table 1: Summary of Audit Findings

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 1 | 1.1.1 | Administrative (Powers of Act and Regulations | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 2 | 1.1.2 | Definitions -amended in 2014 to address two new applications (005-10348, and 012-10348. See notes below for details. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | Existing cells defined in application 005-10348 are Cell 1 , Cell 2, Cell 3A, Cell 3B, and 3C. Updated definition for industrial runoff control system (new run-off control pond added). Maximum designated waste elevation reduced from 717 m asl to &14 m asl for Cells 3A, 3B, 3C, 3D and 3E (1.1.2qq).. New cells are defined as Cells 3D and 3E in application 05-10348 and 012 -10348 (1.1.2 uu). New surface water detention pond defined (1.1.2 uu1), old surface water pond now defined by (uu.2) Storm event (for run-off ponds changed from 1:10 year to 1:25 year events (1.1.2 jjj). Waste storage area now defined by Application 005-10348. |
| 3 | 2.1.1 | The approval holder shall immediately report to the Director by telephone any contravention of the terms and conditions of this approval at 1-780-422-4505. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Contravention log book, interview: S. Yuha (9 July 2015) | |
| 4 | 2.1.2 | The approval holder has submitted a written report to the Director within 7 days of the reporting pursuant to 2.1.1 (discovery of approval noncompliance.) | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Contravention log book, interview: S. Yuha (9 July 2015) | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 5 | 2.1.3 | Severability of approval terms. All surviving terms and condition remain in force regardless if any section of the approval is held invalid. | (●) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 6 | 2.1.4a | The approval holder shall immediately notify the Director in writing if the approval holder is served with a petition into bankruptcy; | ( ) Information only<br>( ) Compliant<br>( ) NonCompliant<br>(●) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 7 | 2.1.4b | The approval holder shall immediately notify the Director in writing if the approval holder files an assignment in bankruptcy or Notice of Intent to make a proposal; | ( ) Information only<br>( ) Compliant<br>( ) NonCompliant<br>(●) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 8 | 2.1.4c | The approval holder shall immediately notify the Director in writing if a receiver or receiver-manager is appointed; | ( ) Information only<br>( ) Compliant<br>( ) NonCompliant<br>(●) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 9 | 2.1.4d | The approval holder shall immediately notify the Director in writing if an application for protection from creditors is filed for the benefit of the approval holder under any creditor protection | ( ) Information only<br>( ) Compliant<br>( ) NonCompliant<br>(●) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 10 | 2.1.4e: | The approval holder shall immediately notify the Director in writing if any of the assets, which are the subject matter of this approval, are seized for any reason. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 11 | 2.1.5 | The approval holder provides results of any monitored parameters that are the subject of operational limits and are monitored more frequently than specified by the approval. The additional results are included as an addendum in the reports required under the approval. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 12 | 2.1.6 | Information: abbreviations taken from the Standard Methods for the Examination of Water and Wastewater. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 13 | 2.1.7 | Administrative: this term revokes AENV Approval 10348-01-00 | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 14 | 2.2.1 a) | Records are kept a minimum of 10 years for the place, date and time of sampling. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | i-Drive data demonstrated by J. Mendoza (10 July 2015). Chain of custody forms are attached to records. | i-Drive is a network drive that store archive information. Viewed data back to 2003. Chain of custody forms are attached to records. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 15 | 2.2.1b) | Records are kept a minimum of 10 years for the dates the analyses were performed. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | i-Drive data demonstrated by J. Mendoza (10 July 2015). Lab reports are attached to the records. | i-Drive is a network drive that store archive information. Viewed data back to 2003. |
| 16 | 2.2.1c) | Records are kept a minimum of 10 years for the analytical techniques, methods or procedures used in the analyses; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | i-Drive data demonstrated by J. Mendoza (10 July 2015). | Lab reports are attached to the records. QA reports from the lab contain the required information. |
| 17 | 2.2.1b) | Records are kept a minimum of 10 years for the names of the persons who collected and analyzed each sample. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | i-Drive data demonstrated by J. Mendoza (10 July 2015). Chain of custody forms are attached to records. | This information is attached to the lab reports. |
| 18 | 2.2.1b) | Records are kept a minimum of 10 years for the results of the analyses. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | i-Drive data demonstrated by J. Mendoza (10 July 2015). Lab reports are attached to records. | |
| 19 | 2.2.2 a) | The following information is recorded and retained for a minimum of 10 years the name and addresses of all persons who discover any contravention for a minimum of ten years. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), Contravention Summary Binders. | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 20 | 2.2.2 b) | The following information is recorded and retained for a minimum of 10 years:the names and addresses of all persons who take any remedial actions arising from the contraventions (see note) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), Contravention Summary Binders. | |
| 21 | 2.2.2 c | The following information is recorded and retained for a minimum of 10 years: a description of the remedial measures taken in respect of a contravention. (see note). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), Contravention Summary Binders. | |
| 22 | 2.3.1(i) a | Air Monitoring analytical requirements meet: a) Stack Sampling Code, 1996. where applicable. This applies to collection, preservation, storage, handling and analysis. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | ** | No stack sampling is required at this facility. |
| 23 | 2.3.1(i) b | Air Monitoring analytical requirements meet: b) Methods Manual for Chemical Analysis of Atmospheric Pollutants. AENV 1993 where applicable. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | This reference is available on-line. |
| 24 | 2.3.1(i) c | Air Monitoring analytical requirements meet: c) Air Monitoring Directive,AENV 1989 where applicable. This applies to collection, preservation, storage, handling and analysis. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews; S. Yuha (9 July 2015) and J. Mendoza (10 July 2015). | There have been nony changes to the Ambient Air monitoring program since 2012. The senior chemist is responsible for the administration and execution of the program, and has adopted the 2006 AMD for the ambient air monitoring program. He is also aware that a draft 2014 AMD is in progress with AEP. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 25 | 2.3.1(i) d | Air Monitoring analytical requirements meet: d) CEMS Code. where applicable. This applies to collection, preservation, storage, handling and analysis. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | ** | There is no CEMS at this facility. |
| 26 | 2.3.1(ii) | Analytical requirements for industrial wastewater, industrial runoff, run-on, run-off, leachate, leak detection fluid, dugout and waterwell, groundwater and domestic waste water meet the Standard Methods for the Examination of Water and Wastewater (APHA, AWWA, and WEF (2005, as amended) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Randomly selected Lab analytical reports from Maxxam Labs. | Standard methods are referenced in the lab analytical reports . Maxxam Lab Report |
| 27 | 2,3,1(iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with A) Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, (see note) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab report, 15 April 2014 | Lab report references Method EPS1/RM/13. |
| 28 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia Magna, Environment Canada, Environmental Protection Series 1/Rm/14 July 1990, as amended | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab report, 15 April 2014 | Lab report references Method EPS1/RM/14. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 29 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Growth Inhibition Test Using the Freshwater Alga Selenastrum capricornutum, (See note) | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 30 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia, Environment Canada, 1/RM21. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 31 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows, Environment Can, 1/RM/22 | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 32 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with the Chlorinated Phenolic Compounds and Receiving Waters (Method No. AE130.0 Note H2SO4 acid is used to preserve, instead of nitric acid. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 33 | 2.3.1 (iv) | Analytical requirements for soils samples comply with: A) Soil Sampling and Methods of Analysis (Lewis Publishers 1993, as amended) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Pages 33 and 34 of Exova Labs Report 1957195 (22 October 2014): Methodology and Notes | This specific reference was not mentioned, however, the correct parameters were reported by the lab. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 34 | 2.3.1 (iv) | Analytical requirements for soils samples comply with: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA SW846, Sept 1986 as amended.) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Pages 33 and 34 of Exova Labs Report 1957195 (22 October 2014): Methodology and Notes | This reference was cited in the lab report in reference to Acid Digestion of Sediments, Sludges and Soils. |
| 35 | 2.3.1 (iv) | Analytical requirements for soils samples comply with the Soil Quality Criteria Relative to Disturbance and Reclamation, Alberta Agriculture, March 1987, as amended. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | This reference is obsolete. Alberta Tier 1 Soil and Groundwater Remediation Guidelines were selected instead and are appropriate for the purposes of the soil monitoring program. | |
| 36 | 2.3.1 (iv) | Analytical requirements for soils samples comply with the Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites- Volume I: Main Report, CCME EPC-NCS62E, 1993 | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Pages 33 and 34 of Exova Labs Report 1957195 (22 October 2014): Methodology and Notes. Updated versions of the CC reference were cited in the Exova report. | |
| 37 | 2.3.1 (iv) | Analytical requirements for soils samples comply with: E) the Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites - Volume II: Analytical Method Summaries. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Not referenced. Tier 1 Guidelines used instead. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 38 | 2.3.1(v) | Analytical requirement methods for waste comply with the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA, SW -846, September 1986, as amended | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Lab reference methods identified in QA/QC Reports for waste samples | |
| 39 | 2.3.1(v) | Analytical requirement methods for waste comply with the Toxicity Characteristic Leaching Procedure (TCLP) USEPA Regulation 40 CFR261, Appendix II, Method No. 1311, as amended. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Lab reference methods identified in QA/QC Reports for waste samples | |
| 40 | 2.3.1(v) | Analytical requirement methods for waste comply with the Methods Manual for Chemical Analysis of Water and Wastes, Alberta Environmental Centre, Vegreville, Alberta, 1996, AECV96-M1. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This reference was not used for any of the media analysis from this facility. |
| 41 | 2.3.1(v) | Analytical requirement methods for waste comply with the Standard Methods for the Examination of Water and Wastewater,APHA, AWWA and WEF as amended. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Pages 33 and 34 of Exova Labs Report 1957195 (22 October 2014): Methodology and Notes. Updated versions of the CC reference were cited in the Exova report. | |
| 42 | 2.3.2 | Labs retained for analysis of parameters required by the approval are accredited pursuant to ISO 17025, unless otherwise authorized in writing by the AENV Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | CALA Directory of Laboratories Scope of Accreditation for Maxxam Analytics Edmonton - Membership #2996. | Canadian Association for Laboratory Accreditation (CALA) conforms to the requirements of ISO/IEC 17025. Compared |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 43 | 2.3.3 | Any written authorizations in relation to 2.3.2 provided by the AENV Director are observed and complied with by Clean Harbors. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No special method were prescribed by the Director for analysis of waste or media. |
| 44 | 2.4.1 | All above ground tanks shall conform to the Guideline for Secondary Containment for Above Ground Storage Tanks, Alberta Environment, 1997, as amended, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Guidelines for Secondary Containment for Above Ground Storage Tanks, (AEP, 16 May 1997), visual inspection: M. Kostecky 9 July 2015. | (110% for single tanks or 100% of largest plus 10% of aggregate volume of all other tanks within the secondary containment). New diesel fuel tank has a double wall. |
| 45 | 3.1.1 a) | .Each new Class 1 Cell has been constructed in accordance with the applicable application 005-10348 for Cell 3D, and 012-10348 for Cell 3E). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3-D Construction Drawings (Verified in 2012 Compliance Audit), Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation. Tetra Tech EBA, March 2015. | Specifications for Cell 3-D confirmed in 2012 audit, and 3E construction details verified in this audit. |
| 46 | 3.1.1 b) i | Each new Class 1 Cell has been constructed with a composite liner system that includes a 1.0 meter clay liner compacted to achieve an in-place hydraulic conductivity of 1 x 10-7 cm/s or less. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3E and Surface Water Pond Earthworks – Construction Quality Assurance Report", Tetra Tech EBA November 2014, Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation Tetra Tech | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 47 | 3.1.1 b (i) | Each new Class 1 Cell has been constructed with a GCL (Geosynthetic Clay Liner) placed in direct contact with the underlying compacted clay liner | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation Tetra Tech EBA, March 2015. | Check as-built for Cell 3E and Draft Approval |
| 48 | 3.1.1 b) (i) | Each new Class 1 Cell has been constructed with an 80 mil HDPE (High Density Polyethylene) geomembrane liner (secondary liner) overlaying the GCL | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | Cell 3E is the only new cell built since 2012. |
| 49 | 3.1.1 b) (i) | Each new Class 1 Cell has been constructed with a composite liner system that includes an 80 mil HDPE geomembrane primary liner placed on top of the geocomposite drainage layer. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | Cell 3E is the only new cell built since 2012. |
| 50 | 3.1.1 b) (i) | Each new Class 1 Cell has been constructed with a 0.45 meter thick cover of clean sand/soil placed over top of the geocomposite layer. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | Cell 3E is the only new cell built since 2012. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 51 | 3.1.1 b) (i) | Each new Class 1 Cell has been constructed with a composite liner system that includes a 0.45 meter thick cover of clean sand/soil placed over top of the geocomposite layer. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | Cell 3E is the only new cell built since 2012. |
| 52 | 3.1.1 b) ii) | Each new Class 1 Cell has been constructed with a leachate collection system that is placed over the primary liner system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.6 (Installation of Primary Geocomposite (Leachate Collection System) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation | Check as-built for Cell 3E and Draft Approval |
| 53 | 3.1.1 b) ii) | Each new Class 1 Cell has been constructed with a leachate collection system that is capable of maintaining the maximum acceptable leachate head; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.0 (Geosynthetic Liner Profile) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | Liner built comparably to existing liner systems in service at Ryley |
| 54 | 3.1.1 b) ii) | Each new Class 1 Cell has been constructed with a leachate collection system that comprises a geocomposite drainage layer with transmissivity of at least $10^{-4}$cm/s, placed over top of the secondary liner and primary liner. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3E and Surface Water Pond Earthworks – Construction Quality Assurance Report", (Tetra Tech EBA November 2014) | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 55 | 3.1.1 b) ii) | Each new Class 1 Cell has been constructed with a primary leachate collection system sump(s) placed over the primary liner system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.0 (Leak Detection and Leachate Collection System) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | |
| 56 | 3.1.1 b) ii) | Each new Class 1 Cell has been constructed with (iii) network of perforated collection pipes. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.0 (Leak Detection and Leachate Collection System) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | |
| 57 | 3.1.1 b) iii | Each new Class 1 Cell has been constructed with a leak detection system installed over the secondary liner system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.0 (Leak Detection and Leachate Collection System) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA, March 2015. | |
| 58 | 3.1.1 b) ii) | Each new Class 1 Cell has been constructed with a leachate control sytem consisting of a geocomposite drainage layer with a transmissivity of at least 1 x10-2 cm/s | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3E and Surface Water Pond Earthworks – Construction Quality Assurance Report", Tetra Tech EBA November 2014, | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 59 | 3.1.1 b) iv | Each new Class 1 Cell has been constructed with a run-on control system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Figure 3 (Monitoring Well Location Plan and Surface Drainage), 2014 Annual Groundwater Monitoring Report (Tetra Tech EBA, February 2015). | Plan drawing shows Cell 3E located adjacent to the new surface water detention system and site drained enginered to provide run-off control. |
| 60 | 3.1.1 b) v | Each new Class 1 Cell has been constructed with a run-off control system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Figure 3 (Monitoring Well Location Plan and Surface Drainage), 2014 Annual Groundwater Monitoring Report (Tetra Tech EBA, February 2015). | Plan drawing shows Cell 3E located adjacent to the new surface water detention system and site drained enginered to provide run-off control. |
| 61 | 3.1.2 | The composite liner systems for the landfill are constructed on a foundation or base that prevents failure of the liners due to settlement, compression, or uplift | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3E and Surface Water Pond Earthworks – Construction Quality Assurance Report", Tetra Tech EBA November 2014, | |
| 62 | 3.1.3 | QA/QC Monitoring of the liner system was completed in accordance with attached references: ((a) the Waste Management Unit 2 Construction Specifications and Construction Quality Assurance Program as described in the application;005-10348. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Celll 3-D Geosynthetic specifications and Construction Quality Assurance Sumary (EBA , 25 July 2012). | This required specifically addressed Cell 3D, The latest cell was built in accordance with application 012-10348. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 63 | 3.14 a) | The approval holder has submitted to the AESRD Director: a) a Design Plan and Specifications for stamped and signed by a Professional registered with APEGA. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Approval Amendment Report, EBA July 2013, Figures 2, (Plan View - Approved Design Plan), Figure 3 (Plan View - Proposed Expansion), Figure 5 (Cell 3D Liner Design Detail). ,Tetra Tech EBA, March 2015. | The content of the application was referenced in the approval amendments from AESRD for the construction of Cells 3D and 3E. The application bears the professional seals of APEGA Professional Members J. P. Ruffell and K. Anderson (15 July 2013). |
| 64 | 3.1.4 b) | The following documentation has been forwarded to AENV Director prior to the construction of each new cell::an up-to-date copy of the QA/QC monitoring program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Construction Quality Assurance Plan (Tetra Tech EBA, April 2014) cited in Construction Quality Assurance Report -Cell 3E-Earthworks (Tetra Tech EBA, March 2015). | |
| 65 | 3.1.4 c) | The following documentation has been forwarded to AENV Director prior to the construction of each new cell: any proposed changes to the groundwater monitoring and **runoff control** systems. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Application 012-10348; Figure 7 (Plan View - Monitoring Well Locations) | The application provided a plan for expansion of the groundwater monitoring program and runoff control systems. |
| 66 | 3.1.4 d) | The following documentation has been forwarded to AESRD Director prior to the construction of each new cell:any proposed changes to the landfill run-on and run-off control systems. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Application 012-10348; Figure 7 (Plan View - Monitoring Well Locations) | The application provided a plan for expansion of the run -on and runoff control systems. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 67 | 3.1.4 e) | The following documentation has been forwarded to AENV Director prior to the construction of each new cell:any proposed changes to the facility industrial runoff control system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Application 012-10348 (Section 2.3 - Surface Water, Figure 3 -Plan View, Proposed Expansion). | |
| 68 | 3.1.6 a) | Any revisions or adjustments to the Design Plan and Specifications have resulted in only minor changes from the Plan (Ref 3.1.4) to suit field conditions. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 8 (Project Summary) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation,Tetra Tech EBA March 2015, Cell 3E and Surface Water Pond Earth Works -Construction Quality Assurance Report, Tetra Tech EBA, November 2014 | |
| 69 | 3.1.6 b) | Any deviations from the Design Plan and Specifications have not reduced the design performance of the landfill. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | There were no deviations mentioned in the Construction Assurance Reports. |
| 70 | 3.1.7 | Prior to commencing the operation of any new cell following construction, a summary report of the QA/QC monitoring program results is submitted to AENV. Monitoring program results are stamped and signed by a professional registered with APEGA. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Letter to S. Yuha from Tetra Tech dated 20 October 2014. Email correspondence from S. Yuha to N. Hollands (AESRD) dated 22 October 2014. | Facility manager indicated that Cell 3E went into service on 23 October 2014. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 71 | 3.1.8 (a) i) | The summary report (Ref 3.1.7) contains confirmation that the landfill has been constructed according to the Design Plan and Specifications, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3E and Surface Water Pond Earthworks – Construction Quality Assurance Report", Tetra Tech EBA November 2014, Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA March 2015. | |
| 72 | 3.1.8 (a) | The summary report (Ref 3.1.7) contains confirmation that the landfill has been constructed according to the QA/QC monitoring program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3E and Surface Water Pond Earthworks – Construction Quality Assurance Report", Tetra Tech EBA November 2014, Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation, Tetra Tech EBA March 2015. | |
| 73 | 3.1.8 b) | The summary report in 3.1.7 contains documentation of any minor deviations as per 3.16. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The constructions QA reports indicate that the landfill was constructed in accordance with the design plans. |
| 74 | 3.1.8 c) | The summary report in 3.1.7 contains confirmation by an APEGGA-registered professional that deviations as per 3.1.6 will not reduce landfill performance. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The constructions QA reports indicate that the landfill was constructed in accordance with the design plans. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 75 | 3.1.8 d) | The summary report in 3,1,7 contains as-built plans for the constructed cell(s). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Construction Quality Assurance Report -Cell 3E-Earthworks (Tetra Tech EBA, March 2015), Construction Quality Assurance Report-Cell 3E, Figures Section: Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation Tetra Tech EBA. March | |
| 76 | 3.1.9 a) | After construction, the landfill operator maintains the integrity of the cell liners. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 7 (Liner Protection) Landfill Operations Plan. | Plan describes measures to maintain integrity of the liner. |
| 77 | 3.1.9 b) | After construction, the landfill operator maintains the integrity of the leachate collection system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | WinWeb Inspection Records demonstrated by S. Yuha (9 July 2015). | |
| 78 | 3.1.9 c) | After construction, the landfill operator maintains the integrity of the leak detection system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 9 (Leachate Management), Landfill Operations Plan, March 2015, WinWeb Inspection Records viewed by Kostecky 9 July 2015. | Check inspection records on WinWeb. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 79 | 3.1.10 | The landfill operator has notified AENV in writing at least 14 days prior to commencing operation of any new cell. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Email Correspondence M. Parker to Hollins -ESRD (8 October 2014) | Cell 3E entered service on 23 October 2014 |
| 80 | 3.2.1 | All topsoil from disturbed land at the landfill is conserved. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015 | Separate stockpiles created for top soil and subsoil. |
| 81 | 3.2.2 | Topsoil in 3.2.1 is used for reclamation of the landfill. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015 | Observed soil stockpiles and soil cap areas for partially capped and fully capped cells. |
| 82 | 3.2.3 | Topsoil is not used as daily cover on the working face of the landfill. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015, interview: S. Yuha, 9 July 2015. | No visible disturbance on topsoil stock pile to suggest that this source is used continuously for cover. |
| 83 | 8.2.4 | Sufficient soil is salvaged from disturbed land to meet the subsoil replacement requirements for closure of each cell. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015, interview: S. Yuha, 9 July 2015. | Landfill has access to other sources of cover material in addition to spoil from cell construction. However, it would seem feasible that most of the cover material demand should be met from cell construction. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 84 | 3.2.5 | Topsoil is stockpiled at the landfill. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015, interview: S. Yuha, 9 July 2015. | |
| 85 | 3.2.6 a) | Topsoil stockpiles are piled on stable foundations | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015, | Stock pile on flat ground and has vegetative cover. |
| 86 | 3.2.6 b) | Topsoil stock piles are piled in a manner that prevents mixing with subsoil. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015 | |
| 87 | 3.2.7 a) | Subsoil stock piles are piled on stable foundations. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015 | Ground is level and stable. |
| 88 | 3.2.7 b) | Subsoil stockpiles are piled in a manner that prevents mixing with topsoil. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015 | Two separate piles are maintained for topsoil and subsoil. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 89 | 3.2.8 a) | Topsoil and subsoil stockpiles are constructed separately from each other. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015 | |
| 90 | 3.2.8 b) | Stock piles foundations for subsoil and topsoil are stable | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015 | |
| 91 | 3.2.8 c) | Topsoil and subsoil stockpiles are stabilized to control wind and water erosion. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015 | No dust observed blowing off piles during a moderately windy day. Both piles had vegetative cover and moderate slopes. Areas around piles were also vegetated. |
| 92 | 3.2.8 d | Topsoil and subsoil stockpiles are accessible and retrievable. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015 | Piles were accessible to heavy equipment and trucks. |
| 93 | 9.2.8 e) | Topsoil and subsoil stock piles are are revegetated. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015 | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 94 | 3.2.9 a) | Topsoil and subsoil salvage is suspended when wet or frozen feld conditions results in the admixing, degradation or compaction of topoil or subsoil. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | No soil salvage operations are undertaken during wet or frozen soil conditions. Soil salvage only occurs during cell construction which occurs during frost-free and dry condtions. |
| 95 | 3.2.9 b) | Topsoil and subsoil salvage is suspended with high wind velocities, any other field conditions or facility operation result in admixing, degradation, or loss of topsoil or subsoil. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5 (Nuisance Management) and Appendix C (Dust and Odour Best Management Plan) Landfill Operations Plan (March 2015) | Any activity that generates dust is suspended when wind speeds exceed 30 km/hour. |
| 96 | 3.2.10 | Topsoil and subsoil salvage is resumed only when adverse conditions referred to in 3.1.9 no longer exist. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5 (Nuisance Management) and Appendix C (Dust and Odour Best Management Plan) Landfill Operations Plan (March 2015) | Any activity that generates dust is suspended when wind speeds exceed 30 km/hour. |
| 97 | 3.3.1(a) | The waste stabilization area has been constructed in accordance with Application 008-10348 | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual inspection: Kostecky, 9 July 2015 , interview: S. Yuha, 9 July 2015 | No changes to design since 2012 audit. New pit constructed to the same specifications as the original. |
| 98 | 3.3.1(b) | The waste stabilization area has been constructed within a Class 1 cell. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015. | Pit is located within Cell 3D in the tipping pad. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 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. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2013 Ultrasonic Test Report, Stabilization Pit Inspection logs | The last ultrasonic test was conducted in 2013, and visual inspections are conducted annually. The word of the approval could be inferred to require annual ultrasonic testing. It is suggested that a term be specified for ultrasonic inspections. |
| 100 | 4.1.1 | Access to the facility is restricted to authorized personnel only. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kosteckyi 9 July 2015. | Gate to landfill area is lockable and closed during nonbusiness hours. Visitor access is controlled at office. |
| 101 | 4.1.2 a) | An audit is conducted by a 3rd party environmental consultant or organization to assess compliance at least once every 3 years. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Previous audits completed by M. Kostecky in 2009, 2012 | |
| 102 | 4.1.2 b) | The compliance audit mentioned in 4.1.2 a) is conducted on or before 1 October 2009. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Ryley Facility 2009 Audit ( Kostecky Environmental) | Audits were completed in 2009 and 2012, by Kostecky Environmental Ltd and CH2M HILL Canada Ltd (M. Kostecky was the lead auditor for both audits). |
| 103 | 4..1.3 | The audit report (Ref 4.1.2) is submitted to AENV in the Annual Landfill Operations Report as required in 4.5.40 (j). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No audit was completed in 2014. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 104 | 4.1.4 | The requirements in 4.1.2 and 4.1.3 do not relieve the approval holder of any duty under the Act or its regulations or this approval. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 105 | 4.1.5 a) | A Landfill Operations plan has been developed. that does not contravene the requirements of the approval. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Clean Harbors Ryley Facility Landfill Operations Plan, Revised March 2015 | |
| 106 | 4.1.5 b) | A Landfill Operations plan has been maintained that does not contravene the requirements of the approval. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Clean Harbors Ryley Facility Landfill Operations Plan, Revised March 2015 (updated since the 2012 audit) | |
| 107 | 4.1.5 c) | A Landfill Operations plan has been implemented that does not contravene the requirements of the approval. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Clean Harbors Ryley Facility Landfill Operations Plan, Revised March 2015 | |
| 108 | 4.1.6 a) | A copy of the Landfill Operations Plan is retained at the facility at all times. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Copy of Landfill Operations Plan is available electronically and in hard copy at the Ryley office. | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 109 | 4.1.6 b) | The Landfill Operations Plan is updated annually at minimum. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Clean Harbors Ryley Facility Landfill Operations Plan (Revised March 2015) | Latest plan revision is March 2015 |
| 110 | 4.1.7 a) | The Landfill Operations Plan contains at minimum: operational procedures for waste control, run-on and run-off controls, and nuisance controls | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Clean Harbors Ryley Facility Landfill Operations Plan (Revised March 2015) | Plan addresses: Solid Waste Acceptance Criteria, Operational Criteria (that affect wste disposal), Pre-Acceptance Review, |
| 111 | 4.1.7 a.1 | The Landfill Operations Plan contains at minimum: operational procedures for the waste stablization area. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Operational summary in Section 4.4 (Ops Plan 2015) | Suggest that a reference to a detailed SOP should be added to the reference in the Ops Plan. |
| 112 | 4.1.7 b) | The Landfill Operations Plan contains at minimum: details on keeping and maintaining an operating record; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 1 of 2015 Ops Plan. | |
| 113 | 4.1.7 d) (i) | The Landfill Operations Plan contains at a minimum, procedures for the acceptance, handling and disposal of waste including characterization and classification at source. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Sections 2.0 and 3.0 from 2015 Landfill Ops Plan. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 114 | 4.1.7 d) | The Landfill Operations Plan contains at a minimum, procedures for the acceptance, handling and disposal of waste including waste manifesting and tracking. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.2 from 2015 Landfill Ops Plan. | |
| 115 | 4.1.7 d) | The Landfill Operations Plan contains at a minimum, procedures for the acceptance, handling and disposal of waste including QA/QC Waste Acceptance procedures. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.2 (Waste Acceptance) -2015 Landfill Ops Plan. | |
| 116 | 4.1.7 d) | The Landfill Operations Plan contains at a minimum, procedures for waste sampling. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.1 (Waste Acceptance) -2015 Landfill Ops Plan. | |
| 117 | 4.1.7 e) (i) | The Landfill Operations Plan contains procedures for placing waste in a cell including compaction. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.1 (Waste Placement) -2015 Landfill Ops Plan. | |
| 118 | 4.1.7 e) | The Landfill Operations Plan contains at a minimum, procedures for placing waste in a cell including working face width. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.1 (Waste Placement) -2015 Landfill Ops Plan. | Guidance for the working face is provided, rather than a specification. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 119 | 4.1.7 e) | The Landfill Operations Plan. contains procedures for placing waste in a cell including lift depth. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.1 (Waste Placement) -2015 Landfill Ops Plan. | |
| 120 | 4.1.7 e) | The Landfill Operations Plan .contains procedures for placing waste in a cell including waste placement location usng a grid system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.1 (Waste Placement) -2015 Landfill Ops Plan. | |
| 121 | 4.1.7 f) | The Landfill Operations Plan. contains an Odor Response Program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5.3 (Odour) and Appendix C -2015 Landfill Ops Plan. | Appendix C: Fugitive Dust and Odour Best Management Plan. |
| 122 | 4.1.7 g) | The Landfill Operations Plan.contains procedures for managing sulfur and sulfur-containing wastes. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 4.2 Sulphur Loads -2015 Landfill Ops Plan. | |
| 123 | 4.1.7 h) | The Landfill Operations Plan contains a monitoring and maintenance program for the scale house and heavy operational equipments. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 13 Scale and Equipment Maintenance -2015 Landfill Ops Plan. | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 124 | 4.1.7 i) | The Landfill Operations Plan contains a groundwater monitoring program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 12.1 Groundwater -2015 Landfill Ops Plan. | |
| 125 | 4.1.7 j) | The Landfill Operations Plan contains a remediation plan to deal with groundwater quality deterioration. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 12.1 Groundwater -2015 Landfill Ops Plan. | |
| 126 | 4.1.7 k) | The Landfill Operations Plan contains a leachate monitoring and managment program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 9 Leachate Management -2015 Landfill Ops Plan. | |
| 127 | 4.1.7 l) | The Landfill Operations Plan contains a leak detection liquid monitoring and management program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 12.4 Landfill Leachate -2015 Landfill Ops Plan. | Leak detection fluid is described as "secondary leachate" in the plan. |
| 128 | 4.1.7 m) | The Landfill Operations Plan contains a cell cover system. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.2 Cover -2015 Landfill Ops Plan. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 129 | 4.17 n) | The Landfill Operations Plan contains a health and safety program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 10.0 Safety -2015 Landfill Ops Plan. | This section refers to the Health and Safety Sharepoint Site |
| 130 | 4.1.7 o) | The Landfill Operations Plan includes an emergency response program, including procedures for handling fires, releases to the environment and health concerns. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 10.0 Emergency Response Plan -2015 Landfill Ops Plan. | The detailed plan is attached as Appendix A. (Contingency Plan). |
| 131 | 4.1.7 p) | 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 | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Appendix A Site Dagram (Ops Plan 2015) | The Plan indicates that the Contingency Plan is in Appendix A, which currently is the Facility Layout Diagram. The Contingency Plan is in Appendix B.<br><br>This item does not appear to address the condition of survey records for the location of all structural components including final cover elevations and contours.-- **This might be Figure 2 in the Fugitive Dust & Odour Best Management Plan.** |
| 132 | 4.1.7 q) | The Operations Plan contains procedures for using leachate, leak detection liquid, or other authorized wastes and liquids on the surface of the active landfill area for the purpose of evaporation or dust suppression. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 9.3 -Surface Spreading of Leachante and Leak Detection Liquid (2015 Ops Plan.) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 133 | 4.1.8 | Upon request, the Operator has submitted a copy of the Landfill Operations Plan to AENV, when requested in writing by the Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 3 of 2014 Annual Landfil Operating Record, | Check with AEP representative. Check Part 3 of the Landfill Annual Operating Summary.. |
| 134 | 4.1.9 | The landfill operator prevents any waste from the waste stabilization area from contacting the wastes disposed of in the cell before the stabilization/solidification has occurred. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015. | A steel mixing pit is used in the Cell 3D. Steel plate integrity is examined visually on an annual basis, ultrasonic testing last occured in 2013. |
| 135 | 4.1.10 (a) | The landfill operator disposes of any liquid collected in the waste stabilization area by consgning the waste liquid to a facility holding a current approval, registration or as otherwise authorized under AEPEA to accept the waste. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | No liquids are left in pit following a stabilization operation. |
| 136 | 4.1.10 (b) | The landfill operator disposes of any liquid collected in the waste stabilization area by consgning the waste liquid to an out-of-province facility that is approved by the local authority to accept the waste. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | There are no liquids from this process to dispose off-site. |
| 137 | 4.1.10 (c) | The landfill operator disposes of any liquid collected in the waste stabilization area by consgning the waste liquid to a deep well facility approved by the ERCB. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | There may be no liquids from this process to dispose off-site. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 138 | 4.2.1 | No effluent streams are released to the atmosphere except as provided by the approval. (see 4.2.2) for acceptable streams | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Incident Log Binder, 2014 Annual Landfill Operations Summary Report (10 March 2015) | Although there is no file record to indicate that the Director has authorized venting landfill gases, the incident log for the explosion in the Cell 3B leachate building (17 September 2014) was report and solution was outlined to AESRD. It is apparent that verbal consent was provided but, there is no official authorization in writing to permit venting landfill gas to atmosphere. It is suggested that landfill passive vents should be included in the updated approval for 2016. |
| 139 | 4.2.2 a) | The following effluent stream source may release to atmosphere : air emission scrubber exhaust stack. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 140 | 4.2.2 b) | The following effluent stream source may release to atmosphere: building vents which include but are not limited to lab hoods, building fans and shop exhausts. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Confirm visually at site. |
| 141 | 4.2.2 c) | The following effluent stream source may release to atmosphere: tank heaters. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation, M. Kostecky 9 July 2015. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 142 | 4.2.2 d) | The following effluent stream source may release to atmosphere: building furnaces. | (●) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 143 | 4.2.2 e) | The following effluent stream source may release to atmosphere: any other source authorized in writing by the Director. | ( ) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>(●) Opportunity for Improvement<br>( ) Pending | Interview: S. Yuha (9 July 2015). | Landfill gas vents emit vapours directly to atmosphere (Interview: S. Yuha 9 July 2015). This item is flagged as an opportunity for improvement, not a noncompliance because, AEP was notified prior to the installation of the passive vent system, and did not object to the solution. There should be a written acknowledgement from the AEP Director that would meet 4.2.2e. |
| 144 | 4.2.3 a) | The operator does not operate any process equipment until pollution abatement equipment associated with the process equipment is a) operational. | ( ) Information only<br>(●) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Visual observation: Kostecky 9 July 2015, interview: S. Yuha 9 July 2015, Weekly Scrubber Log Book, SOP OP 010 -002 Scrubber System Start Up and Shutdown, 27 January 2013. | |
| 145 | 4.2.3 b) | The operator does not operate any process equipment until pollution abatement equipment associated with the process equipment is b) operating. | ( ) Information only<br>(●) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Visual observation: Kostecky 9 July 2015 | System operating with start of shift. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 146 | 4.2.4 | Unless authorized in writing by the AENV Director, all fugitive emissions and any source not identified in 4.2.2, must be controlled in accordance with Item 4.2.5. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Ambient Air Monitoring Report, Fugitive Dust & Odour Best Management Plan | Find out if there are any known emission sources that have be created but not referenced in Item 4.2.2. |
| 147 | 4.2.5 a) | Regarding fugitive emissions, the facility does not release or cause the release of a substance that can or does: impair, degrade or alter the quality of natural resources. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Ambient Air Monitoring Report.. Fugitive Dust & Odour Best Management Plan | Ambient air report shows that no suspended particulate levels had not exceeded 50 ug/m3 reporting limit during the course of the year. No adverse impacts reported in dugout water quality. Landfill Operating Plan provides a best management plan to abate dust and odours. This plan identifies the known sources of fugitive emissions and prescribes controls to abate them. |
| 148 | 4.2.5 b) | Regarding fugitive emissions, the facility does not release or cause the release of a substance that can or does cause material discomfort, harm of adverse affect to well-being or health of a person. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Ambient Air Monitoring Report, Fugitive Dust & Odour Best Management Plan | Ambient air report shows that no suspended particulate levels had exceeded 50 ug/m3 reporting limit. No adverse impacts reported in dugout water quality. |
| 149 | 4.2.5 c) | Regarding fugitive emissions, the facility does not release or cause the release of a substance that can or does harm property, plants or animals. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Ambient Air Monitoring Report, Fugitive Dust & Odour Best Management Plan | Ambient air report shows that no suspended particulate levels had exceeded 50 ug/m3 reporting limit. No adverse impacts reported in dugout water quality. Noted incident 289659 (Cell 3B Leachate Building Explosion - 17 September 2014) - landfill gas had followed the leachate drain pipe back to the building leading to an accumulation and the resulting explosion, however this was resolved by passively venting landfill gases to atmosphere. All other leachate transfer lines that terminate inside enclosures have similar passive vents installed. It is suggested that the landfill gas vents be included as an authorized emission.. . |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 150 | 4.2.6 a) | Exhaust air from stacks is treated through a caustic scrubber and an activated carbon filter while hazardous waste or hazardous recyclables are being **processed**. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015, SOP OP010-002 Scrubber System Start Up and Shut Down Procedure (Clean Harbors, 27 Jan 2013). | |
| 151 | 4.2.6 b) | Exhaust air from stacks is treated through a caustic scrubber and an activated carbon filter while hazardous waste or hazardous recyclables are being **transferred**. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015, SOP OP010-002 Scrubber System Start Up and Shut Down Procedure. (Clean Harbors, 27 Jan 2013) | |
| 152 | 4.2.6 c) | Exhaust air from stacks is treated through a caustic scrubber and an activated carbon filter **while containers of hazardous waste or hazardous recyclables are open.** | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015, SOP OP010-002 Scrubber System Start Up and Shut Down Procedure. (Clean Harbors, 27 Jan 2013). | System runs continuously during shift. |
| 153 | 4.2.7 a) | The exhaust stacks in 4.2.6 are defined as the ones in the following buildings: Drum Procesing Building as designated in the application 005-10348. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 154 | 4.2.7 b) | The exhaust stacks in 4.2.6 are defined as the ones in the following buildings: Staging Building as designated in the application 005 -10348. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 155 | 4.2.8 | The activated carbon in the filter referred to in 4.2.6, is replaced immediately when the concentration of total petroleum hydrocarbons in the stack exhaust exceeds 50 ppm. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Weekly Scubber Log Book | Last carbon change out was 18 January 2013, intervals seems to be approximately 10 years for carbon change out. No readings in the log book exceed 50 ppm under the correct operating procedure. |
| 156 | 4.2.9 | The exhaust stacks referred to in 4.2.6 are being sampled and measured weekly using the total petroleum hydrocarbon sampler/analyzer. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Weekly Scrubber Log Book entries, interviews S. Yuha (9 July 2015), W. Codd (10 July 2015). | Measurements recorded twice per week and data uploaded from iPad to WinWeb system. |
| 157 | 4.2.10 a) | The portable, total petroleum hydrocarbon sampler/analyzer has a detection limit of 1.0 ppm or less of total petroleum hydrocarbons. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Inspection of RKI Eagle (readout to 0.1), RKI Instruments website. | Visually inspect the PID at site. Last unit was an RKI Eagle (0.1 ppm detection limt). Specification accuracy to 1 ppm hydrocarbons. |
| 158 | 4.2.10 b) | The portable, total petroleum hydrocarbon sampler/analyzer has been located within the exhaust stack, 1 metre downstream of the blower, but before the gas exists the exhaust stack. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visually confirmed by Kostecky 10 July 2015. | Compliant if it has not moved since 2012, confirmed that sampling port has not moved. |
| 159 | 4.2.11 a) | Each caustic scrubber referred to in 4.2.6 is monitored for pH daily. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015, Winweb records viewed 10 July 2015 | Inspection completed in field with iPad. Results uploaded to WinWeb daily. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 160 | 4.2.11 b) | Each caustic scrubber referred to in 4.2.6 is maintained at a pH value of 8.0 or greater. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015, interview: W, Codd (10 July 2015) | WinWeb settings would trigger an inspection fail notice and issue a job ticket if the pH was not at the correct value. The water used for the scrubber is from an naturally alkaline source. |
| 161 | 4.2.12 | No debris is burned by means of an open fire unless authorized by the AENV Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015) | |
| 162 | 4.2.13 a) | Upon receipt of a complaint of odours beyond the facility boundaries, the operator places restrictions on waste disposal types, and volumes of waste being deposited that are causing those odours; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5.3 (Odour) Landfill Operations Plan, March 2015 | Wastes responsible for the odors in the past have had their WPS revoked and are no longer accepted at this facility. Check to see if this is now in the Ops Plan or get interview statement from Stan.. |
| 163 | 4.2.13 b) | Upon receipt of a complaint of odours beyond the facility boundaries, the frequency of cover placement is increased and waste handling activities modified at the landfill to reduce the odor release. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Fugitive Dust & Odour Best Management Plan Section 5.1 (Odour Control); Incident Report 10126 - 20 June 2014. | Odour complaint described in incident report, (AEP Ref 285709). Confirm that checklist is completed. Determine if the internal Complaint Form is used.<br><br>Application of cover is one of the means to control odours, but Clean Harbors also uses deodorants and prescreening for odourous waste. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 164 | 4.2.13 c) | Upon receipt of a complaint of odours beyond the facility boundaries, the operator activates the Odour Response Program as specified in the Landfill Operations Plan 4.1.7(f). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Fugitive Dust & Odour Best Management Plan | The Landfill Operations Plan no longer has an Item 4.1.7(f) . This Item is non existent in the Fugitive Dust and Odour Best Management Plan either. Suggest that this is now Item 5.1 of the Fugitive Dust & Odour Best Management Plan. Classify this item as an opportunity for improvement. |
| 165 | 4.2.14 | The operator monitors the ambient air for the facility in accordance with the existing ambient air monitoring program until the new ambient air monitoring program is implemented. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2012 Clean Harbors Compliance Audit | The new program was implemented in the summer of 2009. |
| 166 | 4.2.15 | A proposal for a new ambient air monitoring program for the facility was submitted to AENV by 1 July 2008. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Confirmed in the 2009 and 2012 Compliance Audits | |
| 167 | 4.2.16 a) | The amibient air monitoring proposal (Item 4.2.15) addresses: total hydrocarbons. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence from D. White to K. Deagle 25 March 2008. | |
| 168 | 4.2.16 b) | The amibient air monitoring proposal (Item 4.2.15) addresses: volatile organic carbons.. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence from D. White to K. Deagle 25 March 2008. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 169 | 4.2.16 c) | The amibient air monitoring proposal (Item 4.2.15) addresses: particulate matter.. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence from D. White to K. Deagle 25 March 2008. | |
| 170 | 4.2.16 d) | The amibient air monitoring proposal (Item 4.2.15) addresses: wind speed.. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence from D. White to K. Deagle 25 March 2008. | |
| 171 | 4.2.16 e) | The amibient air monitoring proposal (Item 4.2.15) addresses: wind direction. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence from D. White to K. Deagle 25 March 2008. | |
| 172 | 4.2.17 | The operator has addressed any deficiencies (identified by AENV) in the air monitoring proposal within 120 days of notice. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2009 Annual Ambient Air Monitoring Report (23 March 2010) | Proposal was amended to included 12 months of monitoring events instead of the proposed 7 months. The 2009 monitoring report addressed all of the remaining months in the annual reporting cycle after commencement of the new program in the summer of 2009. |
| 173 | 4.2.18 | The operator has implemented the program outlined by the air monitoring proposal as authorized by the AEP Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2009-2014 Annual Ambient Air Monitoring Reports (Confirmed in 2009 and 2012 audits, 2014 Report submitted 10 March 2015. | Proposal was amended to included 12 months of monitoring events instead of the proposed 7 months. The 2009 monitoring report addressed all of the remaining months in the annual reporting cycle after commencement of the new program in the summer of 2009. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 174 | 4.2.18 a) | Total hydrocarbons in ampbient air are monitored (24 hour period) once every 12 days, for 12 months of the year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Summary (10 March 2015) | |
| 175 | 4.2.18 b) | Volatile organic compounds (total non-methane organic carbon and selected VOCs) are monitored (24 hour period) once every 12 days, for 12 months of the year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Summary (10 March 2015) | |
| 176 | 4.2.18 c) | Particulate matter (PM10) is monitored (24 hour period) once every 12 days, for 12 months of the year. PM is analyzed for water soluble cations, metals, and anions when each particulate matter results exceeds 50 ug/m3) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | No exceedences of 50 ug/m3 noted in data. Sampler did malfunction and did not deliver data on some occasions. |
| 177 | 4.2.18 d) | Wind speed is monitored as per the monitoring proposal. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | |
| 178 | 4.2.18 e) | Wind direction is monitored as per the monitoring proposal. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 179 | 4.2.19 | The operator reports results from the new ambient air monitoring program are specified in writing by the AENV Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | |
| 180 | 4.2.19 a) | The operator submits a Monthly Air Monitoring Report to AESRD | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Air Monitoring Reports (from All-in-One filing system) | |
| 181 | 4.2.19 b) | Monthly amibient Air Monitoring Report is submitted to AESRD by the end of the month in which the data was collected. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Air Monitoring Reports (from All-in-One filing system) | |
| 182 | 4.2.19 c) | Monthly Ambient Air monitoring reports contain the monitoring results plus a list of dates when leachate or leak detection fluid has been used for dust suppression. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Ambient Air Reports, 2014 Annual Ambient Air Monitoring Report, 10 March 2015, interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015). | The Annual Ambient Air Monitoring Report indicates that no leachate or leak detection fluid was used for dust suppression in 2014, and none has be used to date in 2015. |
| 183 | 4.2.19 d) | The operator submits an Annual Air Monitoring Report to AESRD by March 31st of each year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 184 | 4.2.19 e) i | Annual Air Monitoring Summary Reports contain: an overview of the operation and performance of air pollution abatement equipment and procedures at the facility. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | No issues with air pollution abatement equipment to report., however the report doesn't really address the operation of the pollution abatement equipment. Consider a few statements such as abatement system consists of ... specified equipment, and total uptime. |
| 185 | 4.2.19 e) | Annual Air Monitoring Summary Reports contain: a summary and evaluation of the amibient air monitoring results for the respective year, including but no limited to any influence on air quality from the placement of leachate or leak detection fluid over the surface of the active landfill area.. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | |
| 186 | 4.2.19 e) | Annual Air Monitoring Summary Reports contain: any other information required by the Director of AESRD | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: J. Mendoza (10 July 2015) | Semior Chemist indicated that there hasn't been any wiring requests for information from the Director. |
| 187 | 4.2.20 | The operator submits an Annual Air Monitoring Report tol AENV on or before March 31 each year summarizing the previous year's data. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | |
| 188 | 4.3.1 | The operator does not release any substances to the surrounding watershed except as authorized by the Approval (refer to notes) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 July 2015). | The Surface Water Detention pond is the point of release to the surrounding watershed. Surface Water Detention Pond discharge must be manually initiated with a pump. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 189 | 4.3.2 a) | In conjunction with the Landfill Operations Plan, the facility operates and maintains a run-on control system. Refer to notes | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Figure 3 (Monitoring Well Location plan and Surface Drainage) Landfill Plan), Groundwater Monitoring Program - 2014, Tetra Tech EBA, February 2015; visual observation: Kostecky (9 July 2015). | Run-off control system for the active landfill area collects and controls at least the run-off volume resulting from a 1 in 25 year, 24 hour duration precipitation event at the landfill.<br><br>Runoff control is provided around the landfill cells. This item is addressed in the landfill operations plan and is operation of the system is documented in the Annual Landfill Operations Report." |
| 190 | 4.3.2 b) | In conjunction with the Landfill Operations plan, a run-off control system for the active landfill area is operated and maintained (see note) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015,Part 4 (Summary of the Performance of the Industrial Run-On and Run-Off Control Systems) 2014 Landfill Operations Summary Report (10 March 2015) | Run-off control system for the active landfill area collects and controls at least the run-off volume resulting from a 1 in 25 year, 24 hour duration precipitation event at the landfill.<br><br>Runoff control is provided around the landfill cells. This item is addressed in the landfill operations plan and is operation of the system is documented in the Annual Landfill Operations Report." |
| 191 | 4.3.3 | All industrial runoff from the facility developed area is directed to the industrial runoff control system as decribed in the application 012 -10348 | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Figure 3 (Monitoring Well Location plan and Surface Drainage) Landfill Plan), Groundwater Monitoring Program - 2014, Tetra Tech EBA, February 2015; visual observation: Kostecky (9 July 2015). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 192 | 4.3.4 a) | Subject to Clause 4.3.8, the approval holder utilizes only the discharge point for the surface water detention pond of the industrial runoff control system, as designated in Application 012-10348, which is located in the south east corner of the detention pond. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: M. Kostecky (9 July 2015) | |
| 193 | 4.3.4 b) | The discharge point for the surface water pond, under NORMAL operating conditions, discharges water via a pump and discharge hose over the south berm and into the drainage control ditch east of the landfill access road to the new surface water detention pond. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: M. Kostecky (9 July 2015) | |
| 194 | 4.3.4 c) | Discharges of runoff under EMERGENCY conditions from the old and new surface water detention ponds is completed using a pump and discharge hose that directs flow over the south berm directly to the culvert access under Highway 854. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Confirmed with Stan that this arrangement is feasible. |
| 195 | 4.3.5 a) | Industrial waste water and industrial runoff (from sources listed in Table 4.3-A) are disposed to facilities holding a current Approval, Registration or other authorization under AEPEA for wastewater. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Confirmed via Stan and Wayne that industrial wastewater that can't be discharged would be consigned to the Sellars disposal well facility operated by Clean Harbors. The Sellars well is a Class 1A faciliity.registered as an AER facility. |
| 196 | 4.3.5 b) | Industrial waste water and industrial runoff (from sources listed in Table 4.3-A) are disposed to facilities approved by a local environmental authority outside of Alberta to accept such waste. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015) | Industrial waste water and industrial runoff are are not consigned out of province for disposal. If necessary, Clean Harbors Sarnia facility is the other identified waste destination. This facility holds a valid C of A from the Ontario MOE. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 197 | 4.3.5 c) | Industrial waste water and industrial runoff (from sources listed in Table 4.3-A) are disposed to a deep well approved by the Energy Resources Conservation Board. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Sellers Oilfield Services Ltd AER Approval #WM077. | The Sellars disposal well is registered with the AER.. |
| 198 | 4.3.5 c) | Liquids from the leak detection system are disposed to a deep well approved by the Energy Resources Conservation Board. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015. | Leachate is disposed at the Sellars deep well facility (Class 1A Well). |
| 199 | 4.3.6 a) | Leachate is disposed to facilities holding a current Approval, Registration or as otherwise authorized under the Act to accept such waste. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015. | Leachate is disposed at the Sellars deep well facility (Class 1A Well). |
| 200 | 4.3.6 b) | Leachate is disposed to facilities approved by a local environmental authority outside of Alberta to accept such waste; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No leachate is taken outside Alberta for disposal. |
| 201 | 4.3.6 c) | Leachate is disposed to a deep well approved by the Energy Resources Conservation Board. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015), and W. Codd (10 July 2015) | Leachate is consigned to the Sellars disposal well which is a Class 1A facility under the AER program. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 202 | 4.3.6 d) | Leachate is disposed by placing leachate over the surface of the active landfill area for the purpose of evaporation, as described in the application 005-13048. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | The ambient air monitoring report indicated that leachate was on applied on the active landfill in 2014. |
| 203 | 4.3.7 a) | Liquids from the leak detection system are disposed to facilities holding a current Approval, Registration or as otherwise authorized under the Act to accept such waste; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Leachate and leak detection fluids are currently consigned to the Sellars disposal well, which is a Class 1A disposal faciliity. |
| 204 | 4.3.7 b) | Liquids from the leak detection system are disposed to facilities approved by a local environmental authority outside of Alberta to accept such waste. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Leachate and leak detection fluids are not currently consigned out of province. |
| 205 | 4.3.7 d) | Liquids from the leak detection system are disposed by distribution over the active landfill area for purposes of evaporation, as described in Application 005-13048 | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | While this is permitted, Clean Harbors does not apply leachate on its landfill faces because of odour issues. |
| 206 | 4.3.8 | Effluent quality from the old or new Surface Water Detention Pond of the Industrial Runoff Control System for release to surrounding watershed, complies with limits specified in Table 4-3-B . | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Industrial Run-Off Report (14 January 2015) | Only two releases occurred in 2014. In both cases, the water quality met the limits of Table 4 -3-B |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 207 | 4.3.9 | Industrial runoff released from the tank farm bermed area complies with limits specified in Table 4.3-C | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Tank Farm is not operational. |
| 208 | 4.3.10 | The acceptable leachate head in any cell is not exceeded after 15 August 2008. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Part 1.4 (Leachate Head Measurements), 2014 Annual Landfill Operations Report (10 March 2015), Incident Reference #279958. | One non-compliant instance of leachate head exceedance was reported to AEP in 2014. This incident of exceedance was not associated with liner integrity problems, but with a failed submersible pump. AEP received the incident report, and the pump was replaced. No further follow up is required.<br><br>This term perennially causes Clean Harbors to be non compliant. It is suggested that the wording of the term be changed to " the approval holder will report to the Director, all instances when leachate head in any cell exceeds the maximum acceptable leachate head. |
| 209 | 4.3.11 | The leachate head has only exceeded the maximum acceptable leachate head for a maximum duration of 14 days subsequent to a precipitation event, unless otherwise authorized in writing by the Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 1.4 (Leachate Head Measurements), 2014 Annual Landfill Operations Report (10 March 2015) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 210 | 4.3.12 | The volume of liquid in the leak detection system, as monitored in TABLE 4.5-B, has not exceeded the action leakage rate of 790 litres/ha/day in any cell. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Part 1.7 (Leak Detection Liquid Analysis) 2014 Annual Landfill Operations Summary Report (10 March 2014) | 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 exceedences resulted from activities above the liner systems, not because of primary liner integrity issues. The issue was investigated and corrected to prevent a recurrence.<br>This term also causes perennial noncompliance that is picked up in 3rd party compliance audits, but 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 litres/ha/day is exceeded in any cell." |
| 211 | 4.3.13 | The industrial runoff control system is monitored as required in TABLE 4.3-D. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Annual Industrial Run-Off Report for 2014 (January 14, 2015) | In the Annual Industrial Run-Off Report, it is not clear what sampling locations were selected for the collection of samples. The format of the approval amendment (#4) suggests that Sampling Point "A" or "C" should be indicated as a reference for sample collection from either the original or the new Surface Water Detention Pond. Since the source of discharge was from the original pond, the sampling point would have been Point A. |
| 212 | 4.3.14 | The monitoring results of the industrial runoff control system as required in TABLE 4.3-D are reported to the AENV Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Run-Off Report for 2014 (January 14,2015) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 213 | 4.3.15 a) | For the purpose of Table 4.3-D: sampling location A is defined as the **old** surface water detention pond. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 214 | 4.3.15 b) | For the purpose of Table 4.3-D:sampling location B is defined as industrial runoff collected within the tankfarm bermed area. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 215 | 4.3.15 c) | Acute lethality testing: a 96 hour static acute bioassay is performed using rainbow trout as the test organism on grab samples collected from the surface water detention pond; | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Maxxam Certificate of Analysis B430179 (25 April 2014) | |
| 216 | 4.3.15 d) | Acute lethality testing: 48-hour static acute bioassay is performed using Daphnia magna as the test organism on grab samples collected from the surface water detention pond. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Maxxam Certificate of Analysis B430179 (25 April 2014) | |
| 217 | 4.3.15 e) | Acute lethality testing::all samples for static acute bioassays are transported and received by the laboratory within 48 hours of collection; | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Maxxam Chain of Custody #C#428864-01-01 (April 16,2014). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 218 | 4.3.15 f) | Acute lethality testing: for samples that have been continuously chilled at a temperatures between 1 C to 8 C, testing on that sample begins no later than 5 days after collection. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Maxxam Chain of Custody #C#428864-01-01, Maxxam Job Report B430179 (25 April 2014), interview: J. Mendoza (10 July 2015). | Temperatures of received samples were 6.3 and 5.3 degrees C. Samples were delivered to the lab on 14 April 2014 and analyzed 17 April 2014.<br>Samples delivered for testing on 8 July 2014 were received at 16 C and 18 C, but stored at 1 to 7 C. Samples were collected on 7 July and testing started on 10 July 2014. No mortality was observed in the test species despite the improper handling of the sample. It would be expected that water sample quality would have deteriorated after being held at elevated temperature. The fact that the test species had no mortality suggests that the water quality was even better at the time of collection.<br>It is suggested that a shipping procedure be established for the acute lethality samples and that the approval term be reviewed for the next approval. |
| 219 | 4.3.15 g) | Bioassays are repeated if any control responses exceed 10 %. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | Control responses were within 10%. (no mortalities). |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 220 | 4.3.15 h) | Acute lethality: Tests are repeated if there have been deviations from recommended conditions and procedures specified for the test methods (Item 2.3) upon transfer of results to AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | No deviations reported, however the received temperature for the July sample was 16 C. There is no mention of a specific holding temperature in the Method specifications, but there is a temperature spec in Item 4.3.15 f) of the approval.<br>While it is is not explicit that the test was done incorrectly, there is the implicit understanding that AEP expects samples to arrive at the lab with a temperature between 1 and 8 degrees C. The fact that there was no mortality in the samples that should have suffered quality issues from being warm indicates that the initial water quality was probably even better than during testing. It is suggested that the samples should be kept cold to prevent false results in future testing. |
| 221 | 4.3.16 | If requested in writng by AENV, a bioassay has been repeated. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No requirement was issued by AESRD in 2014, |
| 222 | 4.3.17 a) | Upon finding that that less than 50% of rainbow trout survived the 100% concentration sample, a program is immediately implemented to identify the source of toxiicity. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | There were no mortalities in the bio-assay tests for 2014. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 223 | 4.3.17 b | Upon finding that that less than 50% of rainbow trout survived the 100% concentration sample, a proposal to reduce industrial runoff toxicity is submitted to AENV within 90 days. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | There were no mortalities in the bio-assay tests for 2014. |
| 224 | 4.3.18 a) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: an assessment of monitoring results relative to the specified limits in Table 4.3-B. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | April and July 2014 were the two months reported. |
| 225 | 4.3.18 b) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: an assessment of monitoring results relative to the specified limits in Table 4.3-C. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Runoff Report for 2014 (14 January 2014). | Liquid from the Tank Farm Bermed Area was not pumped to surface discharge in 2014. Therefore, no samples were collected for this area. |
| 226 | 4.3.18 c) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: an assessment of performance of industrial runoff control system, pollution abatement equipment and monitoring equipment. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Runoff Report for 2014 (14 January 2014). | No issues were encountered in 2014. |
| 227 | 4.3.18 d) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: a summary of industrial runoff contraventions reported pursuant to Item 2.1.1. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Runoff Report for 2014 (14 January 2014). Part 11 of 2014 Annual Landfill Operations Report. (10 March 2015). | No issues were mentioned in the Industrial Runoff Report; nor were any such compliance incidents recorded in |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 228 | 4.3.18 e) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: any other information required in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: J. Mendoza (10 July 2015) | No new information was specfically requested. Contact approvals coordinator for AEP. |
| 229 | 4.3.19 a) | The Industrial Runoff Annual Report includes an overview of the operation and performance of the industrial runoff control system, pollution abatement equipment and monitoring equipment. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Runoff Report for 2014 (14 January 2014). | |
| 230 | 4.3.19 b) | The Industrial Runoff Annual Report includes any other information as required in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: J. Mendoza (10 July 2015) | No new information specifically requested. |
| 231 | 4.3.20 | Representative grab samples from each of the surface water detention ponds of the industrial runoff control system are analyzed at least once per year for the parameters outlined in TABLE 4.3-E. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Report R1563478 Version 3R dated 6 May 2014 (within Annual Industrial Runoff Report for 2014 - 14 January 2015) | Confirmed all parameters reported for Pond A. |
| 232 | 4.3.21 | Results from the Annual Industrial Runoff Sampling (Surface Water Detention Pond) are submitted to AENV on or before March 31 of the following year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Runoff Report for 2014 - 14 January 2015) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 233 | 4.3.22 a) | Leachate is monitored for the parameters in Table 4.3-F subject to the schedule identiffied in Table 4.5-B. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1540230 (25 March 2014), R1596523 (3 July 2014),R1654943 (2 October 2014) as presented in 2014 Annual Landfill Operations Report (10 March 2015). | Noted that leachate was not available from some cells at various times of the year because of frozen sampling locations or insufficient leachate to collect samples. |
| 234 | 4.3.22 b) | Leak detection fluid is monitored for the parameters in Table 4.3-F subject to the schedule identiffied in Table 4.5-B. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1540230 (25 March 2014), R1596523 (3 July 2014),R1654943 (2 October 2014)Maxxam Lab Reports R1540230 (25 March 2014), R1596523 (3 July 2014), R1654943 (2 October 2014) as presented in 2014 Annual Landfill Operations Report (10 | |
| 235 | 4.3.23 | There is no Item 4.3.23 in the approval. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 236 | 4.3.24 | If the Action Leakage Rate of 790 L/ha/day is exceeded, a response action plan is submitted to AENV in addition to the required reporting under Item 2.1.1. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 5 (Summary of Operational Problems and Emergencies (from the 2014 Annual Landfill Operations Summary - 10 March 2015). | Action Leakage Rate was exceeded in Cells 3A, 3B, and 3C in 2014. All incidents were determined to have resulted from clean surface run-off entering the anchor trench on the landfill berms. Clean Harbors reported that subsoil and topsoil were placed on top of the liner cap in 2014 which will recurrence of similar events. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 237 | 4.3.25 | Results of the leachate and leak detection liquid monitoring (as required in TABLE 4.5-B) are reported to AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 1.4 Leach Head Measurement, Part 1.5 Primary Leachate Analysis, Part 1.6 Volume of Leachate, Part 1.7 Leak Detection Fluid Analysis, Part 1.8 Voluem of Leak Detection Liquid Removed from the Leak Detection System (from 2014 Annual Landfill Operations Summarv - 10 March | |
| 238 | 4.4.1 a) (i) | Representative samples are collected from each dugout within an approximate 1.6 kilometre radius of the facility. [Subject to access granted by the landowner.] | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Dugout Sampling Program, Class 1 Waste Management Facility, Ryley, AB (Tetratech EBA, January 2015) submitted to AESRD 19 February 2015). | 20 dugouts on 7 properties were sampled in 2014. |
| 239 | 4.4.1 a) | Representative samples are collected from each of the wells within an approximate 1.6 kilometre radius around the facility. [Subject to access granted by the landowner.] | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence to J. Deagle (AESRD, 19 Feb 2015), | No water wells operate within 1.5 kms of the landfill in 2014. |
| 240 | 4.4.1 b) | The samples referred to in Item 4.4.1 a) are analyzed for the paramaters identified in Table 4.4-A. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Dugout Sampling Program, Class 1 Waste Management Facility, Ryley, AB (Tetratech EBA, January 2015) submitted to AESRD 19 February 2015). | Confirmed all required parameters were reported. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 241 | 4.4.2 | Off-site monitoring required by Item 4.4.1 is done once annually in October unless otherwise authorized by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Dugout Sampling Program, Class 1 Waste Management Facility, Ryley, AB (Tetratech EBA, January 2015) submitted to AESRD 19 February 2015). | |
| 242 | 4.4.3 | Analytical results of the sampling information required in 4.4.1 are recorded in an Annual Dugout and Water Well Sampling Program Report. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Dugout Sampling Program, Class 1 Waste Management Facility, Ryley, AB (Tetratech EBA, January 2015) submitted to AESRD 19 February 2015). (Table 3.1 to 3.22). | |
| 243 | 4.4.4 | The Annual Dugout and Water Well Sampling Program Report is submitted to the Director by March 31 of each year following the year in which the information was collected. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Dugout Sampling Program, Class 1 Waste Management Facility, Ryley, AB (Tetratech EBA, January 2015) submitted to AESRD 19 February 2015). | |
| 244 | 4.5.1 | All incoming materials are classified in accordance with the Waste Control Regulation (AR 192/96) and The Alberta User Guide For Waste Managers, May 1995, as amended. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Section 2 Landfill Operations Plan, Part 1.1 (Volumes and Types of Waste Received)- 2014 Annual Landfill Operations Report. | Suggest to client that is an opportunity for improvement. The operational procedures substantially comply with this requirement, however it is not explicitly stated that the wastes are classified under the WCR and UGFWM. For the purposes of reporting wastes received by the facility, CH Ryley uses the Uniform Waste Codes as the basis for classifying wastes streams. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 245 | 4.5.2 a) | Acceptance of the following material is prohibited: explosives (Class 1 Transportation of Dangerous Goods Regulation (TDGR) wastes) at the facility; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | |
| 246 | 4.5.2 b) | Acceptance of the following material is prohibited: radioactive wastes regulated under the Canadian Nuclear Safety Act (Canada) at the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | |
| 247 | 4.5.2 c) | Acceptance of the following material is prohibited: radioactive wastes (Class 7 TDGR wastes) at the facility; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | |
| 248 | 4.5.2 d) | Acceptance of the following material is prohibited: biological, biomedical and/or pathological waste (as defined in the Waste Control Regulation, AR 192/96, as amended) at the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | |
| 249 | 4.5.2 e) | Acceptance of the following material is prohibited:waste containing free liquids at the landfill, excluding the waste stabilization area. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 250 | 4.5.2 f) | Acceptance of the following material is prohibited: material containing ozone depleting substances at the landfill. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | |
| 251 | 4.5.2 g) | Acceptance of the following material is prohibited:domestic or municipal wastes at the facility. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Section 2 (Waste Acceptance)-Landfill Operations Plan. | This specific prohibited material is not mentioned anymore in the Landfill Operations Plan Section 2. |
| 252 | 4.5.3 | All wastes or hazardous recyclables are transferred only at designated transfer areas designed to contain spills and leaks. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 and 10 July 2015) | |
| 253 | 4.5.4 | Hazardous waste or hazardous recyclables stored in containers or tanks are stored in accordance with the Hazardous Waste Storage Guidelines, June 1988, Alberta Environment, as amended. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 and 10 July 2015) | Wastes are stored properly with some minor house keeping issues. Particularly aisle spacing for drums in the Transfer Station. |
| 254 | 4.5.5 a) | Tanks within the tank farm have at a minimum: sensors for detecting the level in each tank. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Demonstrated by S. Yuha to M. Kostecky on 9 July 2015. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 255 | 4.5.5 b) | Tanks within the tank farm have at a minimum: high level alarms that activate when a tank overfill is imminent. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Demonstrated by S. Yuha to M. Kostecky on 9 July 2015. | Tank overfill alarms are set for 90 percent of capacity. |
| 256 | 4.5.5 c) | Tanks within the tank farm have at a minimum: automatic shut-off devices or sufficient free board space above the high level sensor to allow operators time to prevent overfill from occurring. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Demonstrated by S. Yuha to M. Kostecky on 9 July 2015. | Tank overfill alarms are set for 90 percent of capacity. |
| 257 | 4.5.5 d) | Tanks within the tank farm have at a minimum: secondary containment structures. See note. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 July 2015). | |
| 258 | 4.5.6 a) | Effective 31 July 2009: all haz waste/recyclable storage tanks in each building have: level sensors. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 July 2015). | All tanks in the Transfer Station were replaced since 2012; all tanks have level sensors with digital read-outs and gauge boards. |
| 259 | 4.5.6 b) | Effective 31 July 2009: all haz waste/recyclable storage tanks in each building have: written operating procedures to prevent tank overfill. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Bulk Flammable Liquid Transfer Operating Procedure | Operators must confirm that receiving vessels have capacity to transfer liquids. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 260 | 4.5.6 c) | Effective 31 July 2009: all haz waste/recyclable storage tanks in each building have secondary containment. See note | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015. | Transfer station has curbing and blind sumps. |
| 261 | 4.5.7 | All wastes or hazardous recyclables that are unloaded are immediately transferred to the waste storage area. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015. | There are several waste storage areas. This section, however, reference to the Transfer Station. Drums are stored indoors at this site. |
| 262 | 4.5.8 | All containers and unrinsed empty containers are stored in the waste storage area. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky, 9 July 2015. | Drums were stored indoors. |
| 263 | 4.5.9 | Adequate aisle space between containers in the waste storage area is maintained (See note) | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Visual inspection: Kostecky 9 and 10 July 2015. | Some aisles in the storage areas were cluttered or less than 90 cm spacing. Aisle spacing in the indoor storage area is marked with yellow lines on the floor. If pallets and containers are placed within the floor markings, the correct aisle spacing will be assured. |
| 264 | 4.5.10 | Incompatible wastes or incompatible hazardous recyclables are prevented from mixing. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Flammable Drum Pumping Procedure SOP 90RY-101 -01, (Section 5.0 - Procedure) | This SOP includes a sampling and testing procedure to test the compatibility of liquids. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 265 | 4.5.11 a) | The following are used during transfer of substances to, from, or between containers, tanks or trucks: couplings equipped with seals that are compatible with the substance transferred. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky 9 July 2015. | Couplers were inspected and confirmed to have seals. |
| 266 | 4.5.11 b) | The following are used during transfer of substances to, from, or between containers, tanks or trucks: **the necessary precautions to prevent spills when the couplings are disconnected.** | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Flammable Drum Pumping Procedure SOP 90RY-101 -01, (23 August 2012), Bulk Flammable Liquid Transfer SOP 90RY-102 -02 (9 December 2014), visual observation of transfer area (Kostecky, 9 July 2015). | |
| 267 | 4.5.11 c) | The following are used during transfer of substances to, from, or between containers, tanks or trucks: **emergency shut-off valves.** | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 July 2015) | Inspected valves on vacuum truck. |
| 268 | 4.5.11 d) | The following are used during transfer of substances to, from, or between containers, tanks or trucks**: established transfer areas and associated curbing, paving and catchment areas.** | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual inspection of transfer area and transfer station (Kostecky, 9 July 2015) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 269 | 4.5.11 e) | The following are used during transfer of substances to, from, or between containers, tanks or trucks: **drip trays to capture potential losses under coupling devices and other connections.** | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual inspection of transfer area and transfer station (Kostecky, 9 July 2015) | Buckets were more commonly used than drip-trays. |
| 270 | 4.5.11 f) | The following are used during tranfer of substances to, from, or between containers, tanks or trucks: **manual inspections of the transfer area for leaks and spills during and after waste transfer.** | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Bulk Flammable Liquid Transfer SOP 90RY-102 -02 (9 December 2014), visual observation of transfer area (Kostecky, 9 July 2015). | SOP describes inspections to complete when transferring liquids. |
| 271 | 4.5.12 a) | Hazardous waste/recyclable commingling is conducted only to make maximum use of available container or tank capacity, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Bulk Flammable Liquid Transfer SOP 90RY-102 -02 (9 December 2014), visual observation of transfer area (Kostecky, 9 July 2015). | Compatibility testing is done to confirm safe transfers. Materials are commingled to make efficient use of storage volume and also to ensure that appropriate materials are accumulated for downstream processing. |
| 272 | 4.5.12 a) | Hazardous waste/recyclable commingling is conducted only if the resultant mixture has the same TDG hazard classification as any one of the individual components; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Bulk Flammable Liquid Transfer SOP 90RY-102 -02 (9 December 2014); visual observation of transfer area (Kostecky, 9 July 2015). | |
| 273 | 4.5.12 b) | Phase separation by gravity settling is conducted only without the addition of any chemicals designed to accelerate settling; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015 |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 274 | 4.5.12 c) | Dispersion of solids into liquids by natural or mechanical means is conducted only if the resultant mixture has the same TDG hazard classification as the original waste. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure has been used at the site since 2012. |
| 275 | 4.5.12 d) | Physical segregation of hazardous from non-hazardous articles or components from the same container is conducted without process equipment. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015. |
| 276 | 4.5.12 e) | Washing of drums and other objects is conducted only for the purpose of removing hazardous residue; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015. |
| 277 | 4.5.12 f) | Crushing /shredding of used filters, rags, absorbent materials, and empty containers shall be conducted only for the purpose of volume reduction/liquid recovery unless otherwise authorized by AENV | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015. |
| 278 | 4.5.12 g) | The facility is authorized to perform only waste stabilization in the waste stabilization area. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015) and visual observation: Kostecky (9 July 2015). | Verified that waste stabilization is only done at the tipping pad in the stabilization pits. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
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| 279 | 4.5.12 h) | The facility is authorized to treat third party hazardous waste only as authorized by the Director. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 280 | 4.5.13 | Hazardous waste is not incinerated at the facility. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | :Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015), visual observation: Kostecky (9 July 2015). | There are no incineration facilities at this location. |
| 281 | 4.5.14 | Waste generated at the facility is consigned only to facilities that hold a current approval, registration, or are otherwise authorized under AEPEA or by the local authority outside of Alberta. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Approved 3rd Party Disposal List, interview (B. Fraser, 10 July 2015) | The list of approved 3rd Party Disposal locations is maintained by Clean Harbors Out-Bound Services |
| 282 | 4.15.15 a) | Detailed waste chemical and physical data is obtained prior to landfill disposal when a waste is received for the first time from a new generator | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Section 3.0 (Waste Pre-Acceptance Review)-Landfill Operations Plan. | |
| 283 | 4.5.15 b) | Detailed waste chemical and physical data is obtained prior to landfill disposal when a delivery is received for the first time from a different process associated with a known waste generator; | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Section 3.1 (Samples)-Landfill Operations Plan | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 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. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Landfill Operations Plan ( March 2015) | This requirement is not explicitly covered in the Landfill Operations Plan, however detailed waste chemical and physical data is required from the waste generator for each new waste stream. |
| 285 | 4.5.15 d) | Detailed waste chemical and physical data is obtained prior to landfill disposal when the nature or composition of the waste that was previously characterized by the generator changes. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.1 (Samples)-Landfill Operations Plan. | |
| 286 | 4.5.16 | Hazardous waste is not disposed in any Class II cell. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015). | All new cells at the Ryley Facility are Class 1 cells. |
| 287 | 4.5.17 | Asbestos waste is disposed in accordance with the Guidelines for the Disposal of Asbestos Waste. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 4.1 (Bagged Asbestos Loads)-Landfill Operations Plan | Checked for updated provincial guidance document. Current version is still 1989. |
| 288 | 4.5.18 | Any waste that is not acceptable for disposal at the Ryley Landfill is disposed only to a facility that is authorized under AEPEA, or authorized by the local environmental authority outside Alberta. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.2 (Waste Acceptance)-Landfill Operations Plan. | The landfill operation plan state that unacceptable wastes delivered to the facility must be rejected back to the generator, rerouted or brokered to another disposal facility with the consent of the generator. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 289 | 4.5.19 | All waste that the landfill is not authorized to dispose of, is removed within 7 days of receiving the waste. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 3.2 (Waste Acceptance)-Landfill Operations Plan. | |
| 290 | 4.5.20 | The working face of each cell is restricted to the smallest practicable area. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.1 (Waste Placement) - Landfill Operations Plan. | This section specifies that the two working faces must be kept to the smallest area possible. |
| 291 | 4.5.21 a) | If any waste disposed at the landfill is subject to wind dispersal, the landfill operator wets the wastes to prevent dispersal of particulate matter. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5.0 (Nuisance Management) - Landfill Operations Plan | Sections 5.1 (Litter) and 5.2 (Dust) address procedures for handling dispersible wastes. Noted as well that the landfill monitors wind-speed and direction. |
| 292 | 4.5.21 b) | If any waste disposed at the landfill is subject to wind dispersal, the landfill operator immediately applies cover on top of the waste to minimize entrainment of particulate matter. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5.0 (Nuisance Management) - Landfill Operations Plan | |
| 293 | 4.5.22 a) | The following materials are authorized for use as dust suppression on the surface of the active landfill: leachate. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Section 9.3 (Surface Spreading of Leachate and Leak Detection Fluid) in the Landfill Operations Plan addresses this item. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 294 | 4.5.22 b) | The following materials are authorized for use as dust suppression on the surface of the active landfill: leak detection liquid. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | Section 9.3 (Surface Spreading of Leachate and Leak Detection Fluid) in the Landfill Operations Plan addresses this item |
| 295 | 4.5.22 c) | The following materials are authorized for use as dust suppression on the surface of the active landfill: sump waste of car wash bays or similar operations. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 296 | 4.5.22 d) | The following materials are authorized for use as dust suppression on the surface of the active landfill: waste from hydrovac excavation operations. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 297 | 4.5.22 e) | The following materials are authorized for use as dust suppression on the surface of the active landfill: any other waste authorized by The Alberta User Guide For Waste Managers, | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| 298 | 4.5.23 | The elevation of waste in the landfill does not exceed the maximum designated waste elevation (714 m asl), prior to final cover. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Part 1.3 (General Location of Waste Deposited) 2014 Annual Landfill Operations Summary (10 March 2015). | Maximum elevations of Cells surveyed by a Registered Surveyor on Dec 31, 2014. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 299 | 4.5.24 | The maximum cumulative total of all haz recyclables and haz wastes at the Storage and Processing Facility does not exceed 752,500 L at any time. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Viisual observation of WinWeb inventory tracking system (Kostecky 10 July 2015). demonstrated by B. Fraser and W. Codd. | |
| 300 | 4.5.25 | Waste storage limits set by Table 4.5-A are not exceeded at any time. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Viisual observation of WinWeb inventory tracking system (Kostecky 10 July 2015). demonstrated by B. Fraser and W. Codd. | |
| 301 | 4.5.26 | Containers other than 205 litre drums are prorated to 205 litre drum equivalents based on their nominal volumes (e.g. 10 X 20 litre pails = 1 X 205 litre drum). | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 302 | 4.5.27 a) | Limits referred to in Items 4.5.24 and 4.5.25 are calculated based on summing nominal volumes of all containers at the Haz Waste/Recyclable Storage and Processing Facility and filled tank capacities. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: W. Codd (10 July 2015) | Confirmed that the inventory calculation and tracking methods had not changed since the previous audit. |
| 303 | 4.5.27 b) | Limits referred to in Items 4.5.24 and 4.5.25 are calculated based on treating all partially filled containers as if they were full. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: W. Codd (10 July 2015) | Confirmed that the inventory calculation and tracking methods had not changed since the previous audit. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 304 | 4.5.28 | A daily total and inventory of all materials being stored at the Hazardous Waste/Recyclable Storage and Processing Facility is kept at he facility | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Waste Inventory Tracking system. (Kostecky 9 July 2015) | System is available on-line at the facility. |
| 305 | 4.5.29 | The daily total and inventory records in 4.5.28 are available at all times for inspection by AENV or an inspector. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Waste Inventory Tracking system. (Kostecky 9 July 2015) | System is available on-line at the facility. Hard copies are printable from the system. |
| 306 | 4.5.30 a) | All haz recyclables and waste streams, generated and received at the facility, not including industrial wastewater streams or air effluent streams, are identified. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Waste Profile Sheet System (demonstrated to Kostecky by B. Fraser, 10 July 2015). | Confirmed Waste Profile Sheet System is still in use. |
| 307 | 4.5.30 b) | All haz recyclables and waste streams, generated and received at the facility, not including industrial wastewater streams or air effluent streams, are characterized. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Waste Profile Sheet System (demonstrated to Kostecky by B. Fraser, 10 July 2015). | Confirmed Waste Profile Sheet System is still in use. |
| 308 | 4.5.30 c) | All haz recyclables and waste streams, generated and received at the facility, not including industrial wastewater streams or air effluent streams, are classified. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Waste Profile Sheet System (demonstrated to Kostecky by B. Fraser, 10 July 2015). | Confirmed Waste Profile Sheet System is still in use. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 309 | 4.5.31 | Quantities of each waste and haz recyclable identified in Item 4.5.30 are measured or if not feasible to measure, estimated each year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 1.1 (Volumes and Types of Waste Received) - 2014 Annual Landfill Operations Summary (10 March 2015). | |
| 310 | 4.5.32 a) | Landfill inspections are conducted by the operator at a minimum: weekly. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Inspections Records (demonstrated to Kostecky by S. Yuha on 9 July 2015, and by B. Fraser,on 10 July 2015). | Confirmed inspection records are still maintained on Winweb. |
| 311 | 4.5.32 b) | Landfill inspections are conducted by the operator immediately after each storm event to: detect evidence of any deterioration of the composite liner system, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Inspections Records (demonstrated to Kostecky by S. Yuha on 9 July 2015, and by B. Fraser,on 10 July 2015). | Confirmed inspection records are still maintained on Winweb. |
| 312 | 4.5.32 b) | Landfill inspections are conducted by the operator immediately after each storm event to: detect any malfunction or improper operation (see note) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Inspections Records (demonstrated to Kostecky by S. Yuha on 9 July 2015, and by B. Fraser,on 10 July 2015), interview: S. Yuha (9 July 2015) | There is a variance for this item, as the landfill does not operate seven days per week, inspections are completed only on business days. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 313 | 4.5.32 b) | Landfill inspections are conducted by the operator immediately after each storm event to:take corrective measures to repair any damages (see note) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Inspections Records (demonstrated to Kostecky by S. Yuha on 9 July 2015, and by B. Fraser,on 10 July 2015), interview: S. Yuha (9 July 2015) | There is a variance for this item, as the landfill does not operate seven days per week, inspections are completed only on business days. |
| 314 | 4.5.33 a) | Records of inspections required by Item 4.5.32 are kept by the facililty. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Inspections Records (demonstrated to Kostecky by S. Yuha on 9 July 2015, and by B. Fraser,on 10 July 2015) | Inspections records are available online from the WinWeb system. |
| 315 | 4.5.33 b) | The record of inspections is available for review at the site upon request from a representative of the Director (AENV). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation of WinWeb Inspections Records (demonstrated to Kostecky by S. Yuha on 9 July 2015, and by B. Fraser,on 10 July 2015) | Inspections records are available online from the WinWeb system. These records can be printed from the system |
| 316 | 4.5.33 c) | The operator immediately reports any deficiencies detected by the inspection in 4.5.32 to AENV in writing along with any corrective measures taken or proposed. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 11 (Summary of Contraventions - 2014 Annual Landfill Operations Report (10 March 2015), Incident tracking binder. | |
| 317 | 4.5.34 | The landfill is monitored in accordance with Table 4.5-B (see note.) | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 1 Operating Record (Landfill Operations Plan), 2014 Annual Landfill Operations Report (10 March 2015) | No completed cells indicated in the Annual Summary. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 318 | 4.5.35 | A Monthly Waste Management Report is submitted to the Director within 30 days following the month in which the information was collected. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Reports (stored on All-in One) | S. Yuha presented several Monthly Waste Management Reports. |
| 319 | 4.5.36 | All of the information required by 4.5.37 is compiled in the Monthly Waste Management Report as indicated by TABLE 4.5-C. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template | The template has not changes since the original approval was obtained. |
| 320 | 4.5.37 a) | The Monthly Waste Management Report referred to in 4.5.35 contains the following information: opening waste and haz recyclables inventory balance in kg or litres by waste class or material type. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template | |
| 321 | 4.5.37 b) | The Monthly Waste Management Report contains the following information: amount & type of waste and haz recyclables received within the province and from outside the province; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template and reports. | |
| 322 | 4.5.37 c) | The Monthly Waste Management Report contains the following information: amount & type of waste & hazardous recyclables shipped for recycling/product, shipped off-site for disposal, and disposed onsite. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template and reports. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 323 | 4.5.37 d) | The Monthly Waste Management Report referred to in 4.5.35 contains the following information any adjustments including consolidation and processing adjustments. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template and reports. | .February 2015 report presented as evidence |
| 324 | 4.5.37 e) | The Monthly Waste Management Report referred to in 4.5.35 contains the following information: closing balance in kilograms or litres. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template and reports. | |
| 325 | 4.5.37 f) | The Monthly Waste Management Report contains the following information: a summary of contraventions reported pursuant to 2.1.1 related to waste and hazardous recyclables. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template and reports. | No contravention records were evident from the records reviewed. S. Yuha did not recall any contraventions associated with the waste and hazardous recyclables. |
| 326 | 4.5.37 g) | The Monthly Waste Management Report contains the following information: any other information as required in writing by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015) | AEP declined to comment if they had requested any further information. There are no indications that new information had been been requested by AEP. |
| 327 | 4.5.38 a) | All information required by 4.5.30 and 4.5.31 is compiled in an Annual Waste Management Summary Report as specified in Table 4.5-D. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Table 4.5D of Part 1.1 (Hazardous Waste Landfilled), Part 1.2 (Volume and Type of Waste Removed) | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 328 | 4.5.38 b) | All information required by 4.5.30 and 4.5.31 is compiled in an Annual Waste Management Summary Report in accordance with Industrial Waste Identification and management Options- see note. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Table 4.5D of Part 1.1 (Hazardous Waste Landfilled), Part 1.2 (Volume and Type of Waste Removed) | Report submitted to AESRD consisted of two tables. The first table contained information for the wastes disposed in the Ryley Facility landfill. The second table contained information for waste accumulated for transfer to off-site TSD facilities. |
| 329 | 4.5.40 a) | An Annual Landfill Operation Report is complied, which includes:a summary of all of the information collected as required in TABLE 4.5-B; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Landfill Operations Report (10 March 2015) | All sections addressed. |
| 330 | 4.5.40 b) | An Annual Landfill Operation Report is compiled, which includes:landfill inspection records as required in 4.5.33. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Landfill inspection records are not included in the Annual Landfill Operation Report. However, there is reference to the required records being available from the facility office. | AEP indicated their satisfaction with this item in the 2012 audit. This information is compiled in WinWeb. and annual reporting confirms that the records are available on request. It is recommended that this item be amended in the 2016 approval renewal. One suggestion would be to remove the requirement to include landfill inspection records from the annual summary report and impose the requirement to ensure that landfill inspection records are available from the WinWeb database upon request from an inspector and that the records are securely backed up. |
| 331 | 4.5.40 c) | An Annual Landfill Operation Report is compiled, which includes:any revisions to the Landfill Operations Plan from the previous year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 3 (Landfill Operations Plan) -2014 Annual Landfill Operations Report (10 March 2015). | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 332 | 4.5.40 d) | An Annual Landfill Operation Report is compiled, which includes:a summary of the performance of the run-on and run-off control systems. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 4 (Summary of the Performance of the Run-On and Run-Off Control Systems (2014 Annual Landfill Operations Report. | |
| 333 | 4.5.40 | An Annual Landfill Operation Report is compiled, which includes:a summary and evaluation of the operations in the waste stabilization area. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 4 (Summary of the Performance of the Run-On and Run-Off Control Systems and Summary and Evaluation of Operations in the Waste Stabilization Area -2014 Annual Landfill Operations Report (10 March 2015). | |
| 334 | 4.5.40 e) | An Annual Landfill Operation Report is compiled, which includes:any operational problems and emergencies and how they were handled. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 5 (Summary of Operational Problems and Emergencies) - 2014 Annual Landfill Operations Report (10 March 2015). | |
| 335 | 4.5.40 f) | An Annual Landfill Operation Report is compiled, which includes:a summary of the performance of the leachate collection system, including a comparison to the maximum acceptable leachate head. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 1.4 (Leach Head Measurement), Part 1.6 (Volume of Leachate) 2014 Annual Landfill Operations Report (10 March 2015). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 336 | 4.5.40 g) | An Annual Landfill Operation Report is compiled, which includes:a summary of the performance of the leak detection system, including a comparison to the action leakage rate limit. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 1.8 Volume of Leak Detection Liquid Removed from the Leak Detection System, Part 2 (Summary of Landfill Inspection Records) - 2014 Annual Landfill Operations Report. | |
| 337 | 4.5.40 h) | An Annual Landfill Operation Report is complied, which includes:the name of the person responsible for the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cover flyleaf -2014 Annual Landfill Operations Report | Stan Yuha is identified as the Facility Manager. |
| 338 | 4.5.40 i) | An Annual Landfill Operation Report is compiled, which includes:an up-to-date financial security estimate in accordance with 5.1.2. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | part 8 (Review of the Financial Security Estimate) - 2014 Annual Landfill Operations 910 March 2015), interview: S. Yuha (9 July 2015). | Two closure estimates were presented in Part 8; one for $9.5 M and the other for $746.7K. Why were two very different estimates submitted? The higher amount was provided as a security bond. |
| 339 | 4.5.40 j) | An Annual Landfill Operation Report is compiled, which includes:the results of any audit conducted in accordance with 4.1.2 for a given year. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No compliance audit was done in 2014. The next audit is being completed in 215. |
| 340 | 4.5.40 k) | An Annual Landfill Operation Report is compiled, which includes:a record of public complaints and the approval holder's responses. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 10 (Record of Public Complaints and Approval Holder Responses) - 2014 Annual Landfill Operations Report (10 March 2015). | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 341 | 4.5.40 l) | An Annual Landfill Operation Report is compiled, which includes:a summary of contraventions reported pursuant to 2.1.1 related to landfill operations. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 11 (Summary of Contraventions) - 2014 Annual Landfill Operations Report (10 March 2015). | |
| 342 | 4.5.40 m) | An Annual Landfill Operation Report is compiled, which includes:any other information as required in writing by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015). | AEP declined to comment if they had any other information requests than what is specified in the approval. |
| 343 | 4.5.41 | The Annual Landfill Operations Report is submitted to the Director by March 31 of each year following the year in which the information was collected. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Email correspondence from S. Yuha to AENVindustrialreporting@gov.ab.ca, dated 27 March 2015. | |
| 344 | 4.6.1 | Domestic wastewater is released only to the septic tank(s) with subsequent disposal to a wastewater treatment facility holding a current Approval or Registration under the Act. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015) - no changes to the domestic wastewater system. | |
| 345 | 4.6.2 | Sludge produced by the domestic wastewater collection system is disposed of only at a facility holding a current Approval or Registration under the Act. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: | Obtain a truck ticket for the septage removal contractor's services. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 346 | 4.8.1 | Groundwater Monitoring Program is continuing as authorized in writing by the Director of AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | |
| 347 | 4.8.2 a) | Representative groundwater samples are collected from each of the groundwater monitoring wells identified in the Monitoring Program | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | |
| 348 | 4.8.2 b) | Groundwater samples from the monitoring wells are analyzed for the parameters listed in Table 4.8-A (See note). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | |
| 349 | 4.8.3 a) | Frequency of groundwater monitoring, unless otherwise authorized in writing by AENV is: a minimum of once per year during each of the active, closure and postclosure periods. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | One monitoring event was completed in May-June 2014. |
| 350 | 4.8.3 b) | Frequency of groundwater monitoring, unless otherwise authroized by AENV is:a minimum of 4 times per year -SEE NOTE. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | Conclusions of report show no evidence of adverse impact caused by facility operations. Existing contamination attributed to prior land use and pre-existing conditions. Therefore a single, annual monitoring event is acceptable. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 351 | 4.8.4 a) | Groundwater quality in the monitoring wells, designated as points of compliance in the Groundwater Monitoring Program, shall not exceed the higher of the Canadian Environmental Quality Guidelines (CEQG) for drinking water published by the Canadian Council of Ministers of the Environment (CCME), as amended, or background groundwater chemistry as determined through | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | Exceedances at the Ryley faciity were deemed to be naturally occurring, based on comparison with analytical results from background samples. |
| 352 | 4.8.4 b) | Groundwater quality in the monitoring wells, designated as points of compliance in the Groundwater Monitoring Program, shall not exceed the higher of CCME CEGQ for Drinking Water or Background Water Chemistyr | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | See Finding 351 |
| 353 | 4.8.5 | A Remediation Plan as specified in the Landfill Operations Plan has been implemented, when groundwater quality exceeds the groundwater performance criteria in 4.8.4 (a) and (b). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | The 2014 Groundwater Report indicates that the facility has not created an adverse impact on local groundwater quality. |
| 354 | 4.8.6 | Samples from the groundwater monitor wells are collected using scientifically acceptable purging, sampling and preservation procedures so that a representative groundwater sample is obtained. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5 (Groundwater Monitoring Fieldwork) - 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 355 | 4.8.7 a) | Groundwater wells are protected from damage. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky (9 July 2015) | Wells are located outside traffic areas (or protected with bollards, and have metal cases around the risers. |
| 356 | 4.8.7 b) | All groundwater monitoring wells are locked excepted when being sampled, unless otherwise authorized in writing by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 2.3.4 (Groundwater Monitoring Well Installation Details. Visual observation: Kostecky (9 July 2015) | All wells inspected at site were locked. |
| 357 | 4.8.8 a) | 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; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 2.2.2 (Fieldwork). | The report indicates that monitoring well MW15B "appeared to be damaged and could not be sampled." The 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 report should clarify that MW 15B was replaced by one of the new wells. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 358 | 4.8.8 b) | If a sample cannot be obtained from a monitor well due to damage or other reasons: the sample is collected and analyzed prior to the next scheduled sampling event. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 2.2.2 (Fieldwork). | In the Exec Summary, it is mentioned that the MW15B was decommissioned as part of the landfill expansion. In Section 2.2.2, it is indicated that 15B was damaged and not sampled. It seems evident, however, that one of the newly installed wells was meant to replace MW15B. The groundwater monitoring report should indicate which well or wells were installed to replace MW 15B. |
| 359 | 4.8.9 a) | The following additional sampling information for groundwater monitoring is recorded: a description of purging and sampling procedures. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 5 (Groundwater Monitoring Fieldwork) - 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | |
| 360 | 4.8.9 b) | The following additional sampling information for groundwater monitoring is recorded: static elevations, above sea level, of fluid phases in the groundwater monitor well prior to purging. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Table 4 (Groundwater Elevation Data) | |
| 361 | 4.8.9 c) | The following additional sampling information for groundwater monitoring is recorded :the temperature of each sample at the time of sampling. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Table 5.1B (Field Data and Chemical Analysis Results). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 362 | 4.8.9 d) | The following additional sampling information for groundwater monitoring is recorded: the pH of each sample at the time of sampling. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Table 5.1B (Field Data and Chemical Analysis Results). | |
| 363 | 4.8.9 e) | The following additional sampling information for groundwater monitoring is recorded: the specific conductance of each sample at the time of sampling. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Table 5.1B (Field Data and Chemical Analysis Results). | |
| 364 | 4.8.10 a) | Information contained in the Annual Groundwater Monitoring report includes: a legal description of the facility and a map illustrating the facility boundaries. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Executive Summary and Figure 2. | |
| 365 | 4.8.10 b) | Information contained in the Annual Groundwater Monitoring report includes: a topographic map of the facility. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Figure 2 (Regional Information Plan). | Figure 2 (Regional Information Plan) is the closest to a topo map, but the scale is rather large to be considered so. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 366 | 4.8.10 c) | Information contained in the Annual Groundwater Monitoring report includes:a description of the industrial activity and processes. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Section 1.1 (General) 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | Section 1.1 (General) is the closest section to addressing this requirement. This could be considered a noncompliance, The item requires an overview of the industrial activity and processes. There is no mention of the transfer station, which accumulates hazardous and industrial wastes for transfer to treatment and disposal facilities. Perhaps the bigger missing description is the waste stabilization process. |
| 367 | 4.8.10 d) | Information contained in the Annual Groundwater Monitoring report includes: a map showing the location of all surface and groundwater users. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 4.2 (Surface Water) and Figure 2. | The figure is currently presented as a Regional Information Plan, and implicitly shows the location of the surface water users. It might be a better stand-alone diagram if specifically was titled Local Surface Water Users and Dugout Sampling Points. |
| 368 | 4.8.10 e) | Information contained in the Annual Groundwater Monitoring report includes:a general hydrogeological characterization of the region within a five kilometre radius of the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 4.32 (Geology and Hydrogeology).. | |
| 369 | 4.8.10 f) | Information contained in the Annual Groundwater Monitoring report includes: a detailed hydrogeological characterization of the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 6 (Hydrogeological Interpretation). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 370 | 4.8.10 g) | Information contained in the Annual Groundwater Monitoring report includes: a geological cross-section(s) of the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Drawings 4b, 4C, 4D, and 4e (Cross-Section Drawings | |
| 371 | 4.8.10 h) | Information contained in the Annual Groundwater Monitoring report includes: map of surface drainage patterns located within the facility. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Drawing 3 ( Monitoring Well Location Plan and Surface Drainage).. | |
| 372 | 4.8.10 i) | Information contained in the Annual Groundwater Monitoring report includes: a map of groundwater monitor well locations and a description of the existing groundwater monitoring program. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Drawing 3 ( Monitoring Well Location Plan and Surface Drainage), Section 2 (Scope of Work),Section 4.4 (Groundwater Monitoring | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 373 | 4.8.10 j) | Information contained in the Annual Groundwater Monitoring report includes:a summary of any changes to the groundwater monitoring program made since the last groundwater monitoring report. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Executive Summary | The information to identify changes from the previous year's monitoring program can be found in the report; however, there is no specific summary that explicitly lists the changes to the groundwater monitoring program. The first bullet in the Executive Summary does achieve this purpose. |
| 374 | 4.8.10 k) | Information contained in the Annual Groundwater Monitoring report includes analytical data recorded as required in 4.8.2 and 4.8.9. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Table 1 Summary of Laboratory Analytical Program) Tables 4 and 5.1A through 5,28B (Results) | |
| 375 | 4.8.10 l) | Information contained in the Annual Groundwater Monitoring report includes a summary of fluid elevations recorded as required in 4.8.9 (b) and an interpretation of changes in fluid elevations; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Table 4 (Groundwater Elevation Data), and Section 6.1 (Groundwater Elevations and Direction). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 376 | 4.8.10 m) | Information contained in the Annual Groundwater Monitoring report includes an interpretation of groundwater flow patterns. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 6.1 (Groundwater Elevations and Direction), Figures 5a and 5b (Groundwater Elevation Contours). | Why are some contour interval numbers upside down? |
| 377 | 4.8.10 n) | Information contained in the Annual Groundwater Monitoring report interprets analytical results including diagrams indicating the location of any contamination identified. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 6.1.1 Groundwater Results Comparison to Guidelines. | No adverse impacts were identified. |
| 378 | 4.8.10 n) | Information contained in the Annual Groundwater Monitoring report interprets analytical results including probable sources of any contamination, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 6.1.1 Groundwater Results Comparison to Guidelines. | No adverse impacts were identified. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 379 | 4.8.10 n) | Information contained in the Annual Groundwater Monitoring report interprets analytical results including the extent of any contamination identified. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 6.1.1 Groundwater Results Comparison to Guidelines. | No adverse impacts were identified. |
| 380 | 4.8.10 o) | The Annual Groundwater Monitoring report summarizes and interprets data colelcted since program inception, including: control charts which indicate trends in contaminant concentrations. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 6.1.1 Groundwater Results Comparison to Guidelines, Figures 6a to 6h (Control Charts). | |
| 381 | 4.8.10 o) | The Annual Groundwater Monitoring report summarizes and interprets data collected since program inception, including: the migration of contaminants, if any. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Tables 5A -5.28B (Analytical Results), Section 8 (Conclusions). | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 382 | 4.8.10 p) | Information contained in the Annual Groundwater Monitoring report includes a description of contaminated groundwater remediation techniques employed. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | The report concludes that the site has created no adverse impacts on local groundwater quality and recommends no changes to the next monitoring program. |
| 383 | 4.8.10 p) | Information contained in the Annual Groundwater Monitoring report includes a description of source elimination measures employed. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | The report concludes that the site has created no adverse impacts on local groundwater quality and recommends no changes to the next monitoring program. |
| 384 | 4.8.10 p | Information contained in the Annual Groundwater Monitoring report includes a description of risk assessment studies undertaken. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | There has been no groundwater contamination identified by the Groundwater Monitoring Program for the Ryley Facility. |
| 385 | 4.8.10 (iv) | Information contained in the Annual Groundwater Monitoring report includes a description of risk management studies undertaken. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | There has been no groundwater contamination identified by the Groundwater Monitoring Program for the Ryley Facility. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 386 | 4.8.10 q) | Information contained in the Annual Groundwater Monitoring report includes a sampling schedule for the following year. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | |
| 387 | 4.8.10 r) | Information contained in the Annual Groundwater Monitoring report includes recommendations for changes to the groundwater monitoring program to make it more effective. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | |
| 388 | 4.8.10 r) | Information contained in the Annual Groundwater Monitoring report includes recommendations for remediation, risk assessment or risk management of contamination identified. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The report concludes that the site has created no adverse impacts on local groundwater quality and recommends no changes to the next monitoring program. |
| 389 | 4.8.11 | Two copies of the Annual Groundwater Monitoring Report are sent to the Director on or before Mar 31 of the year following the year in which the information on which the report is based was collected, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cover letter to Groundwater Monitoring Report (S. Yuha, 24 February 2015). | |
| 390 | 4.9.1 | Proposals for the Soil Monitoring Program are developed and documented in accordance with the Soil Monitoring Directive, Alberta Environment, May 1996, as amended. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Proposal (Tetra Tech EBA, 15 January 2014), Section 1 Introduction | The introduction section indicates that the ESRD Soil Monitoring Directive May 2009 version (which supersedes the 1996 version) was used for the soil monitoring program. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 391 | 4.9.2 a) | Soil monitoring proposal have been submitted according to the following sched: for the first soil monitoring proposal, no later than, January 31, 2009, unless otherwise authorized by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2009 Soil Monitoring Plan Proposal (15 December 2008) | Submitted to B. Pelech (AESRD - Red Deer) on 15 December 2008. |
| 392 | 4.9.2 b) | Soil monitoring proposal have been submitted according to the following sched: for the second soil monitoring proposal no later than, January 31, 2014. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Proposal (Tetra Tech EBA, 15 January 2014), | The proposal was addressed directly to the Director at AESRD. |
| 393 | 4.9.3 | Deficiencies to the soil monitoring proposals are corrected within 120 of notiifcation by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Proposal Addendum, Tetra Tech EBA 31 July 2014) | The addendum indicates that AESRD submitted comments on the original proposal to Clean Harbors on 16 June 2014. The addendum is dated 31 July 2014. |
| 394 | 4.9.4 | Soil monitoring programs are implemented as authorized by AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal, Tetra Tech EBA (15 January 2014), 2014 Soil Monitoring Program Proposal Addendum, Tetra Tech EBA (31 July 2014) | Soil monitoring program sampling locations and analytical program appeared to match with proposal and addendum. (Sample locations confirmed by program summary report section 3.1.1). |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 395 | 4.9.5 | QA/QC provisions for the Soil Monitoring programs have been implemented (see note). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 2.4 (Quality Assurance and Quality Control Protocols) ,2014 Soil Monitoring Program Proposal, Tetra Tech EBA (15 January 2014), 2014 Soil Monitoring Program Report, Tetra Tech EBA (January 2015), Sections 3.1.3, 3.2, and 4.17 | |
| 396 | 4.9.6 a) | For soil quality parameters, the following standards are referenced (refer to Note): petroleum hydrocarbons, Alberta Soil and Water Quality Guidelines for Hydrocarbons at Upstream Oil and Gas Facilities | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal Addendum, Tetra Tech EBA (31 July 2014), Item #2. | Alberta Tier 1 Soil Remediation Guidelines and background soil quality data were used for comparison. The consultant also mentioned that Tier 2 soil quality standards would be derived if necessary according to Section 2.1.6.5 of the 2009 Soil Monitoring Directive. |
| 397 | 4.9.6 b) | For soil quality parameters, the following standards are referenced (refer to Note): salt, Salt Contamination Assessment and Remediation Guidelines, Alberta Environment, 2001, as amended. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal , Tetra Tech EBA (15 January 2014), Section 2.3 (Data Evaluation). | Salinity, including EC and sodicity (SAR) were compared to controls, published soil data and AESRD's Salt Contamination and Remediation Guidelines. |
| 398 | 4.9.6 c) | For soil quality parameters, the following standards are referenced (refer to Note): FOR SUBSTANCE NOT INCLUDED IN 4.9.6 (a) or (b)- SEE NOTE | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal Addendum, Tetra Tech EBA (31 July 2014), Item #2. | References for comparison were taken from Alberta Tier 1 Guidelines and background soil quality levels. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 399 | 4.9.6 d) | For soil quality parameters, the following standards are referenced (refer to Note):FOR SUBSTANCES NOT FOUND IN 4.9.6 (a) TO (c)- REFER TO NOTE. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal Addendum, Tetra Tech EBA (31 July 2014), Item #2. | References for comparison were taken from Alberta Tier 1 Guidelines and background soil quality levels. |
| 400 | 4.9.6 e) | For soil quality parameters, the following standards are referenced (refer to Note):FOR SUBSTANCE NOT FOUND IN 4.9.6 (a) to (c), FOR SOIL WHCIH WILL BE REMEDIATED TO COMMERICAL OR INDUSTRIAL LAND USE | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Ryley facility is to be reclaimed to an agricultural standard. |
| 401 | 4.9.7 | For nonstandard soil quality parameters (as described in the Note), method is C.2 of the Soil Monitoring Directive are employed. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal , Tetra Tech EBA (15 January 2014), Section 2.3 (Data Evaluation). | 2009 Soil Monitoring Directive is referenced in the proposal. |
| 402 | 4.9.8 a) | Two copies of the soil monitoring program report are sent to AENV for the first soil monitoring report, no later than January 31, 2010. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cover letter to K. Deagle (AESRD) 19 January 2010 | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 403 | 4.9.8 b) | Two copies of the soil monitoring program report are sent to AENV for the second soil monitoring report, no later than January 31, 2015; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>◉ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), interview: W. Wu (20 July 2015) | One copy of the report was issued by email sent on 30 January 2015. The report was sent to the AEP reporting repository ( aenvindustrialreporting.gov.ab.ca). Suggest that this term be changed in the forthcoming approval. After 1 February 2012, all reporting, and correspondence to AEP are required to be submitted electronically. This should be updated in the forthcoming approval. |
| 404 | 4.9.9 | Soil Monitoring Program reports follow the reporting<br>requirements of the Soil Monitoring Directive, May 1996, | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal, Clean Harbors Ryley Industrial Waste Management Facility (Tetra Tech EBA, 15 January 2014 | The proposal indicates that the soil monitoring work plan followed the requirements of Approval 10348-02-00 and the ESRD Soil Monitoring Directive, May 2009. The 2009 Directive supersedes the 1996 Directive. |
| 405 | 4.9.10 | A Soil Management Program is developed and documented where monitoring results indicated excessive contaminant levels (See note for full requirement). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6 (Conclusions), 2014 Soil Monitoring Program, Tetra Tech EBA, January 2015 | 2014 Soil Monitoring Report indicated that no excessive contaminant levels were identified. - Add correct reference from conclusions. |
| 406 | 4.9.11 | If required to submit a Soil Management Program Proposal, the proposal had been sent within 6 months of the identification of issues in the previous Soil Monitoring Report. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.0 (Conclusions) 2014 Soil Monitoring Program Report (Tetra Tech EBA, ,January 2015) | The conclusion of the Soil Monitoring Report indicated that the areas that showed any environmental quality or potential land use concerns were either below applicable remediation guidelines or consistent with the local background soil quality. The report recommend that no further tiered actions were necessary for compliance with the approval. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 407 | 4.9.12 a) | The Soil Managerment Program addresses: steps to be taken to control sources of contamination. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 408 | 4.9.12 b) | The Soil Managerment Program addresses: remediation objectives for substances identified by soil monitoring as exceeding the applicable maximum standards in 4.9.6 or 4.9.7. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 409 | 4.9.12 c) | The Soil Managerment Program addresses: proposed steps for management of soil contamination. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 410 | 4.9.12 d) | The Soil Managerment Program addresses: a schedule for implementing the Soil Management Program. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 411 | 4.9.13 | Any deficiencies identified by AENV to the Soil Management Program have been addressed by the deadline established by AENV in writing. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 412 | 4.9.14 | The Soil Management Program has been implemented as authorized in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 413 | 4.9.15 | A soil managment program report is submitted annually to AENV on or before 31 March, if the Soil Management Program has been implemented. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 414 | 4.9.16 a) | The Soil Management Program Report includes. a summary of actions taken under the Soil Management Program during the previous year. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 415 | 4.9.16 b) | The Soil Management Program Report includes.a description and interpretation of results obtained, including any soil testing, from the Soil Management Program; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 416 | 4.9.16 c) | The Soil Management Program Report includes.events planned for the current year including any deviations from the program authorized in writing by AENV.. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 417 | 5.1.1 | The cost estimate for reclamation of the facility including decommissioning, reclamation, closure and postclosure, is reviewed and revised annually. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 8 (Review of the Financial Security Estimate) - 2014 Annual Landfill Operations Report (10 March 2015). | |
| 418 | 5.1.2 a) | Financial security is adjusted based on review (as per 5.1.1) or due to inflation. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 8 (Review of the Financial Security Estimate) - 2014 Annual Landfill Operations Report (10 March 2015). | The inclusion in the report from Tetra Tech EBA indicates that the costs are based on 2014 dollars and rates are based on Means Mechanical Cost Estiamating references. |
| 419 | 5.12 b) | The revised estimate of financial security is submitted to AENV as part of the Annual Landfill Operations Report in 4.5.40. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Part 8 (Review of the Financial Security Estimate) - 2014 Annual Landfill Operations Report (10 March 2015). | |
| 420 | 5.1.3 | Additional financial secuity to address revised estimates is provided at the direction of AENV. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Closure Bond #C313994, Zurich Insurance, 8 April 2015. | Value of bond was increased from $7m to $9.5M. |
| 421 | 5.1.4 | The required financial secuirty is maintained and renewed for the facility at least 30 days prior to the date it expires. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Closure Bond #C313994, Zurich Insurance, 8 April 2015. | The bond is set to self-renew. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 422 | 5.15 | The financial security for the facility is renewed 30 days prior to the date of expiry of the financial security. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Closure Bond #C313994, Zurich Insurance, 8 April 2015. | The bond is set to self-renew. |
| 423 | 6.1.1 | The facililty is reclaimed as authorized in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The site is still an operating facility. |
| 424 | 6.2.1 | A Decommissioning and Land Reclamation Plan has been submitted to apply for an amendment to the approval at the time for reclamation of the Storage and Processing facility. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The facility is still operating, there are no current plans to close and reclaim the Storage and Processing facility. |
| 425 | 6.2.3 | The Decommissioning and Land Reclamation Plan for the Storage and Processing Facility has been implemented as authorized in writing by the Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The Storage and Processing Facility is still operating. |
| 426 | 6.3.1 | The Landfill Closure and Post-Closure Plan as described in the application 005-10348 has been implemented, unless otherwise directed in this approval or as otherwise authorized in writing by the Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Landfill is still operating. | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 427 | 6.3.2 | Any deficiencies in the Closure and Post-Closure Plan have been corrected as driected in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The landfill is still open for operation. |
| 428 | 6.3.3 | Any additions, deletions or changes to the Closure and Post-Closure Plan have been submitted to AENV. See note | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The landfill is still open for operation. |
| 429 | 6.3.4 | Closure has commenced no later than 180 days of any cell<br>reaching the maximum designated waste elevation, unless as otherwise authorized in writing by the Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), W. Codd (10 July 2015 | Surveys are completed each year to establish the landfill elevation and track closure of cells. No cells were closed in 2014. Cell height is monitored by a GPS unit on the bulldozer to ensure that maximum height is not exceeded. |
| 430 | 6.3.5 | AENV is notified in writing at least 14 days before commencing closure of any cell. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015). | Cell 3C was partially closed in 2014. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 431 | 6.3.6 a) | All cells shall be closed in accordance with the following (a) covering the waste with a soil layer consisting of 600 mm of clay to provide a smooth surface on which to place the geomembrane. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta,Tetra Tech EBA, March 2015. | |
| 432 | 6.3.6 b) | All cells shall be closed in accordance with the following : .(b) placing a final barrier layer consisting of an 80 mil HDPE geomembrane on top of the clay. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | Liner on top of clay base indicated to be 80 mil HDPE textured geomembrane. |
| 433 | 6.3.6 c) | All cells shall be closed in accordance with the following: (c) the geomembrane shall be extrusion welded to the primary liner system providing an impermeable seal over the clay. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | |
| 434 | 6.3.6 d) | All cells shall be closed in accordance with (d) placing a geotextile cover over the geomembrane. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | This cover is indicated to be an 8 oz non-woven geotextile in Quality Assurance Report.. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 435 | 6.3.6 e) | All cells shall be closed in accordance with the following: (e) placing subsoil equal to the natural depths in the area on top of the geotextile; | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | The cell cap meets the design specifications identified in Application 012-10348, Figure 5 (Cell 3D Liner Design Detail) |
| 436 | 6.3.6 f) | All cells shall be closed in accordance with the following: (f) placing topsoil equal to the natural depths in the area on top of the subsoil.<br>. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | |
| 437 | 6.3.6 g) | All cells shall be closed in accordance with the following: g) the final slope shall not exceed 30%. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), W. Codd (10 July 2015). | All cells since 2013 are graded to a 30% grade. |
| 438 | 6.3.6 h) | All cells shall be closed in accordance with the following: (h) the area shall be vegetated and contoured such that no water pools over the cells. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | The QA report indicates that the finished surface was hydro-seeded after installation. Slope and contouring details were not provided, however, final grades are regulated by GPS units on the bulldozer. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 439 | 6.3.6 i) | All cells shall be closed in accordance with the following requirements described in application 005-10348 | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Application #5, Appendix G: Specifications for Landfill Cells (excerpt from "An Assessment of Environmental and Socio-Economic Impacts associated with an Amendment to a License to Operate for Laidlaw Environmental Services Hazardsous Waste Facility near Rvlev. Alberta. | These specifications from the original landfill application were used in Application #5. |
| 440 | 6.3.7 | An Annual Closure and Reclamation Report is submitted to AENV by March 31 of the year following the year in which any cell is closed. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) - Construction Quality Assurance Report - Clean Harbors Hazardous Waste Handling Facility, Ryley, Alberta, Tetra Tech EBA, March 2015. | |
| 441 | 6.3.8 a) | The Annual Closure and Reclamation report (Item 6.3.7) includes: certified as-built plans and details on the location of cells that have been closed. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | No closures reported in the Annual Summary Report, confirmed by S. Yuha, 9 July 2015. | No cell closures reported in 2014. |
| 442 | 6.3.8 b) | The Annual Closure and Reclamation report (Item 6.3.7) includes: certified construction QA/QC procedures employed during cover construction and installation. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Cell 3 Cap Construction (2014) Construction Quality Assurance Report, Tetra Tech EBA (March 2015), | |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 443 | 6.3.8 c) | The Annual Closure and Reclamation report (Item 6.3.7) includes: survey reports showing the final cover depths. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | No closures reported in the Annual Summary Report, confirmed by S. Yuha, 9 July 2015 | |
| 444 | 6.3.8 d) | The Annual Closure and Reclamation report (Item 6.3.7) includes:details on progress made on meeting all other requirements of the Closure Plan. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Figure 1 (Final and Temporary Cover Boundaries) Cell 3 Cap Construction (2014) Construction Quality Assurance Report, Tetra Tech EBA (March 2015) | |
| 445 | 6.3.9 | AENV has been (is) notifified of the date of commencement of final closure of the landfill no later than 30 days following commencement of final closure. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 446 | 6.3.10 | A Final Closure Report prepared by a professional registered with APEGA is submitted to AENV within 60 days of completion of the final closure of the landfill. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 447 | 6.3.11 a) | The Final Closure Report contains: the date of completion of the final closure. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 448 | 6.3.11 b) | The Final Closure Report contains: a statement including supporting evidence that the final closure has been completed in accordance with the final closure plan; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 449 | 6.3.11 c) | The Final Closure Report contains: a description of any deviations to the final closure plan and the reasons for the deviations. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 450 | 6.3.11 d) | The Final Closure Report contains:a description of the final cover system and the installation methods and procedures used. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 451 | 6.3.11 e) | The Final Closure Report contains: an estimate of the maximum quantity of waste placed in the landfill for disposal over the life of the landfill. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 452 | 6.3.11 f) | The Final Closure Report addresses the final use of the closed areas. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 453 | 6.3.11 f) | The Final Closure Report addresses drainage restorations. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 454 | 6.3.11 f) | The Final Closure Report addresses soil replacement. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 455 | 6.3.11 f) | The Final Closure Report addresses final cover slopes. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 456 | 6.3.11 f) | The Final Closure Report addresses erosion control. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 457 | 6.3.11 f) | The Final Closure Report addresses re-vegetation and condition of the site. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 458 | 6.3.11 f) | The Final Closure Report addresses subsidence and differential settlement remediation. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 459 | 6.3.11 g) | The Final Closure Report contains: as-built plans for the landfill showing the location of fill areas, final grades and structural components. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 460 | 6.3.12 | Within 30 days of final closure commencement, an up-to-date Post-Closure Plan has been submitted to AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 461 | 6.3.13 a) | The Post-Closure Plan includes: a plan for maintaining the integrity of the final cover systems. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 462 | 6.3.13 b) | The Post-Closure Plan includes: a plan for maintaining the run-on and run-off control systems. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 463 | 6.3.13 c) | The Post-Closure Plan includes: a plan for maintaining the groundwater monitoring system. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 464 | 6.3.13 d) | The Post-Closure Plan includes: the groundwater monitoring program including performance standards and points of compliance. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 465 | 6.3.13 e) | The Post-Closure Plan includes: a plan for maintaining the leachate collection and leak detection systems. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 466 | 6.3.13 f) | The Post-Closure Plan includes: quantity and quality objectives of leachate and leak detection liquid that show the landfill has stabilized. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 467 | 6.3.13 g) | The Post-Closure Plan includes: a plan for remediating areas affected by subsidence and differential settlement. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 468 | 6.3.13 h | The Post-Closure Plan includes: a plan for erosion control. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 469 | 6.3.13 i) | The Post-Closure Plan includes: a plan for maintaining vegetative cover. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 470 | 6.3.13 j) | The Post-Closure Plan includes: any other information requested in writing by the AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 471 | 6.3.14 | The landfill is monitored during Post-Closure in accordance with the Post-Closure Plan, as authorized in writing by AENV for the duration of the Post-Closure period. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 472 | 6.3.15 | An Annual Post-Closure Plan is submitted to AENV by March 31 each year follwoing final closure | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 473 | 6.3.16 a) | The Annual Post Closure Report (Item 6.3.15) includes: details on any repairs and maintenance of the final cover system and vegetation | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 474 | 6.3.16 b) | The Annual Post Closure Report (Item 6.3.15) includes: a report of any remedial or corrective actions taken. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 475 | 6.3.16 c) | The Annual Post Closure Report (Item 6.3.15) includes:submission of Annual Groundwater Monitoring Reports as outlined in 4.8.11. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 476 | 6.3.16 d) | The Annual Post Closure Report (Itme 6.3.15) includes:details on progress made on meeting all other requirements of the Post-Closure Plan. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 477 | 6.3.16 e) | The Annual Post Closure Report (Itme 6.3.15) includes:any other information requested in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 69.1 | 3.1.6.1 | If Cell 3E construction had not commenced by 30 June 2014, the Approval Holder applied for an amendment to the approval unless otherwise authorized by the Director of AESRD. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Daily Tool Box Meeting from Cell 3E Construction (BTO Construction, 7 May 2014) | |
| 79.1 | 3.1.11 | The Approval Holder has constructed a tipping area in the landfill Cell 3E as described in "Ryley Landfil - Cell 3E Draft Approval Feb 19, 2014. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: M. Kostecky (9 July 2015). | |
| 99.1 | 3.4.1 | The approval holder has constructed the new surface water detention pond according to Aoplication 012-10348 and has included a 40 mil LLDPE liner on a compacted clay base. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 4 (Surface Water Pond Geosynthetic Lining System) Construction Quality Assurance Report Cell 3E & Surface Water Pond Geosynthetics Installation. | Installation specs match the application, and amending approval. |
| 99.2 | 3.4.2 | The new surface water detention pond was constructed concurrently with the construction and lateral expansion of Cell 3E | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Construction Quality Assurance Report, Cell 3E and Surface Water Pond Geosynthetics Installation, Tetra Tech EBA,(March 2015) | |
| 99.3 | 3.4.3 | If the construction of the new surface water detention pond as described in Application 012-10248 had not commenced by 30 June 2014, the Approval Holder applied for an amendment to the approval unless otherwise directed in writing by the AESRD Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Daily Tool Box Meeting from Cell 3E Construction (BTO Construction, 7 May 2014) | Construction of the pond had commence before June 1st. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 99.4 | 3.4.4 | The Approval holder notified the Director in writing at least 14 days before commencing operation of the new surface water detention pond, as described in Application 012-10348. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence from M. Parker (CHC) to N. Hollins (AESRD) dated 28 August 2014. | |
| ? | 4.3.4 d | The discharge point for the surface water detention pond is referred to as "Sampling Location 'A' " in .4.3.15., unless an alternate location for discharges is authorized in writing by the AESRD Director. | ◉ Information only<br>○ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| ? | 4.3.4.1 a | Subject to 4.3.8, the Approval Holder has established a release point from the new surface water detention pond of the industrial runoff control system only as designated in Application 012-10348, which a) is located in the north east corner of the surface water detention pond, unless and alternate location is authorized by the AESRD Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky( 9 July 2015) , interview: S. Yuha (9 July 2015). | . |
| ? | 4.3.4.1 b | The discharge point for the new surface water pond of the industrial runoff control system discharges water through a pump and discharge hose over the east berm and into the culvert under Highway 854, unless and alternate location is authorized by the AESRD Director. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation: Kostecky( 9 July 2015) , interview: S. Yuha (9 July 2015). | Inspected the pond to verify that a pump and discharge hose can be used over the east berm of the new surface water detention pond and that discharge is into a culvert under Hwy 854. |

| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| ? | 4.3.4.1 c | The discharge point for the new surface water pond of the industrial runoff control system is referred to as sampling location "C" in 4.3.15. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| ? | 4.3.7 c | Liquids from the leak detection system are disposed at a deep well approved by the AER. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Interview: S Yuha, 9 July 2015: Leak detection liquids are disposed at the Sellar's Deep Well Facility, (no change since 2012).. | Sellars Well has AER Approval number WM077. |
| ? | 4.3.15 b1 | Sampling Location C is defined as the new surface water detention pond. | (•) Information only<br>( ) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | | |
| ? | 4.3.15 b2 | If discharging the old surface water detention pond directly to the surrounding watershed, effluent quality is monitored in accordance with Table 4.3-D **from Sampling Point A**. If the old surface water detention pond is discharged to the new surface water pond, monitoring for sampling is required only from Location C. | ( ) Information only<br>(•) Compliant<br>( ) NonCompliant<br>( ) Not Applicable<br>( ) Opportunity for Improvement<br>( ) Pending | Interview: J. Mendoza (10 July 2015). | **Discharges in 2014 occurred only from the old pond; therefore the sampling point used was Point "A" and Table 4.3-D was adopted for the analytical work.** |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| ? | 4.5.23.1 | The Approval Holder has not stockpiled waste higher than the maximum designated waste elevation of each landfill cell. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Working elevations are monitored by a GPS unit mounted on the bulldozer as stockpile height nears maximum. Visual observation of GPS unit - Kostecky: 9 July 2015, interview: S Yuha, 9 July 2015. Annual cell surveys by Challenger 31 Dec 2014. | Check with Stan: is this monitored only with the year end differential level surveys? |
| ? | 4.5.23.2 | The Approval Holder maintains a publicly available, 24 hour HOTLINE number for a prompt response during an emergency. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Hot line number is provided by automated attendant (observed by M. Kostecky, 6 July 2015), also identified in corporate website: 1-800- OIL-TANK. Interview: S. Yuha 9 July 2015). | Calls are attended 24/7 by the Norwell call centre. |
| ? | 4.5.23.3 | The Approval Holder manages the landfill progression as described in the "Ryley Landfill - Cell 3E Draft Approval - Feb 19. 2014. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Aerial photo of landfill cell construction progression. | |

# Summary of Audit Findings



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| ? | 4.5.23.4 | The Approval Holder does not place waste in Cell 3E until financial security has been updated as described in the supplemental information request email titled "Clean Harbors Ryley Financial Security Estimate - Feb 06, 2014. | ○ Information only<br>○ Compliant<br>◉ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), Part 8 (Review of the Financial Security Estimate) 2014 Landfill Operations Report (10 March 2015). | No evidence could be presented to confirm that the required updated financial security had been provided prior to operating Cell 3E. The referenced email in the audit statement was verified and additional funding was required under the closure estimate formula to accommodate the landfill expansion. No further follow up is necessary, the current security bpnd addresses the incremental financial security identified in the Financial Security Estimate (6 February 2014), and the most recent review of financial security. |
| ? | 4.5.23.5 | The Approval Holder has implemented control to prevent mud tracking off-site from vehicles and equipment leaving the facility. (**Mud tracking off-site is prohibited**). | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Visual observation (Kostecky 9 July 2015): Wheel wash system, new tipping pad area, interview: S. Yuha (9 July 2015). | Loads are tipped on new pad to prevent mud sticking to wheels except for asbestos loads. Asbestos haulers must go through wheel wash. |
| ? | 4.8.1.1 | The Approval Holder has revised and expanded the Groundwater Monitoring Program as described in Section 4.1 of Application 012-10348. | ○ Information only<br>◉ Compliant<br>○ NonCompliant<br>○ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Figure 7, Approval Amendment Application 012-10348 (Tetra Tech EBA July 2013), and Section 2.3.4 (Groundwater Monitoring Well Installation Details) 2014 Groundwater Monitoring Report (Tetra Tech EBA, February 2015). | New wells have been installed as per the Application except for wells north of proposed Cell 4, which is yet to be constructed. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 6 | 2.1.4a | The approval holder shall immediately notify the Director in writing if the approval holder is served with a petition into bankruptcy; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 7 | 2.1.4b | The approval holder shall immediately notify the Director in writing if the approval holder files an assignment in bankruptcy or Notice of Intent to make a proposal; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 8 | 2.1.4c | The approval holder shall immediately notify the Director in writing if a receiver or receiver-manager is appointed; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 9 | 2.1.4d | The approval holder shall immediately notify the Director in writing if an application for protection from creditors is filed for the benefit of the approval holder under any creditor protection | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 10 | 2.1.4e: | The approval holder shall immediately notify the Director in writing if any of the assets, which are the subject matter of this approval, are seized for any reason. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 11 | 2.1.5 | The approval holder provides results of any monitored parameters that are the subject of operational limits and are monitored more frequently than specified by the approval. The additional results are included as an addendum in the reports required under the approval. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 22 | 2.3.1(i) a | Air Monitoring analytical requirements meet: a) Stack Sampling Code, 1996. where applicable. This applies to collection, preservation, storage, handling and analysis. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | ** | No stack sampling is required at this facility. |
| 25 | 2.3.1(i) d | Air Monitoring analytical requirements meet: d) CEMS Code. where applicable. This applies to collection, preservation, storage, handling and analysis. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | ** | There is no CEMS at this facility. |
| 29 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Growth Inhibition Test Using the Freshwater Alga Selenastrum capricornutum, (See note) | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 30 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia, Environment Canada, 1/RM21. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 31 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows, Environment Can, 1/RM/22 | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 32 | 2.3.1 (iii) | Analytical requirements for Whole Effluent Toxicity Testing comply with the Chlorinated Phenolic Compounds and Receiving Waters (Method No. AE130.0 Note H2SO4 acid is used to preserve, instead of nitric acid. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This method was not used in 2014. |
| 37 | 2.3.1 (iv) | Analytical requirements for soils samples comply with: E) the Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites - Volume II: Analytical Method Summaries. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Not referenced. Tier 1 Guidelines used instead. |
| 40 | 2.3.1(v) | Analytical requirement methods for waste comply with the Methods Manual for Chemical Analysis of Water and Wastes, Alberta Environmental Centre, Vegreville, Alberta, 1996, AECV96-M1. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | This reference was not used for any of the media analysis from this facility. |
| 43 | 2.3.3 | Any written authorizations in relation to 2.3.2 provided by the AENV Director are observed and complied with by Clean Harbors. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No special method were prescribed by the Director for analysis of waste or media. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 69 | 3.1.6 b) | Any deviations from the Design Plan and Specifications have not reduced the design performance of the landfill. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | There were no deviations mentioned in the Construction Assurance Reports. |
| 73 | 3.1.8 b) | The summary report in 3.1.7 contains documentation of any minor deviations as per 3.16. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The constructions QA reports indicate that the landfill was constructed in accordance with the design plans. |
| 74 | 3.1.8 c) | The summary report in 3.1.7 contains confirmation by an APEGGA-registered professional that deviations as per 3.1.6 will not reduce landfill performance. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The constructions QA reports indicate that the landfill was constructed in accordance with the design plans. |
| 103 | 4..1.3 | The audit report (Ref 4.1.2) is submitted to AENV in the Annual Landfill Operations Report as required in 4.5.40 (j). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No audit was completed in 2014. |
| 135 | 4.1.10 (a) | The landfill operator disposes of any liquid collected in the waste stabilization area by consgning the waste liquid to a facility holding a current approval, registration or as otherwise authorized under AEPEA to accept the waste. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | No liquids are left in pit following a stabilization operation. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 136 | 4.1.10 (b) | The landfill operator disposes of any liquid collected in the waste stabilization area by consgning the waste liquid to an out-of-province facility that is approved by the local authority to accept the waste. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | There are no liquids from this process to dispose off-site. |
| 137 | 4.1.10 (c) | The landfill operator disposes of any liquid collected in the waste stabilization area by consgning the waste liquid to a deep well facility approved by the ERCB. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha 9 July 2015 | There may be no liquids from this process to dispose off-site. |
| 165 | 4.2.14 | The operator monitors the ambient air for the facility in accordance with the existing ambient air monitoring program until the new ambient air monitoring program is implemented. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2012 Clean Harbors Compliance Audit | The new program was implemented in the summer of 2009. |
| 186 | 4.2.19 e) | Annual Air Monitoring Summary Reports contain: any other information required by the Director of AESRD | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: J. Mendoza (10 July 2015) | Semior Chemist indicated that there hasn't been any wiring requests for information from the Director. |
| 195 | 4.3.5 a) | Industrial waste water and industrial runoff (from sources listed in Table 4.3-A) are disposed to facilities holding a current Approval, Registration or other authorization under AEPEA for wastewater. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Confirmed via Stan and Wayne that industrial wastewater that can't be discharged would be consigned to the Sellars disposal well facility operated by Clean Harbors. The Sellars well is a Class 1A faciliity.registered as an AER facility. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 200 | 4.3.6 b) | Leachate is disposed to facilities approved by a local environmental authority outside of Alberta to accept such waste; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No leachate is taken outside Alberta for disposal. |
| 202 | 4.3.6 d) | Leachate is disposed by placing leachate over the surface of the active landfill area for the purpose of evaporation, as described in the application 005-13048. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Annual Ambient Air Monitoring Report (10 March 2015) | The ambient air monitoring report indicated that leachate was on applied on the active landfill in 2014. |
| 204 | 4.3.7 b) | Liquids from the leak detection system are disposed to facilities approved by a local environmental authority outside of Alberta to accept such waste. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Leachate and leak detection fluids are not currently consigned out of province. |
| 205 | 4.3.7 d) | Liquids from the leak detection system are disposed by distribution over the active landfill area for purposes of evaporation, as described in Application 005-13048 | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | While this is permitted, Clean Harbors does not apply leachate on its landfill faces because of odour issues. |
| 207 | 4.3.9 | Industrial runoff released from the tank farm bermed area complies with limits specified in Table 4.3-C | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Tank Farm is not operational. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 219 | 4.3.15 g) | Bioassays are repeated if any control responses exceed 10 %. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | Control responses were within 10%. (no mortalities). |
| 221 | 4.3.16 | If requested in writng by AENV, a bioassay has been repeated. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No requirement was issued by AESRD in 2014, |
| 222 | 4.3.17 a) | Upon finding that that less than 50% of rainbow trout survived the 100% concentration sample, a program is immediately implemented to identify the source of toxiicity. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | There were no mortalities in the bio-assay tests for 2014. |
| 223 | 4.3.17 b | Upon finding that that less than 50% of rainbow trout survived the 100% concentration sample, a proposal to reduce industrial runoff toxicity is submitted to AENV within 90 days. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Maxxam Lab Reports R1603866 (16 July 2014) and R1557956 (25 April 2014) | There were no mortalities in the bio-assay tests for 2014. |
| 225 | 4.3.18 b) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: an assessment of monitoring results relative to the specified limits in Table 4.3-C. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Annual Industrial Runoff Report for 2014 (14 January 2014). | Liquid from the Tank Farm Bermed Area was not pumped to surface discharge in 2014. Therefore, no samples were collected for this area. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 228 | 4.3.18 e) | Monthly reporting for Table 4.3-D (Monthly Industrial Runoff Report) includes: any other information required in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: J. Mendoza (10 July 2015) | No new information was specfically requested. Contact approvals coordinator for AEP. |
| 230 | 4.3.19 b) | The Industrial Runoff Annual Report includes any other information as required in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: J. Mendoza (10 July 2015) | No new information specifically requested. |
| 239 | 4.4.1 a) | Representative samples are collected from each of the wells within an approximate 1.6 kilometre radius around the facility. [Subject to access granted by the landowner.] | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Correspondence to J. Deagle (AESRD, 19 Feb 2015), | No water wells operate within 1.5 kms of the landfill in 2014. |
| 273 | 4.5.12 b) | Phase separation by gravity settling is conducted only without the addition of any chemicals designed to accelerate settling; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015 |
| 276 | 4.5.12 e) | Washing of drums and other objects is conducted only for the purpose of removing hazardous residue; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 277 | 4.5.12 f) | Crushing /shredding of used filters, rags, absorbent materials, and empty containers shall be conducted only for the purpose of volume reduction/liquid recovery unless otherwise authorized by AENV | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interviews: S. Yuha (9 July 2015) and W. Codd (10 July 2015) | This procedure was not done in 2015. |
| 286 | 4.5.16 | Hazardous waste is not disposed in any Class II cell. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015). | All new cells at the Ryley Facility are Class 1 cells. |
| 325 | 4.5.37 f) | The Monthly Waste Management Report contains the following information: a summary of contraventions reported pursuant to 2.1.1 related to waste and hazardous recyclables. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Monthly Waste Management Report template and reports. | No contravention records were evident from the records reviewed. S. Yuha did not recall any contraventions associated with the waste and hazardous recyclables. |
| 339 | 4.5.40 j) | An Annual Landfill Operation Report is compiled, which includes:the results of any audit conducted in accordance with 4.1.2 for a given year. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | No compliance audit was done in 2014. The next audit is being completed in 215. |
| 350 | 4.8.3 b) | Frequency of groundwater monitoring, unless otherwise authroized by AENV is:a minimum of 4 times per year -SEE NOTE. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | Conclusions of report show no evidence of adverse impact caused by facility operations. Existing contamination attributed to prior land use and pre-existing conditions. Therefore a single, annual monitoring event is acceptable. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 353 | 4.8.5 | A Remediation Plan as specified in the Landfill Operations Plan has been implemented, when groundwater quality exceeds the groundwater performance criteria in 4.8.4 (a) and (b). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | The 2014 Groundwater Report indicates that the facility has not created an adverse impact on local groundwater quality. |
| 366 | 4.8.10 c) | Information contained in the Annual Groundwater Monitoring report includes:a description of the industrial activity and processes. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 1.1 (General) 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 | Section 1.1 (General) is the closest section to addressing this requirement. This could be considered a noncompliance, The item requires an overview of the industrial activity and processes. There is no mention of the transfer station, which accumulates hazardous and industrial wastes for transfer to treatment and disposal facilities. Perhaps the bigger missing description is the waste stabilization process. |
| 382 | 4.8.10 p) | Information contained in the Annual Groundwater Monitoring report includes a description of contaminated groundwater remediation techniques employed. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | The report concludes that the site has created no adverse impacts on local groundwater quality and recommends no changes to the next monitoring program. |
| 383 | 4.8.10 p) | Information contained in the Annual Groundwater Monitoring report includes a description of source elimination measures employed. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | The report concludes that the site has created no adverse impacts on local groundwater quality and recommends no changes to the next monitoring program. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 384 | 4.8.10 p | Information contained in the Annual Groundwater Monitoring report includes a description of risk assessment studies undertaken. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | There has been no groundwater contamination identified by the Groundwater Monitoring Program for the Ryley Facility. |
| 385 | 4.8.10 (iv) | Information contained in the Annual Groundwater Monitoring report includes a description of risk management studies undertaken. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Groundwater Monitoring Program Report - Class 1 Waste Management Facility Ryley, Alberta. Tetra Tech EBA , February 2015 - Section 8 (Conclusions). | There has been no groundwater contamination identified by the Groundwater Monitoring Program for the Ryley Facility. |
| 388 | 4.8.10 r) | Information contained in the Annual Groundwater Monitoring report includes recommendations for remediation, risk assessment or risk management of contamination identified. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The report concludes that the site has created no adverse impacts on local groundwater quality and recommends no changes to the next monitoring program. |
| 396 | 4.9.6 a) | For soil quality parameters, the following standards are referenced (refer to Note): petroleum hydrocarbons, Alberta Soil and Water Quality Guidelines for Hydrocarbons at Upstream Oil and Gas Facilities | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal Addendum, Tetra Tech EBA (31 July 2014), Item #2. | Alberta Tier 1 Soil Remediation Guidelines and background soil quality data were used for comparison. The consultant also mentioned that Tier 2 soil quality standards would be derived if necessary according to Section 2.1.6.5 of the 2009 Soil Monitoring Directive. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 398 | 4.9.6 c) | For soil quality parameters, the following standards are referenced (refer to Note): FOR SUBSTANCE NOT INCLUDED IN 4.9.6 (a) or (b)- SEE NOTE | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | 2014 Soil Monitoring Program Proposal Addendum, Tetra Tech EBA (31 July 2014), Item #2. | References for comparison were taken from Alberta Tier 1 Guidelines and background soil quality levels. |
| 400 | 4.9.6 e) | For soil quality parameters, the following standards are referenced (refer to Note):FOR SUBSTANCE NOT FOUND IN 4.9.6 (a) to (c), FOR SOIL WHCIH WILL BE REMEDIATED TO COMMERICAL OR INDUSTRIAL LAND USE | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Ryley facility is to be reclaimed to an agricultural standard. |
| 405 | 4.9.10 | A Soil Management Program is developed and documented where monitoring results indicated excessive contaminant levels (See note for full requirement). | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6 (Conclusions), 2014 Soil Monitoring Program, Tetra Tech EBA, January 2015 | 2014 Soil Monitoring Report indicated that no excessive contaminant levels were identified. - Add correct reference from conclusions. |
| 406 | 4.9.11 | If required to submit a Soil Management Program Proposal, the proposal had been sent within 6 months of the identification of issues in the previous Soil Monitoring Report. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Section 6.0 (Conclusions) 2014 Soil Monitoring Program Report (Tetra Tech EBA, ,January 2015) | The conclusion of the Soil Monitoring Report indicated that the areas that showed any environmental quality or potential land use concerns were either below applicable remediation guidelines or consistent with the local background soil quality. The report recommend that no further tiered actions were necessary for compliance with the approval. |
| 407 | 4.9.12 a) | The Soil Managerment Program addresses: steps to be taken to control sources of contamination. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 408 | 4.9.12 b) | The Soil Managerment Program addresses: remediation objectives for substances identified by soil monitoring as exceeding the applicable maximum standards in 4.9.6 or 4.9.7. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 409 | 4.9.12 c) | The Soil Managerment Program addresses: proposed steps for management of soil contamination. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 410 | 4.9.12 d) | The Soil Managerment Program addresses: a schedule for implementing the Soil Management Program. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 411 | 4.9.13 | Any deficiencies identified by AENV to the Soil Management Program have been addressed by the deadline established by AENV in writing. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 412 | 4.9.14 | The Soil Management Program has been implemented as authorized in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 413 | 4.9.15 | A soil managment program report is submitted annually to AENV on or before 31 March, if the Soil Management Program has been implemented. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 414 | 4.9.16 a) | The Soil Management Program Report includes. a summary of actions taken under the Soil Management Program during the previous year. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 415 | 4.9.16 b) | The Soil Management Program Report includes.a description and interpretation of results obtained, including any soil testing, from the Soil Management Program; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 416 | 4.9.16 c) | The Soil Management Program Report includes.events planned for the current year including any deviations from the program authorized in writing by AENV.. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | |
| 423 | 6.1.1 | The facililty is reclaimed as authorized in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The site is still an operating facility. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 424 | 6.2.1 | A Decommissioning and Land Reclamation Plan has been submitted to apply for an amendment to the approval at the time for reclamation of the Storage and Processing facility. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The facility is still operating, there are no current plans to close and reclaim the Storage and Processing facility. |
| 425 | 6.2.3 | The Decommissioning and Land Reclamation Plan for the Storage and Processing Facility has been implemented as authorized in writing by the Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The Storage and Processing Facility is still operating. |
| 426 | 6.3.1 | The Landfill Closure and Post-Closure Plan as described in the application 005-10348 has been implemented, unless otherwise directed in this approval or as otherwise authorized in writing by the Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Landfill is still operating. | |
| 427 | 6.3.2 | Any deficiencies in the Closure and Post-Closure Plan have been corrected as driected in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The landfill is still open for operation. |
| 428 | 6.3.3 | Any additions, deletions or changes to the Closure and Post-Closure Plan have been submitted to AENV. See note | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | The landfill is still open for operation. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 429 | 6.3.4 | Closure has commenced no later than 180 days of any cell reaching the maximum designated waste elevation, unless as otherwise authorized in writing by the Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015), W. Codd (10 July 2015 | Surveys are completed each year to establish the landfill elevation and track closure of cells. No cells were closed in 2014. Cell height is monitored by a GPS unit on the bulldozer to ensure that maximum height is not exceeded. |
| 430 | 6.3.5 | AENV is notified in writing at least 14 days before commencing closure of any cell. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Interview: S. Yuha (9 July 2015). | Cell 3C was partially closed in 2014. |
| 441 | 6.3.8 a) | The Annual Closure and Reclamation report (Item 6.3.7) includes: certified as-built plans and details on the location of cells that have been closed. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | No closures reported in the Annual Summary Report, confirmed by S. Yuha, 9 July 2015. | No cell closures reported in 2014. |
| 443 | 6.3.8 c) | The Annual Closure and Reclamation report (Item 6.3.7) includes: survey reports showing the final cover depths. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | No closures reported in the Annual Summary Report, confirmed by S. Yuha, 9 July 2015 | |
| 445 | 6.3.9 | AENV has been (is) notifified of the date of commencement of final closure of the landfill no later than 30 days following commencement of final closure. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 446 | 6.3.10 | A Final Closure Report prepared by a professional registered with APEGA is submitted to AENV within 60 days of completion of the final closure of the landfill. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 447 | 6.3.11 a) | The Final Closure Report contains: the date of completion of the final closure. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 448 | 6.3.11 b) | The Final Closure Report contains: a statement including supporting evidence that the final closure has been completed in accordance with the final closure plan; | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 449 | 6.3.11 c) | The Final Closure Report contains: a description of any deviations to the final closure plan and the reasons for the deviations. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 450 | 6.3.11 d) | The Final Closure Report contains:a description of the final cover system and the installation methods and procedures used. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 451 | 6.3.11 e) | The Final Closure Report contains: an estimate of the maximum quantity of waste placed in the landfill for disposal over the life of the landfill. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 452 | 6.3.11 f) | The Final Closure Report addresses the final use of the closed areas. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 453 | 6.3.11 f) | The Final Closure Report addresses drainage restorations. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 454 | 6.3.11 f) | The Final Closure Report addresses soil replacement. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 455 | 6.3.11 f) | The Final Closure Report addresses final cover slopes. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 456 | 6.3.11 f) | The Final Closure Report addresses erosion control. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 457 | 6.3.11 f) | The Final Closure Report addresses re-vegetation and condition of the site. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 458 | 6.3.11 f) | The Final Closure Report addresses subsidence and differential settlement remediation. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 459 | 6.3.11 g) | The Final Closure Report contains: as-built plans for the landfill showing the location of fill areas, final grades and structural components. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 460 | 6.3.12 | Within 30 days of final closure commencement, an up-to-date Post-Closure Plan has been submitted to AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 461 | 6.3.13 a) | The Post-Closure Plan includes: a plan for maintaining the integrity of the final cover systems. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 462 | 6.3.13 b) | The Post-Closure Plan includes: a plan for maintaining the run-on and run-off control systems. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 463 | 6.3.13 c) | The Post-Closure Plan includes: a plan for maintaining the groundwater monitoring system. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 464 | 6.3.13 d) | The Post-Closure Plan includes: the groundwater monitoring program including performance standards and points of compliance. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 465 | 6.3.13 e) | The Post-Closure Plan includes: a plan for maintaining the leachate collection and leak detection systems. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 466 | 6.3.13 f) | The Post-Closure Plan includes: quantity and quality objectives of leachate and leak detection liquid that show the landfill has stabilized. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 467 | 6.3.13 g) | The Post-Closure Plan includes: a plan for remediating areas affected by subsidence and differential settlement. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 468 | 6.3.13 h | The Post-Closure Plan includes: a plan for erosion control. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 469 | 6.3.13 i) | The Post-Closure Plan includes: a plan for maintaining vegetative cover. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 470 | 6.3.13 j) | The Post-Closure Plan includes: any other information requested in writing by the AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 471 | 6.3.14 | The landfill is monitored during Post-Closure in accordance with the Post-Closure Plan, as authorized in writing by AENV for the duration of the Post-Closure period. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 472 | 6.3.15 | An Annual Post-Closure Plan is submitted to AENV by March 31 each year follwoing final closure | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 473 | 6.3.16 a) | The Annual Post Closure Report (Item 6.3.15) includes: details on any repairs and maintenance of the final cover system and vegetation | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 474 | 6.3.16 b) | The Annual Post Closure Report (Item 6.3.15) includes: a report of any remedial or corrective actions taken. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 475 | 6.3.16 c) | The Annual Post Closure Report (Item 6.3.15) includes:submission of Annual Groundwater Monitoring Reports as outlined in 4.8.11. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |

# List of Non-Applicable Audit Items for 2015



| Finding No. | Approval Reference | Audit Statement | Assessment | Supporting Information | Auditor's Notes |
|---|---|---|---|---|---|
| 476 | 6.3.16 d) | The Annual Post Closure Report (Itme 6.3.15) includes:details on progress made on meeting all other requirements of the Post-Closure Plan. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 477 | 6.3.16 e) | The Annual Post Closure Report (Itme 6.3.15) includes:any other information requested in writing by AENV. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | | Landfill is still operational and expanding. |
| 99.3 | 3.4.3 | If the construction of the new surface water detention pond as described in Application 012-10248 had not commenced by 30 June 2014, the Approval Holder applied for an amendment to the approval unless otherwise directed in writing by the AESRD Director. | ○ Information only<br>○ Compliant<br>○ NonCompliant<br>◉ Not Applicable<br>○ Opportunity for Improvement<br>○ Pending | Daily Tool Box Meeting from Cell 3E Construction (BTO Construction, 7 May 2014) | Construction of the pond had commence before June 1st. |