

AMENDING APPROVAL

PROVINCE OF ALBERTA

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

APPROVAL NO. 10348-03-01

APPLICATION NO. 015-10348

EFFECTIVE DATE: June 21, 2022

EXPIRY DATE: March 31, 2027

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 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.

[Handwritten Signature]

Designated Director under the Act Mohammad Habib, P. Eng.

Date Signed June 21, 2022

TERMS AND CONDITIONS ATTACHED TO APPROVAL

1. *Environmental Protection and Enhancement Act* Approval No. 10348-03-00 is hereby amended by this Amending Approval.
2. Parts 1, 2, 3, 4, 5, 6, 7 and 8 are deleted, and the following are substituted:

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) "action leakage rate" means the leakage rate that would occur through the primary liner, based on two holes per hectare, each with a diameter of 2 mm and that is calculated to be 790L/ha/day;
 - (c) "active landfill area" means the portion of the landfill that has received or is receiving waste for disposal, where final cover has not been placed, and includes areas that are being used for interim management of waste prior to disposition;
 - (d) "active landfill life" means the period of landfill life during which waste is received for disposal at the landfill, beginning with the initial receipt of waste and ending with the start of final landfill closure activities;
 - (e) "AER" means Alberta Energy Regulator;
 - (f) "affected lands" means lands which have received substances released from the facility;
 - (g) "air effluent stream" means any substance in a gaseous medium released by or from a facility;
 - (h) "APEGA" means the Association of Professional Engineers and Geoscientists of Alberta;
 - (i) "application" means the written submissions from the approval holder to the Director in respect of application No. 014-10348 and any subsequent applications where amendments are issued for this approval;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (j) "application No. 005-10348" means the written submissions from the approval holder to the Director in respect of renewal application No. 005-10348;
- (k) "application No. 008-10348" means the written submissions from the approval holder to the Director in respect of amendment application No. 008-10348;
- (l) "application No. 012-10348" means the written submissions from the approval holder to the Director in respect of amendment application No. 012-10348;
- (m) "as-built plans" means survey plans, signed and stamped by a professional registered with APEGA, that document variances from design or construction plans that were either approved or authorized according to the terms and conditions of this approval;
- (n) "BTEX" means benzene, toluene, ethylbenzene and xylene;
- (o) "CAO" means Chief Administrative Officer;
- (p) "central waste receiving and stabilization area" means the central waste receiving and stabilization area as described in application No. 015-10348;
- (q) "COD" means Chemical Oxygen Demand;
- (r) "composite liner" means a liner that meets the specifications in 3.1.2(b) of this approval;
- (s) "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;
- (t) "cover" means soil or other approved material that is used to cover compacted wastes in a landfill cell;
- (u) "day", when referring to sampling, means any sampling period of 24 consecutive hours;
- (v) "decommissioning" means the dismantling and decontamination of the facility undertaken subsequent to the termination or abandonment of any

TERMS AND CONDITIONS ATTACHED TO APPROVAL

activity or any part of any activity regulated under the Act, excluding the landfill cells and those infrastructure components and facilities that are required for the landfill post-closure;

- (w) "decontamination" means the treatment or removal of substances from the facility and affected lands;
- (x) "Director" means an employee of the Government of Alberta designated as a Director under the Act;
- (y) "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;
- (z) "DOC" means Dissolved Organic Carbon;
- (aa) "domestic wastewater" means wastewater that is the composite of liquid and water-carried wastes associated with the use of water for drinking, cooking, cleaning, washing, hygiene, sanitation or other domestic purposes, together with any infiltration and inflow wastewater, that is released into a wastewater collection system;
- (bb) "domestic wastewater system" means the parts of the facility that collect, store, or treat domestic wastewater from the facility;
- (cc) "existing landfill cells" means Cell 1, Cell 2, Cell 3A, Cell 3B, and Cell 3C as described in application No. 005-10348;
- (dd) "facility" means all buildings, structures, process and pollution abatement equipment, vessels, storage facilities, material handling facilities, roadways, railways, pipelines and other installations, the Class I and Class II industrial landfill and the HWRSP Facility, and includes the land, located on the SE $\frac{1}{4}$ and NE $\frac{1}{4}$ of Section 9, Township 50, Range 17, West of the 4th Meridian, that is being or has been used or held for or in connection with the Ryley Industrial Waste Management Facility;
- (ee) "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, and includes the active landfill area;
- (ff) "final cover" means a designed system, natural or man-made, that is placed on the surface of a landfill or landfill cell that has reached its maximum designated waste elevation to control transmission of moisture and landfill gas, and conforms to the end use plan;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (gg) “final landfill closure” means the period of time when waste is no longer placed in the defined portion of a landfill and activities are undertaken to complete the final cover system and decommission components and facilities that are no longer required, and includes the construction of any additional components or monitoring systems that are necessary for post-closure;
- (hh) “free liquids” means the liquids as determined by the US EPA SW-846 Test Method 9095B: Paint Filter Liquids Test, as specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, US EPA Publication No. SW-846, as amended;
- (ii) “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;
- (jj) “GCL” means geosynthetic clay liner that is made of a thin layer of bentonite either bonded to a geomembrane or fixed between two sheets of geotextile;
- (kk) “geomembrane” means a sheet of manufactured synthetic material designed to control migration of liquid and gas;
- (ll) "grab sample" means an individual sample collected in less than 30 minutes and which is representative of the substance sampled;
- (mm) “groundwater” means groundwater as defined in the *Water Act*, R.S.A. 2000, c.W-3, as amended;
- (nn) "groundwater 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;
- (oo) “H₂S” means hydrogen sulphide;
- (pp) “HDPE” means High Density Polyethylene;
- (qq) “HWRSP Facility” means the Hazardous Waste/Recyclable Storage and Processing Facility as described in the application for storage, processing and transfer of hazardous wastes and hazardous recyclables and which includes the Maintenance Shop, and is an integral part of the facility;
- (rr) “hydraulic conductivity” means the ease with which water can be transported through a material;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (ss) "hydrocarbon" means a chemical compound that consists entirely of hydrogen and carbon;
- (tt) "ISO/IEC 17025" means the international standard, developed and published by International Organization for Standardization (ISO), specifying management and technical requirements for laboratories;
- (uu) "incompatible waste" means waste materials which could cause dangerous reactions from direct contact with one another;
- (vv) "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 HWRSP Facility;
- (ww) "landfill" means the Class I and Class II industrial landfill as described in the application and which includes the waste receiving area(s) and waste stabilization area(s), and is an integral part of the facility;
- (xx) "landfill cell" means a designed area of a landfill comprised of an excavation or earthen structure in which waste is enclosed;
- (yy) "landfill cell closure" means the construction of a final cover for landfill cell including placement of previously conserved top soil and upper subsoil and re-vegetation as required for the intended future use of the landfill;
- (zz) "landfill gas" means a mixture of gases generated by the microbial decomposition of and chemical reactions between wastes in a landfill;
- (aaa) "lateral expansion" means an expansion of landfill cell boundaries beyond the approved area;
- (bbb) "laydown area" means the laydown area as described in application No. 015-10348;
- (ccc) "leachate" means a liquid that has been in contact with waste in the landfill cell and has undergone chemical or physical changes;
- (ddd) "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;
- (eee) "leak detection liquid" means any liquid collected within the leak detection system;
- (fff) "leak detection system" means a system that gathers liquid between a primary liner and a secondary liner system, and consists of a permeable

TERMS AND CONDITIONS ATTACHED TO APPROVAL

drainage material, a network of perforated pipes and sumps or manholes from where the liquid can be removed;

(ggg) “liner” means a continuous layer of synthetic material or compacted natural clay placed beneath and at the sides of a landfill cell that is compatible with the waste and restricts the migration of leachate, or landfill gas, or both;

(hhh) “local environmental authority” means the Department of Environment and Parks, in the Province of Alberta, or the agency that has the equivalent responsibilities for any jurisdiction outside the Province;

(iii) “major ions” means the following:

Calcium	Carbonate
Magnesium	Bicarbonate
Sodium	Chloride
Potassium	Sulfate

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

(i) 1.0 m in each of the existing landfill cells, and

(ii) 0.3 m in each of the new landfill cells

during active landfill life, landfill cell closure, final landfill closure, and post-closure;

(kkk) “maximum designated waste elevation” means the maximum elevation of waste in metres above sea level that can be disposed of at the landfill prior to construction of final cover, and is 714 metres;

(III) “metals” means the following:

Aluminum, dissolved	Chromium, dissolved (hexavalent)	Nickel, dissolved
Antimony, dissolved	Cobalt, dissolved	Selenium, dissolved
Arsenic, dissolved	Copper, dissolved	Silver, dissolved
Barium, dissolved	Lead, dissolved	Thallium, dissolved
Boron, dissolved	Manganese, dissolved	Tin, dissolved
Cadmium, dissolved	Mercury, total	Uranium, dissolved
Chromium, total	Molybdenum, dissolved	Zinc, dissolved

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (mmm) "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;
- (nnn) "month" means calendar month;
- (ooo) "municipal solid waste" means solid waste resulting from or incidental to municipal, community, commercial, institutional and recreation activities, and includes garbage, rubbish, ashes, street cleanings, abandoned automobiles and all other solid wastes except hazardous waste, industrial solid waste, oilfield waste and biomedical wastes;
- (ppp) "NAPS" means the National Air Pollution Surveillance program;
- (qqq) "new landfill cells" means Cell 3D as described in application No. 005-10348, Cell 3E as described in application No. 012-10348, Cell 4 as described in application No. 014-10348, and Cell 5 as described in application No. 015-10348;
- (rrr) "new surface water detention pond" means the surface water detention pond(s) as described in application No. 012-10348 or No. 015-10348;
- (sss) "NORM" means Naturally Occurring Radioactive Materials;
- (ttt) "NORM waste" means any waste material with concentrations of NORM above the limits specified in Tables 5.1, 5.2, or 5.3 of the *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, Health Canada, 2011, as amended;
- (uuu) "nutrients" means the following:

Ammonia nitrogen	Nitrite nitrogen
Total Kjeldahl nitrogen	Total phosphorus
Nitrate nitrogen	Dissolved phosphorus

- (vvv) "old surface water detention pond" means the surface water detention pond as described in application No. 005-10348;
- (www) "Petroleum Hydrocarbons Fractions F1 and F2" means the specific hydrocarbon fraction measured by the analytical methods described in the *Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method*, published by the Canadian Council of Ministers of the Environment, 2001, as amended;
- (xxx) "PM" means particulate matter;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (yyy) "PM₁₀" means particulate matter less than 10 microns in diameter;
- (zzz) "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;
- (aaaa) "post-closure" means the period of time after completion of the final landfill closure;
- (bbbb) "ppm" means concentration in parts per million;
- (cccc) "primary liner" means the uppermost geomembrane liner;
- (dddd) "QA/QC" means quality assurance and quality control;
- (eeee) "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;
- (ffff) "regulations" means the regulations enacted pursuant to the Act, as amended;
- (gggg) "representative grab" means a sample consisting of equal volume portions of water collected from at least four sites between 0.20 to 0.30 metres below the water surface within a pond;
- (hhhh) "runoff" means any rainwater or melt water that drains as surface flow from the facility developed areas, excluding leachate;
- (iiii) "runoff control system" means the parts of the facility that collect, store or treat runoff from the facility, and includes but is not limited to runoff collection ditches, surface water detention ponds and tank farm bermed area;
- (jjjj) "run-on" means any rainwater or melt water that drains as surface flow toward the active landfill area;
- (kkkk) "run-on control system" means the parts of the facility that divert run-on away from the active landfill area;
- (llll) "scrubber exhaust stack" means the exhaust stack through which the air effluent streams that are:
 - (i) collected from the exhaust vents of the Drum Processing Building or Staging Building or both, and
 - (ii) treated with the caustic scrubber and activated carbon filter

TERMS AND CONDITIONS ATTACHED TO APPROVAL

are released to the atmosphere as described in the application;

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

(nnnn) “soil” means mineral or organic earthen materials that can, have, or are being altered by weathering, biological processes, or human activity;

(oooo) “SOP” means Standard Operating Procedures;

(pppp) "storm event" means a 1 in 25 year, 24 hour duration rainfall event at Ryley, Alberta;

(qqqq) “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 including wood, concrete, steel, and plastic;

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

(ssss) “TDS” means Total Dissolved Solids;

(tttt) “TNMOCs” means total non-methane organic compounds;

(uuuu) “topsoil” means the uppermost layer of soil and consists of:

(i) the A-horizons and all organic horizons as defined in *The Canadian System of Soil Classification* (Third Edition), Agriculture and Agri-Food Canada, Publication 1646, 1998, as amended, and

(ii) the soil ordinarily moved during tillage;

(vvvv) “total metals” means the following:

Antimony	Cobalt	Selenium
Arsenic	Copper	Silver
Barium	Iron	Thallium
Beryllium	Lead	Tin
Boron	Manganese	Uranium
Cadmium	Mercury	Vanadium
Chromium	Nickel	Zinc

(wwww) “TSP” means total suspended particulate matter;

(xxxx) “TSS” means Total Suspended Solids;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (yyyy) "upper subsoil" means the layer of soil directly below the topsoil layer that consists of the B-horizons as defined in *The Canadian System of Soil Classification*, (Third Edition), Agriculture and Agri-Food Canada, Publication 1646, 1998, as amended;
- (zzzz) "VOCs" means volatile organic compounds;
- (aaaaa) "volume estimate" means a technical evaluation based on the sources contributing to the release including but not limited to pump capabilities, water meters, and batch release volumes;
- (bbbbb) "waste stabilization area" means the portion of the landfill that is used for waste stabilization or solidification or both, as described in application No. 008-10348 or No. 015-10348;
- (ccccc) "waste storage area" means the areas designated for storage of containers for waste or hazardous recyclable or both, or for storage of tanks for waste or hazardous recyclable or both, or for storage of both, as described in application No. 005-10348;
- (dddd) "week" means any consecutive 7-day period;
- (eeee) "working face" means that portion of the active landfill area where waste is currently being deposited, spread and compacted; and
- (ffff) "year" means calendar year.

PART 2: GENERAL**SECTION 2.1: REPORTING**

- 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 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;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (d) an application for protection from creditors is filed for the benefit of the approval holder under any creditor protection legislation; or
- (e) any of the assets which are the subject matter of this approval are seized for any reason.

- 2.1.4 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 uses 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.
- 2.1.5 The approval holder shall submit all monthly reports required by this approval to be compiled or submitted to the Director on or before the end of the month following the month in which the information was collected, unless otherwise specified in this approval.
- 2.1.6 The approval holder shall submit all annual reports required by this approval to be compiled or submitted to the Director on or before March 31 of the year following the year in which the information was collected, unless otherwise specified in this approval.

SECTION 2.2: RECORD KEEPING

2.2.1 The approval holder shall:

- (a) record; and
- (b) 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:

- (i) the place, date and time of sampling,
- (ii) sample type,
- (iii) the dates the analyses were performed,
- (iv) the analytical techniques, methods or procedures used in the analyses,
- (v) the names of the persons who collected and analysed each sample, and
- (vi) the results of the analyses.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 2.2.2 The approval holder shall keep and maintain an Operating Record of the landfill as per 4.6.34(a) until the end of the landfill post-closure.
- 2.2.3 The Operating Record referred to in 2.2.2 shall include, at a minimum, all of the following information:
- (a) the information required in section 7.3(c) of the *Standards for Landfills in Alberta*, as amended;
 - (b) the name and contact information of all persons who discover any contravention;
 - (c) the names and contact information of all persons who take any remedial actions arising from the contravention of the Act, the regulations, or this approval; and
 - (d) a description of the remedial measures taken in respect of a contravention of the Act, the regulations, or this approval.
- 2.2.4 The approval holder shall submit a copy of the most recent Operating Record to the Director upon written request from the Director within the timeline specified in writing by the Director.

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

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (B) the *Methods Manual for Chemical Analysis of Atmospheric Pollutants*, Alberta Environment, 1993, as amended, and
 - (C) the *Air Monitoring Directive*, Alberta Environment, 1989, as amended;
- (ii) for industrial wastewater, industrial runoff, groundwater and domestic wastewater:
- (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, 1998, 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, December 2000, 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, December 2000, as amended,
 - (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 *Biological Test Method: Toxicity Test Using Luminescent Bacteria (*Photobacterium phosphoreum*)*, Environment Canada, Environmental Protection Series, 1/RM/24, November 1992, as amended;
- (iv) for soil:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (A) the *Soil Monitoring Directive*, Alberta Environment, May 2009, as amended, and
 - (B) the *Soil Quality Criteria Relative to Disturbance and Reclamation*, Alberta Agriculture, March 1987, as amended; and
 - (v) for waste:
 - (A) the *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, USEPA, SW-846, September 1986, as amended,
 - (B) the *Methods Manual for Chemical Analysis of Water and Wastes*, Alberta Environmental Centre, Vegreville, Alberta, 1996, AECV96-M1, as amended,
 - (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, 2010, as amended.
- 2.3.2 The approval holder shall analyse all samples that are required to be obtained by this approval in a laboratory accredited pursuant to ISO/IEC 17025, as amended, for the specific parameter(s) to be analysed, unless otherwise authorized in writing by the Director.
- 2.3.3 The term sample used in 2.3.2 does not include samples directed to continuous monitoring equipment, unless specifically required in writing by the Director.
- 2.3.4 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 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.
- 2.4.2 Any conflict between the *Standards for Landfills in Alberta*, as amended, and the terms and conditions of this approval shall be resolved in favour of this approval.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 2.4.3 *Environmental Protection and Enhancement Act* Approval No. 10348-02-00, as amended, is cancelled.
- 2.4.4 All tanks shall conform to the *Guidelines for Secondary Containment for Above Ground Storage Tanks*, Alberta Environmental Protection, 1997, as amended, unless otherwise authorized in writing by the Director.
- 2.4.5 All above ground storage tanks containing liquid hydrocarbons or organic compounds shall conform to the *Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks*, Canadian Council of Ministers of the Environment, PN 1180, 1995, as amended.

PART 3: CONSTRUCTION**SECTION 3.1: LANDFILL**

- 3.1.1 The approval holder shall not commence construction of:
- (a) Cell 4, unless and until updated financial security of the facility has been provided to the Director to include Cell 4; and
 - (b) Cell 5, unless and until updated financial security of the facility has been provided to the Director to include Cell 5.
- 3.1.2 The approval holder shall construct each new Class I industrial landfill cell in such a way that each new Class I landfill cell shall consist of the following components, at a minimum, unless otherwise authorized in writing by the Director:
- (a) a minimum of 0.45 metre thick cover of clean sand or soil placed over top of the uppermost drainage layer;
 - (b) a composite liner that consists of, at a minimum:
 - (i) a geo-composite drainage layer placed in direct contact with an underlying 80 mil HDPE geomembrane liner as a primary liner;
 - (ii) a geo-composite drainage layer placed in direct contact with an underlying 80 mil HDPE geomembrane liner as a secondary liner; and
 - (iii) a GCL liner placed in direct contact with an underlying clay liner that has:
 - (A) a minimum thickness of 1.0 metre at all points, measured perpendicular to the slope, and
 - (B) been compacted to achieve an in-place hydraulic conductivity of 1×10^{-9} m/s or less;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (c) a leachate collection system that:
 - (i) is placed over the primary liner;
 - (ii) is capable of maintaining the maximum acceptable leachate head; and
 - (iii) consists of:
 - (A) a geo-composite drainage layer with a transmissivity of at least $1 \times 10^{-4} \text{ m}^2/\text{s}$ placed over top of the primary liner,
 - (B) a network of perforated leachate collection pipes, and
 - (C) a leachate collection sump placed over the primary liner;
- (d) a leak detection system that:
 - (i) is installed over the secondary liner;
 - (ii) is capable of detecting the leakage through the primary liner; and
 - (iii) consists of:
 - (A) a geo-composite drainage layer with a transmissivity of at least $1 \times 10^{-4} \text{ m}^2/\text{s}$ placed over top of the secondary liner,
 - (B) a network of perforated leak detection liquid collection pipes, and
 - (C) a leak detection liquid collection sump placed over the secondary liner;
- (e) a final cover:
 - (i) that meets the requirements in section 6.1(c) of the *Standards for Landfills in Alberta*, as amended; or
 - (ii) as specified in the Landfill Cell Closure Plan submitted by the approval holder and authorized in writing by the Director pursuant to 7.1.1 and 7.1.4;
- (f) a run-on control system capable of preventing flow onto the active landfill area from at least the peak discharge from a 1 in 25 year, 24 hour duration storm event at the facility; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (g) a runoff control system capable of collecting and controlling at least the runoff volume resulting from a 1 in 25 year, 24 hour duration storm event at the facility.

3.1.3 For any new landfill cell(s) to be constructed below the native ground surface in the NE 09-050-17-W4M area of the facility, the approval holder shall construct the cell(s) in the following manner:

- (a) shallow groundwater shall be dewatered and managed to ensure that construction specifications for the composite liner system referred to in 3.1.2 shall not be compromised;
- (b) measures of groundwater dewatering and management during construction shall be documented, and the document shall be maintained as part of the documentation for construction of the composite liner system;
- (c) the integrity of the composite liner system shall be verified and maintained to function as designed, and the verification shall be documented; and
- (d) the documentation referred to in (b) and (c) above shall be submitted as part of the summary report required in 3.1.9.

3.1.4 The composite liner 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.

3.1.5 The approval holder shall submit to the Director the following plans and specifications for the proposed construction of each of the items listed in 3.1.2, signed and stamped by a professional registered with APEGA at least three (3) months prior to construction:

- (a) a Detailed Construction Plan and Specifications prepared as per 3.1.2;
- (b) a Construction Quality Assurance Plan; and
- (c) a Construction Quality Control Plan.

3.1.6 If the Detailed Construction Plan and Specifications in 3.1.5 is found deficient by the Director, the approval holder shall correct all deficiencies as outlined in writing by the Director within the timeline specified in writing by the Director.

3.1.7 The approval holder shall implement the Detailed Construction Plan and Specifications in 3.1.5 as authorized in writing by the Director.

3.1.8 During construction of any of the items listed in 3.1.2, the approval holder shall not deviate from the Detailed Construction Plan and Specifications as authorized in writing by the Director in 3.1.7, unless the following conditions are met:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (a) the deviation results in a minor adjustment to the Detailed Construction Plan and Specifications in order to suit field conditions encountered; and
 - (b) the deviation will result in an equivalent or better design performance of the landfill.
- 3.1.9 The approval holder shall submit to the Director a summary report of the Construction Quality Assurance and Construction Quality Control results signed and stamped by a professional registered with APEGA.
- 3.1.10 The summary report in 3.1.9 shall contain the following information, at a minimum:
- (a) confirmation that the landfill has been constructed according to:
 - (i) the Construction Quality Assurance Plan,
 - (ii) the Construction Quality Control Plan, and
 - (iii) the Detailed Construction Plan and Specifications as authorized in writing by the Director in 3.1.7, subject to the deviations as per 3.1.8;
 - (b) description of any minor deviations as per 3.1.8;
 - (c) confirmation by the professional registered with APEGA, that deviations as per 3.1.8 will result in an equivalent or better design performance of the landfill;
 - (d) “as-built” plans;
 - (e) photo-documentation of important stages of construction including any repair work or remediation activities to establish or maintain liner integrity;
 - (f) documentation required in 3.1.3; and
 - (g) any other information as required in writing by the Director.
- 3.1.11 The approval holder shall notify the Director in writing at least fourteen (14) days prior to commencing operations of any new landfill cell.
- 3.1.12 The approval holder shall construct the new surface water detention pond(s) in the:
- (a) SE 09-050-17-W4M area of the facility as described in application No. 012-10348; and
 - (b) NE 09-050-17-W4M area of the facility as described in application No. 015-10348 with a clay liner that has:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (i) a minimum thickness of 1.0 metre at all points, measured perpendicular to the slope, and
- (ii) been compacted to achieve an in-place hydraulic conductivity of 1×10^{-9} m/s or less;

unless otherwise authorized in writing by the Director.

- 3.1.13 The approval holder shall construct the laydown area in the NE 09-050-17-W4M area of the facility as described in application No. 015-10348, unless otherwise authorized in writing by the Director.
- 3.1.14 The approval holder shall manage landfill progression in such a manner as to minimize off-site visual impacts of the landfill, as described in the Landfill Cell Closure Plan submitted by the approval holder and authorized in writing by the Director pursuant to 7.1.1 and 7.1.4.

SECTION 3.2: WASTE RECEIVING AND STABILIZATION AREAS

- 3.2.1 The approval holder shall construct the waste receiving area(s) in the SE 09-050-17-W4M area of the facility as described in the application, unless otherwise authorized in writing by the Director.
- 3.2.2 The approval holder shall construct the waste stabilization area(s) in the SE 09-050-17-W4M area of the facility in accordance with the following:
 - (a) application No. 008-10348; and
 - (b) within a Class I landfill cell;unless otherwise authorized in writing by the Director.
- 3.2.3 The approval holder shall construct the central waste receiving and stabilization area in the NE 09-050-17-W4M area of the facility as described in application No. 015-10348, unless otherwise authorized in writing by the Director.
- 3.2.4 The approval holder shall decommission and reclaim the waste receiving and stabilization area(s) in the SE 09-050-17-W4M area of the facility upon completing:
 - (a) construction; and
 - (b) commissioning

of the central waste receiving and stabilization area in the NE 09-050-17-W4M area of the facility, unless otherwise authorized in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

SECTION 3.3: SOIL CONSERVATION

3.3.1 The approval holder shall:

- (a) salvage; and
- (b) conserve

all topsoil for land reclamation of the landfill.

3.3.2 The approval holder shall:

- (a) salvage; and
- (b) conserve

all upper subsoil for land reclamation of the landfill.

3.3.3 The approval holder shall:

- (a) conserve; and
- (b) stockpile

all topsoil separately from the upper subsoil.

3.3.4 The approval holder shall place all:

- (a) topsoil stockpiles; and
- (b) upper subsoil stockpiles

at the landfill.

3.3.5 The approval holder shall stockpile all topsoil as follows:

- (a) on stable foundations; and
- (b) on undisturbed topsoil.

3.3.6 The approval holder shall stockpile all upper subsoil as follows:

- (a) on stable foundations; and
- (b) on areas where the topsoil has been removed.

3.3.7 The approval holder shall take all steps necessary to prevent any erosion (e.g., wind or water), including but not limited to, all of the following:

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TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (a) revegetating the stockpiles; and
- (b) any other steps authorized in writing by the Director.

3.3.8 The approval holder shall immediately suspend conservation of:

- (a) topsoil; and
- (b) upper subsoil

when:

- (i) wet or frozen conditions will result in mixing, loss, degradation or compaction of topsoil or upper subsoil, or
- (ii) high wind velocities, any other field conditions or facility operations will result in mixing, loss, or degradation of topsoil or upper subsoil.

3.3.9 The approval holder shall recommence conservation of:

- (a) topsoil; and
- (b) upper subsoil

only when conditions in 3.3.8 no longer exist.

PART 4: OPERATIONS, LIMITS, MONITORING AND REPORTING

SECTION 4.1: GENERAL

- 4.1.1 The approval holder shall maintain the geographical boundaries of the facility to that located within SE ¼ and NE ¼ of Section 09, Township 050, Range 17, West of the 4th Meridian, as described in the application.
- 4.1.2 The approval holder shall limit the waste elevation of the landfill to no more than the maximum designated waste elevation.
- 4.1.3 The approval holder shall restrict access to the facility to only personnel authorized by the approval holder.
- 4.1.4 The approval holder shall maintain a publicly available 24 hour "HOTLINE" number for a prompt response during an emergency.
- 4.1.5 The approval holder shall:
 - (a) operate; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

(b) maintain the integrity of

the following waste management facilities at the facility:

- (i) the HWRSP Facility;
 - (ii) the Class I and Class II industrial landfill, including:
 - (A) Class I landfill cells,
 - (B) Class II landfill cell(s),
 - (C) waste receiving area(s), and
 - (D) waste stabilization area(s); and
 - (iii) waste storage area(s);
- as described in the application.

4.1.6 In addition to 4.1.5, the approval holder shall:

(a) operate; and

(b) maintain the integrity of

the following infrastructure components at the facility:

- (i) the composite liner;
 - (ii) the leachate collection system,
 - (iii) the leak detection system,
 - (iv) the run-on control system,
 - (v) the runoff control system,
 - (vi) the groundwater monitoring wells,
 - (vii) the weigh scale, and
 - (viii) the site access control;
- as described in the application.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

FACILITY AUDIT

- 4.1.7 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, 2018 for the first audit.
- 4.1.8 The approval holder shall submit the audit report required in 4.1.7 in the Annual Landfill Operations Report as required in 4.6.60(c).
- 4.1.9 The requirements in 4.1.7 and 4.1.8 shall not relieve the approval holder of any duty under the Act, or its associated regulations, or this approval.

FACILITY WILDLIFE MANAGEMENT PLAN

- 4.1.10 The approval holder shall:
 - (a) develop; and
 - (b) implementa Facility Wildlife Management Plan at the facility to keep wildlife away from exposed waste areas within 120 days of the issuance of this approval, unless otherwise authorized in writing by the Director.
- 4.1.11 The approval holder shall:
 - (a) review the Facility Wildlife Management Plan annually; and
 - (b) update the Facility Wildlife Management Plan if any of the following circumstances apply:
 - (i) there are facility expansions or changes in site operations, or
 - (ii) an update is requested in writing by the Director.
- 4.1.12 The approval holder shall retain a copy of the most recent Facility Wildlife Management Plan at the facility.
- 4.1.13 The approval holder shall submit a copy of the most recent Facility Wildlife Management Plan to the Director upon written request from the Director within the timeline specified in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.1.14 If the Facility Wildlife Management Plan submitted pursuant to 4.1.13 is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.
- 4.1.15 The approval hold shall implement the latest Facility Wildlife Management Plan, unless otherwise authorized in writing by the Director.

COMMUNITY COMPLAINT RESPONSE PLAN

- 4.1.16 The approval holder shall:
 - (a) develop; and
 - (b) implementa Community Complaint Response Plan at the facility within 90 days of the issuance of this approval, unless otherwise authorized in writing by the Director.
- 4.1.17 The approval holder shall include, at a minimum, all of the following in the Community Complaint Response Plan referred to in 4.1.16:
 - (a) procedures and methods to be taken to respond to the complaint, which shall include but not limited to the following:
 - (i) recording of the complaint,
 - (ii) reviewing of the complaint records and other relevant information,
 - (iii) investigation of the complaint, and
 - (iv) timeline and follow-up actions for responding to the complaint based on the findings of the complaint review and investigation;
 - (b) the recording of the complaint referred to in (a)(i) above shall include but not limited to the following:
 - (i) contact information of the complainant(s) (names, phone numbers, e-mails and addresses),
 - (ii) detailed description of the event for which the complaint is filed,
 - (iii) date and time of the event occurring,
 - (iv) location where the event is noticed, and direction and distance of the event location relative to the facility,
 - (v) wind direction and speed at the facility, and

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TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (vi) other local meteorological information at the time of the event occurring;
- (c) the reviewing of the complaint referred to in (a)(ii) above shall include but not limited to the following:
 - (i) reviewing complaint records,
 - (ii) reviewing the facility operating records,
 - (iii) reviewing additional local meteorological data, and
 - (iv) timeline for reviewing the complaint;
- (d) the investigation of the complaint referred to in (a)(iii) above shall include but not limited to the following:
 - (i) meeting complainant(s) to obtain further information related to the complaint,
 - (ii) visiting other local residents to collect additional information,
 - (iii) assessing other activities in the vicinity of the facility that may have potential for causing the event, and
 - (iv) timeline for the complaint investigation;
- (e) the timeline and follow-up actions referred to in (a)(iv) above shall include but not limited to the following:
 - (i) timeline for responding to the complaint; and
 - (ii) follow-up actions:
 - (A) if the complaint is found to be related to the facility operations, the follow-up actions shall include:
 - (A.1) notifying the complainant(s) of the findings of the complaint review and investigation within the timeline specified in (i) above,
 - (A.2) taking immediate measures to correct the source(s) of the complaint,
 - (A.3) taking measures to prevent the issue from occurring again in future, and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (A.4) providing a summary of the complaint review and investigation in the Annual Landfill Operations Report pursuant to 4.6.60(n); or
 - (B) if the complaint is found not to be related to the facility operations, the follow-up actions shall include:
 - (B.1) notifying the complainant(s) of the findings of the complaint review and investigation within the timeline specified in (i) above, and
 - (B.2) providing a summary of the complaint review and investigation in the Annual Landfill Operations Report pursuant to 4.6.60(n).
- 4.1.18 The approval holder shall:
- (a) review the Community Complaint Response Plan annually; and
 - (b) update the Community Complaint Response Plan if any of the following circumstances apply:
 - (i) there are facility expansions or changes in site operations, or
 - (ii) an update is requested in writing by the Director.
- 4.1.19 The approval holder shall retain a copy of the most recent Community Complaint Response Plan at the facility.
- 4.1.20 The approval holder shall submit a copy of the most recent Community Complaint Response Plan to the Director upon written request from the Director within the timeline specified in writing by the Director.
- 4.1.21 If the Community Complaint Response Plan submitted pursuant to 4.1.20 is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.
- 4.1.22 The approval hold shall implement the latest Community Complaint Response Plan, unless otherwise authorized in writing by the Director.

PARTICIPATION IN DEVELOPMENT OF LOCAL EMERGENCY MANAGEMENT PLANS

- 4.1.23 The approval holder shall support the Village of Ryley and Beaver County in the development of Local Emergency Management Plans by providing assistance to the Village and County in, at a minimum, all of the following:
- (a) identifying hazards at the facility;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (b) assessing degree of risk of the hazards at the facility;
- (c) suggesting risk mitigation measures;
- (d) offering input to development of emergency notification and emergency evacuation procedures for local residents;
- (e) keeping the Village and County updated for any major new development at the facility; and
- (f) advising the Village and County of the need for updating the Local Emergency Management Plans following any major new development at the facility.

FACILITY EMERGENCY MANAGEMENT PLAN

4.1.24 The approval holder shall:

- (a) develop; and
- (b) implement

a Facility Emergency Management Plan at the facility within 90 days of the issuance of this approval, unless otherwise authorized in writing by the Director.

4.1.25 The Facility Emergency Management Plan referred to in 4.1.24 shall include, at a minimum, all of the following:

- (a) identification of hazards at the facility;
- (b) assessment of degree of risk and impact of hazards at the facility;
- (c) preventative measures for hazards at the facility;
- (d) mitigation measures for hazards at the facility;
- (e) emergency preparedness at the facility;
- (f) procedures for emergency management at the facility; and
- (g) emergency notification and emergency evacuation procedures for local residents.

4.1.26 The approval holder shall:

- (a) review the Facility Emergency Management Plan annually; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (b) update the Facility Emergency Management Plan if any of the following circumstances apply:
 - (i) there are facility expansions or changes in site operations, or
 - (ii) an update is requested in writing by the Director.
- 4.1.27 The approval holder shall retain a copy of the most recent Facility Emergency Management Plan at the facility.
- 4.1.28 The approval holder shall submit a copy of the most recent Facility Emergency Management Plan to the Director upon written request from the Director within the timeline specified in writing by the Director.
- 4.1.29 If the Facility Emergency Management Plan submitted pursuant to 4.1.28 is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.
- 4.1.30 The approval hold shall implement the latest Facility Emergency Management Plan, unless otherwise authorized in writing by the Director.

COMMUNITY ACESIBLE WEBSITE

- 4.1.31 The approval shall:
 - (a) develop; and
 - (b) maintain

a community accessible website available to all local residents within 120 days of the issuance of this approval, unless otherwise authorized in writing by the Director.
- 4.1.32 The community accessible website referred to in 4.1.31 shall include, at a minimum, all of the following information:
 - (a) Annual Landfill Operations Reports (including the three-year compliance audit report, Annual Dugout and Water Well Sampling Program Report, and Annual Landfill Cell Closure Report, etc.);
 - (b) Monthly Waste Management Report, and Annual Waste Management Summary Report;
 - (c) Monthly Ambient Air Monitoring Report, and Annual Ambient Air Monitoring Report;
 - (d) Monthly Runoff and Industrial Wastewater Report, and Annual Runoff and Industrial Wastewater Report;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (e) Annual Groundwater Monitoring Program Report;
- (f) Soil Monitoring Program Report, and Soil Management Program Report;
- (g) Facility Wildlife Management Plan;
- (h) Community Complaint Response Plan;
- (i) regulatory correspondences for incidents and complaints;
- (j) correspondences made to Alberta Environment and Parks and copied CAOs at the Village of Ryley and Beaver County;
- (k) Facility Emergency Management Plan, including emergency notification and emergency evacuation procedures;
- (l) Village of Ryley Emergency Management Plan, including emergency notification and emergency evacuation procedures;
- (m) Beaver County Emergency Management Plan, including emergency notification and emergency evacuation procedures; and
- (n) any other information as requested in writing by the Director.

4.1.33 The approval holder shall:

- (a) review the community accessible website annually; and
- (b) update the website if any of the following circumstances apply:
 - (i) there are facility expansions or changes in site operations, or
 - (ii) an update is requested in writing by the Director.

SECTION 4.2: AIR

OPERATIONS

4.2.1 The approval holder shall not release any air effluent streams to the atmosphere except as authorized by this approval.

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

- (a) the scrubber exhaust stack;

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TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (b) the Drum Processing Building natural gas fired air make up unit exhaust vent;
- (c) the Staging Building natural gas fired air make up unit exhaust vent;
- (d) the Administration Building natural gas fired furnaces exhaust vents;
- (e) the Laboratory fume hood and natural gas fired air make up unit exhaust vents;
- (f) the Maintenance Shop equipment and natural gas fired Radiant Heater exhaust vents;
- (g) the Leachate Collection Tanks natural gas fired heaters exhaust vents;
- (h) the leachate transfer lines passive gas vents; and
- (i) 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 corresponding process equipment is:

- (a) operational; and
- (b) operating.

4.2.4 The approval holder shall treat all air effluent streams from the exhaust vents of the Drum Processing or Staging or both Buildings with a caustic scrubber and an activated carbon filter before directing the air effluent streams to the scrubber exhaust stack for release to the atmosphere while:

- (a) hazardous waste or hazardous recyclables or both are being processed;
- (b) hazardous waste or hazardous recyclables or both are being transferred; or
- (c) containers of hazardous waste or hazardous recyclables or both are open

in the Drum Processing or Staging or both Buildings.

4.2.5 The approval holder shall control fugitive emissions and any source not specified in 4.2.2 in accordance with 4.2.6 of this approval unless otherwise authorized in writing by the Director.

4.2.6 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:

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (a) impairment, degradation or alteration of the quality of natural resources;
- (b) material discomfort, harm or adverse effect to the well being or health of a person; or
- (c) harm to property or to vegetative or animal life.

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

4.2.8 If the approval holder receives complaints of offensive odours, or fugitive dust, or both, beyond the facility boundaries, the approval holder shall:

- (a) conduct the following to reduce the release of those odours, or fugitive dust, or both by:
 - (i) placing restrictions on types, or volumes, or both, of the wastes being handled or processed or deposited that are causing those odours, or fugitive dust, or both,
 - (ii) increasing the frequency of cover placement, or modifying waste handling activities, or performing both, at the landfill,
 - (iii) modifying waste handling activities at the HWRSP Facility, or
 - (iv) performing any combination of the above; and
- (b) activate the Odour and Fugitive Dust Response Program as specified in the Landfill Operations Plan in 4.6.34(I).

LIMITS

4.2.9 The approval holder shall maintain the pH of the scrubbing liquid of the caustic scrubber referred to in 4.2.4 at 8.0 or higher.

4.2.10 The approval holder shall replace activated carbon in the activated carbon filter referred to in 4.2.4 immediately when the concentration of total petroleum hydrocarbons in the air effluent streams released from the scrubber exhaust stack to the atmosphere exceeds 25 ppm.

SOURCE MONITORING AND REPORTING

4.2.11 The approval holder shall monitor, daily at a minimum, the pH of the scrubbing liquid of the caustic scrubber referred to in 4.2.4.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.2.12 The approval holder shall monitor, weekly at a minimum, the air effluent streams released from the scrubber exhaust stack, using a portable total petroleum hydrocarbon analyzer while:
- (a) hazardous waste or hazardous recyclables or both are being processed;
 - (b) hazardous waste or hazardous recyclables or both are being transferred; or
 - (c) containers of hazardous waste or hazardous recyclables or both are open in the Drum Processing or Staging or both Buildings.
- 4.2.13 The portable total petroleum hydrocarbon analyzer referred to in 4.2.12 shall:
- (a) have a detection limit of 1 ppm or lower for total petroleum hydrocarbons;
 - (b) be located in a straight section of the scrubber exhaust stack, a minimum of one (1) metre downstream from the last flow disturbance; and
 - (c) be calibrated regularly in accordance with the analyzer manufacturer's specifications.

AMBIENT AIR MONITORING AND REPORTING

- 4.2.14 The approval holder shall continue to implement the Ambient Air Monitoring Program as authorized in writing by the Director on June 24, 2009, unless and until otherwise authorized in writing by the Director pursuant to 4.2.21.
- 4.2.15 The approval holder shall submit to the Director the results of the Ambient Air Monitoring Program in 4.2.14 with the following reports:
- (a) a Monthly Ambient Air Monitoring Report; and
 - (b) an Annual Ambient Air Monitoring Report
- in accordance with the written authorization by the Director on June 24, 2009, unless and until otherwise authorized in writing by the Director pursuant to 4.2.21.
- 4.2.16 The approval holder shall submit:
- (a) a revised Ambient Air Monitoring Program;
 - (b) revised reporting requirements, or
 - (c) both of the above

TERMS AND CONDITIONS ATTACHED TO APPROVAL

to the Director upon written request from the Director within the timeline specified in writing by the Director.

- 4.2.17 The approval holder shall submit an enhanced Ambient Air Quality Monitoring Program to the Director within 90 days of the issuance of this approval, unless otherwise authorized in writing by the Director.
- 4.2.18 The approval holder shall include, at a minimum, all of the following in the enhanced Ambient Air Quality Monitoring Program referred to in 4.2.17:
- (a) three (3) intermittent ambient air quality monitoring stations:
 - (i) the existing Highway 854 station,
 - (ii) the existing Ryley School station, and
 - (iii) the existing Facility Site station, to be relocated as authorized in writing by the Director;
 - (b) the following monitoring parameters for the existing Highway 854 station:
 - (i) TSP,
 - (ii) PM₁₀ (for 2 year transition from PM₁₀ to TSP, starting from authorization of the enhanced Ambient Air Quality Monitoring Program by the Director),
 - (iii) total metals in:
 - (A) TSP, and
 - (B) PM₁₀ (for 2 year transition from PM₁₀ to TSP, starting from authorization of the enhanced Ambient Air Quality Monitoring Program by the Director),if concentration of TSP or PM₁₀ exceeds 50 µg/m³,
 - (iv) VOCs, and
 - (v) TNMOCs;
 - (c) the following monitoring parameters for the Ryley School and Facility Site stations:
 - (i) TSP, and
 - (ii) total metals in TSP, if concentration of TSP exceeds 50 µg/m³; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (d) the following monitoring frequencies for the three (3) stations referred to in (a) above:
 - (i) for the Highway 854 station, once every six (6) days in alignment with the NAPS sampling schedule, and
 - (ii) for the Ryley School and Facility Site stations, linking the two (2) stations in such a way that the two (2) stations will collect air samples whenever the wind direction is oriented in a northeast to southwest direction.

4.2.19 The approval holder shall include a minimum of one (1) meteorological station in each of the Ryley School and Facility Site intermittent ambient air quality monitoring stations referred to in 4.2.18(a) that measures and records, at a minimum, all of the following parameters:

- (a) wind speed; and
- (b) wind direction.

4.2.20 If the revised:

- (a) Ambient Air Monitoring Program;
- (b) reporting requirements; or
- (c) both of the above

submitted pursuant to 4.2.16 or 4.2.17 is found deficient by the Director, the approval holder shall correct all deficiencies as outlined in writing by the Director within the timeline specified in writing by the Director.

4.2.21 The approval holder shall implement the revised:

- (a) Ambient Air Monitoring Program;
- (b) reporting requirements; or
- (c) both of the above

submitted pursuant to 4.2.16 or 4.2.17 as authorized in writing by the Director within the timeline specified in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

SECTION 4.3: 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 integrity of:
- (a) the 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 storm event at the facility; and
 - (b) the runoff control system for the facility to collect and control at least the runoff volume resulting from a 1 in 25 year, 24 hour duration storm event at the facility.
- 4.3.3 All runoff from the facility developed area shall be directed to the runoff control system as described in:
- (a) application No. 012-10348, for the SE 09-050-17-W4M area of the facility, prior to decommissioning and reclamation of the old surface water detention pond;
 - (b) application No. 014-10348, for the SE 09-050-17-W4M area of the facility, after decommissioning and reclamation of the old surface water detention pond; and
 - (c) application No. 015-10348, for the NE 09-050-17-W4M area of the facility;
- unless otherwise authorized in writing by the Director.
- 4.3.4 Prior to decommissioning and reclamation of the old surface water detention pond and subject to 4.3.8, the approval holder shall only make or permit a release from the old surface water detention pond:
- (a) at the release point as designated in application No. 012-10348, which is:
 - (i) located in the south east corner of the old surface water detention pond, and
 - (ii) referred to as sampling location A1 in 4.3.12; and
 - (b) through
 - (i) a pump and a release hose over the south berm into the drainage control ditch, east of the landfill access road, to the new surface water

TERMS AND CONDITIONS ATTACHED TO APPROVAL

detention pond in the SE 09-050-17-W4M area of the facility, under normal operating conditions; or

- (ii) a pump and a release hose over the south berm directly to the culvert under Highway 854, during periods of high runoff exceeding the holding capacity of the new surface water detention pond in the SE 09-050-17-W4M area of the facility;

unless otherwise authorized in writing by the Director.

4.3.5 Subject to 4.3.8, the approval holder shall only make or permit a release from the new surface water detention pond in the SE 09-050-17-W4M area of the facility:

- (a) at the release point as designated in application No. 012-10348, which is:
 - (i) located in the north east corner of the new surface water detention pond in the SE 09-050-17-W4M area of the facility, and
 - (ii) referred to as sampling location B1 in 4.3.12; and
- (b) through a pump and a release hose over the east berm into the culvert under Highway 854;

unless otherwise authorized in writing by the Director.

4.3.6 Subject to 4.3.8, the approval holder shall only make or permit a release from each of the new surface water detention pond(s) in the NE 09-050-17-W4M area of the facility:

- (a) through a pump and a release hose into the drainage control ditch, east of the landfill access road, to the new surface water detention pond in the SE 09-050-17-W4M area of the facility, under normal operating conditions; or
- (b) through a pump and a release hose directly to the culvert under Highway 854, during periods of high runoff exceeding the holding capacity of the new surface water detention pond in the SE 09-050-17-W4M area of the facility;

unless otherwise authorized in writing by the Director.

4.3.7 The approval holder shall only dispose of industrial wastewaters, or specified runoff in TABLE 4.3-A, or both, by one or more of the following methods:

- (a) to facilities holding a current Act authorization to accept such waste;
- (b) to facilities approved by a local environmental authority outside of Alberta to accept such waste;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (c) to a disposal well approved by AER;
- (d) as per 4.6.52; or
- (e) as otherwise authorized in writing by the Director.

TABLE 4.3-A: SPECIFIED RUNOFF

SOURCES
Runoff that exceeds any of the limits for the parameters listed in TABLE 4.3-B.
Runoff for which the results of the parameters listed in TABLE 4.3-B are unavailable at the time that the runoff must be disposed of.
Runoff from within the tank farm bermed area.

LIMITS

4.3.8 Releases of runoff:

- (a) from the old surface water detention pond to the surrounding watershed;
- (b) from the new surface water detention pond in the SE 09-050-17-W4M area of the facility to the surrounding watershed;
- (c) from each of the new surface water detention pond(s) in the NE 09-050-17-W4M area of the facility to the surrounding watershed, or to the new surface water detention pond in the SE 09-050-17-W4M area of the facility; or
- (d) from any combination of the above

shall comply with the limits specified in TABLE 4.3-B.

TABLE 4.3-B: RUNOFF LIMITS FOR SURFACE WATER DETENTION PONDS

PARAMETER	LIMITS (Maximum unless otherwise indicated)
pH	6.0 – 9.5 pH units
COD	50 mg/L
TDS	2500 mg/L
TSS	25 mg/L
Ammonia (expressed as Nitrogen)	5 mg/L
Chloride	250 mg/L
Sodium	200 mg/L
Sulphate	500 mg/L
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 (<i>Oncorhynchus mykiss</i>)	50% or greater survival

TERMS AND CONDITIONS ATTACHED TO APPROVAL

4.3.9 Releases of runoff from within the tank farm bermed area to the old or new or both surface water detention ponds shall comply with the limits specified in TABLE 4.3-C.

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

PARAMETER	LIMITS Maximum unless otherwise indicated
pH	6.0 – 9.5 pH units
COD	50 mg/L
TSS	25 mg/L
Ammonia (expressed as Nitrogen)	5 mg/L
Oil or other substances	Not present in amounts sufficient to create a visible film or sheen

MONITORING AND REPORTING

- 4.3.10 The approval holder shall monitor the runoff control system as required in TABLE 4.3-D, subject to 4.3.13.
- 4.3.11 The approval holder shall report to the Director the results of the runoff control system monitoring as required in TABLE 4.3-D, subject to 4.3.13.
- 4.3.12 For the purpose of TABLE 4.3-D:
- (a) sampling location A1 is defined as the old surface water detention pond release point;
 - (b) sampling location A2 is defined as the old surface water detention pond;
 - (c) sampling location B1 is defined as the release point of the new surface water detention pond in the SE 09-050-17-W4M area of the facility;
 - (d) sampling location B2 is defined as the new surface water detention pond in the SE 09-050-17-W4M area of the facility;
 - (e) sampling location C1 is defined as the release point of each of the new surface water detention pond(s) in the NE 09-050-17-W4M area of the facility;
 - (f) sampling location C2 is defined as each of the new surface water detention pond(s) in the NE 09-050-17-W4M area of the facility; and
 - (g) sampling location D is defined as the tank farm bermed area.
- 4.3.13 The monitoring and reporting requirements in 4.3.10 and 4.3.11 for the old surface water detention pond (sampling locations A1 and A2) shall not apply after decommissioning and reclamation of the old surface water detention pond.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

TABLE 4.3-D: RUNOFF CONTROL SYSTEM MONITORING AND REPORTING

MONITORING				REPORTING	
Parameter	Frequency	Sample Type	Sampling Location	Monthly	Annually
Surface Water Detention Ponds				Monthly Runoff and Industrial Wastewater Report, for each month when release occurs	Annual Runoff and Industrial Wastewater Report
Flow (m ³ /day)	Daily during release	Estimate	A1, B1, C1		
pH	Once per batch release, prior to release	Representative Grab	A2, B2, C2		
COD					
TDS					
TSS					
Ammonia (expressed as nitrogen)					
Chloride					
Sodium					
Sulphate					
Oil or other substances	Daily during release	Visual			
96-hour multiple concentration acute lethality test using rainbow trout (<i>oncorhynchus mykiss</i>)	Each month when release occurs, prior to release, for the first batch release of the month	Representative Grab			
48-hour static acute lethality test using <i>daphnia magna</i>					
Tank Farm Bermed Area					
Volume (m ³)	Total batch volume released	Estimate	D		
pH	Once per batch release, prior to release to the surface water detention pond(s)	Representative Grab			
COD					
TSS					
Ammonia (expressed as nitrogen)					
Oil or other substances		Visual			

4.3.14 The monitoring and reporting required in TABLE 4.3-D for the acute lethality tests shall comply with:

- (a) the *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout*, Environment Canada, Environmental Protection Series 1/RM/13, December 2000, as amended; and
- (b) the *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia Magna*, Environment Canada, Environmental Protection Series 1/RM/14, December 2000, as amended.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.3.15 The approval holder shall:
- (a) treat any acute lethality test that deviates from the corresponding test method referred to in 4.3.14 as invalid; and
 - (b) repeat the test as soon as logistically possible.
- 4.3.16 In the event that less than 50% of the rainbow trout survived in the 100% concentration sample, the approval holder shall:
- (a) implement a program immediately to identify the source of the toxicity; and
 - (b) submit to the Director within 90 days after the test result is available, a proposed program to reduce the toxicity of the runoff.
- 4.3.17 The approval holder shall submit the Monthly Runoff and Industrial Wastewater Report in TABLE 4.3-D to the Director.
- 4.3.18 The Monthly Runoff and Industrial Wastewater Report shall include, at a minimum, all of the following information:
- (a) a monthly assessment of the monitoring results relative to the limits in TABLE 4.3-B;
 - (b) a monthly assessment of the monitoring results relative to the limits in TABLE 4.3-C;
 - (c) a monthly assessment of the performance of the:
 - (i) runoff control system,
 - (ii) pollution abatement equipment, and
 - (iii) monitoring equipment;
 - (d) a monthly summary of management and disposal of the:
 - (i) industrial wastewaters, and
 - (ii) specified runoffas per 4.3.7;
 - (e) a monthly summary of management and disposal of runoff in general;
 - (f) a monthly summary of runoff contraventions reported pursuant to 2.1.1; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (g) any other information as required in writing by the Director.
- 4.3.19 The approval holder shall submit the Annual Runoff and Industrial Wastewater Report in TABLE 4.3-D to the Director.
- 4.3.20 The Annual Runoff and Industrial Wastewater Report shall include, at a minimum, all of the following information:
- (a) an annual summary assessment of the monitoring results relative to the limits in TABLE 4.3-B;
 - (b) an annual summary assessment of the monitoring results relative to the limits in TABLE 4.3-C;
 - (c) an annual summary assessment of the performance of the:
 - (i) runoff control system,
 - (ii) pollution abatement equipment, and
 - (iii) monitoring equipment;
 - (d) an annual summary of management and disposal of the:
 - (i) industrial wastewaters, and
 - (ii) specified runoffas per 4.3.7;
 - (e) an annual summary and evaluation of management and disposal of runoff in general;
 - (f) an annual summary of the results pursuant to 4.3.22;
 - (g) an annual summary of runoff contraventions reported pursuant to 2.1.1; and
 - (h) any other information as required in writing by the Director.
- 4.3.21 The approval holder shall:
- (a) collect a representative grab sample from the old surface water detention pond at least once per year, prior to decommissioning and reclamation of the pond;
 - (b) collect a representative grab sample from each of the new surface water detention ponds at least once per year; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

(c) analyze the samples for all of the parameters specified in TABLE 4.3-E.

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

PARAMETERS			
pH	TDS; TSS	Fluoride, dissolved	Phenols
Electrical conductivity	Metals	Cyanide (weak acid dissociable)	Total chlorinated phenols
COD	Major ions	BTEX	Polychlorinated biphenyls, total
DOC	Nutrients	Petroleum Hydrocarbons Fractions F1 and F2	Total organic halogens

4.3.22 The approval holder shall submit the results of the analyses in 4.3.21 to the Director in the Annual Runoff and Industrial Wastewater Report.

SECTION 4.4: LEACHATE COLLECTION AND LEAK DETECTION

OPERATIONS

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

- (a) to facilities holding a current Act authorization to accept such waste;
- (b) to facilities approved by a local environmental authority outside of Alberta to accept such waste;
- (c) to a disposal well approved by AER; or
- (d) as per 4.6.52.

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

- (a) to facilities holding a current Act authorization to accept such waste;
- (b) to facilities approved by a local environmental authority outside of Alberta to accept such waste;
- (c) to a disposal well approved by AER; or
- (d) as per 4.6.52.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

LIMITS

- 4.4.3 Subject to 4.4.4, the approval holder shall not exceed the maximum acceptable leachate head in any landfill cell.
- 4.4.4 Subsequent to a storm event, the leachate head in any landfill cell shall not exceed the maximum acceptable leachate head for more than fourteen (14) days, unless otherwise authorized in writing by the Director.
- 4.4.5 The volume of liquid in the leak detection system, as monitored in TABLE 4.6-D, shall not exceed the action leakage rate in any landfill cell.

MONITORING AND REPORTING

- 4.4.6 The approval holder shall monitor the leachate collection and leak detection systems as required in TABLE 4.6-D and for all parameters specified in TABLE 4.4-A, subject to 4.4.8 and 4.4.9.
- 4.4.7 The approval holder shall report to the Director the results of the leachate collection and leak detection systems monitoring as required in TABLE 4.6-D, including the results of the analyses for all parameters specified in TABLE 4.4-A, subject to 4.4.8 and 4.4.9.

TABLE 4.4-A: LEACHATE AND LEAK DETECTION LIQUID MONITORING

PARAMETERS		
pH (field and laboratory)	TDS	Nutrients
Electrical conductivity (field and laboratory)	TSS	BTEX
COD	Metals	Phenols
DOC	Major Ions	Petroleum Hydrocarbons Fractions F1 and F2

- 4.4.8 The requirements in 4.4.6 and 4.4.7 for monitoring and reporting the parameters in TABLE 4.4-A for leachate shall not apply if insufficient leachate is available for conducting the analyses.
- 4.4.9 The requirements in 4.4.6 and 4.4.7 for monitoring and reporting the parameters in TABLE 4.4-A for leak detection liquid shall not apply if insufficient leak detection liquid is available for conducting the analyses.
- 4.4.10 If the volume of liquid removed from the leak detection system exceeds the action leakage rate, 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 exceedance.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

SECTION 4.5: DUGOUTS AND WATER WELLS IN SURROUNDING AREA

MONITORING AND REPORTING

4.5.1 The approval holder shall:

(a) collect a representative sample from:

(i) each of the dugouts, and

(ii) each of the water wells

within an approximate 1.6 kilometre radius around the facility; and

(b) analyze the sample for the parameters listed in TABLE 4.5-A;

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

TABLE 4.5-A: DUGOUT AND WATER WELL MONITORING

PARAMETERS		
pH (field and laboratory)	TDS	Nutrients
Electrical conductivity (field and laboratory)	TSS	BTEX
COD	Metals	Phenols
DOC	Major Ions	Petroleum Hydrocarbons Fractions F1 and F2

4.5.2 The monitoring required in 4.5.1 shall be conducted once each year in October unless otherwise authorized in writing by the Director.

4.5.3 The approval holder shall record the analytical results of the sampling information required in 4.5.1 in an Annual Dugout and Water Well Sampling Program Report.

4.5.4 The approval holder shall submit the Annual Dugout and Water Well Sampling Program Report to the Director pursuant to 4.6.60(i).

SECTION 4.6: HWRSP FACILITY AND LANDFILL

GENERAL

4.6.1 The approval holder shall not:

(a) receive;

(b) process;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (c) dispose of; or
- (d) perform any combination of the above for

any of the following wastes, individually or in any combination, at the respective locations specified below:

- (i) explosives (Class 1 TDGR wastes), at the facility;
- (ii) radioactive wastes (Class 7 TDGR wastes), at the facility;
- (iii) radioactive wastes regulated under the *Nuclear Safety and Control Act* (Canada), at the facility;
- (iv) biomedical waste, at the facility;
- (v) waste containing free liquids, at the landfill, excluding the waste stabilization area;
- (vi) material containing ozone depleting substances, at the landfill;
- (vii) municipal solid waste, at the facility;
- (viii) NORM waste, at the facility;
- (ix) waste generating offensive odours, at the facility, unless and until effective control measures are provided to prevent releases of offensive odours to the outside of the facility fenceline.

4.6.2 Incompatible wastes and incompatible hazardous recyclables shall be prevented from mixing.

4.6.3 The approval holder shall dispose of wastes generated at the facility only:

- (a) to facilities holding a current Act authorization;
- (b) to facilities approved by a local environmental authority outside of Alberta; or
- (c) as otherwise authorized in writing by the Director.

HWRSP FACILITY

OPERATIONS PLAN

4.6.4 The approval holder shall:

- (a) develop;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

(b) keep up-to-date; and

(c) implement

an HWRSP Facility Operations Plan.

4.6.5 The approval holder shall:

(a) review the HWRSP Facility Operations Plan annually, at a minimum; and

(b) update the HWRSP Facility Operations Plan if any of the following circumstances apply:

(i) there are facility expansions or changes in site operations or equipment,

(ii) there is an applicable change to an applicable regulation, or

(iii) an update is required in writing by the Director.

4.6.6 The approval holder shall retain a copy of the most recent HWRSP Facility Operations Plan at the facility.

4.6.7 The approval holder shall submit a copy of the most recent HWRSP Facility Operations Plan to the Director upon written request from the Director within the timeline specified in writing by the Director.

4.6.8 If the HWRSP Facility Operations Plan submitted pursuant to 4.6.7 is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.

4.6.9 The approval hold shall implement the latest HWRSP Facility Operations Plan, unless otherwise authorized in writing by the Director.

OPERATIONS

4.6.10 The approval holder shall only transfer wastes and hazardous recyclables at designated transfer areas designed to contain spills and leaks.

4.6.11 The approval holder shall use the following when transferring substances to, from, and between containers, tanks, and 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;

.....

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (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.
- 4.6.12 All wastes and all hazardous recyclables that are unloaded shall be immediately transferred to the waste storage area.
- 4.6.13 All containers and unrinsed empty containers shall be stored in the waste storage area.
- 4.6.14 The approval holder shall:
- (a) provide and maintain an adequate aisle space between containers in the waste storage area to allow:
 - (i) inspection, and
 - (ii) unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of the waste storage area; and
 - (b) arrange inspection aisles in the waste storage area such that the identification label on each container is readable.
- 4.6.15 All tanks within the tank farm area 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.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.6.16 All tanks containing hazardous waste and all tanks containing 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 overflow; 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 and hazardous recyclables in the same building.
- 4.6.17 Hazardous waste and hazardous recyclables stored in containers and tanks shall be stored in accordance with the *Hazardous Waste Storage Guidelines*, June 1988, Alberta Environment, as amended.
- 4.6.18 The approval holder shall only carry out the following activities, individually or in any combination, at the HWRSP Facility in relation to hazardous waste or hazardous recyclables or both:
- (a) commingling of hazardous waste or hazardous recyclables to make maximum use of available container or tank capacity, only if the resultant mixture has the same TDGR hazard classification as any one of the individual components;
 - (b) phase separation by gravity settling, only without the addition of any chemicals designed to accelerate settling;
 - (c) dispersion of solids into liquids by natural or mechanical means, only if the resultant mixture has the same TDGR hazard classification as the original waste;
 - (d) physical segregation of hazardous from non-hazardous articles or components from the same container, only if no process equipment is used;
 - (e) washing of drums or other objects, only for the purpose of removing hazardous residue;
 - (f) crushing or shredding of used filters, rags, absorbent materials, or empty containers, only for the purpose of volume reduction or liquid recovery, unless otherwise authorized in writing by the Director; or
 - (g) treatment of hazardous waste, only as authorized in writing by the Director.
- 4.6.19 Notwithstanding 4.6.18(g), the approval holder shall not incinerate waste at the facility.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

LIMITS

4.6.20 The approval holder shall not store a total of more than 752,500 litres of hazardous waste or hazardous recyclables or both at the HWRSP Facility at any time.

4.6.21 In addition to the storage limits in 4.6.20, the approval holder shall not exceed the waste storage limits as specified in TABLE 4.6-A.

TABLE 4.6-A: STORAGE LIMITS FOR HAZARDOUS WASTE OR HAZARDOUS RECYCLABLES OR BOTH AT HWRSP FACILITY

Waste/Recyclable Type	Material	Maximum Quantity
Containers: Hazardous waste or hazardous recyclables or both	TDGR Classification 2, 3, 4, 5, 6, 8 or 9 waste type only	512,500 litres (consisting of 2,500 drum equivalents, each 205 litre capacity)
Bulk Tanks: Hazardous waste or hazardous recyclables or both	Waste flammable liquids, used oil, or wastewaters; or TDGR Classification 3, 5, 6, 8 or 9 waste type only	240,000 litres (consisting of a total of 135 m ³ in the tank farm area, and a total of 105 m ³ inside the buildings)

4.6.22 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.

4.6.23 The limits referred to in 4.6.20 and 4.6.21 shall be calculated based on the:

- (a) total nominal volumes of all containers, treating all partially filled containers as if they were full; and
- (b) total filled capacities of all tanks.

MONITORING AND REPORTING

4.6.24 The approval holder shall:

- (a) identify;
- (b) characterize; and
- (c) classify

all waste streams and all hazardous recyclables, generated or received at the HWRSP Facility, not including runoff, industrial wastewater streams and air effluent streams in accordance with the:

- (i) *Industrial Waste Identification and Management Options*, Alberta Environment, May 1996, as amended, and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (ii) *Alberta User Guide for Waste Managers*, Alberta Environment, August 1996, as amended.

4.6.25 The approval holder shall measure or, when not feasible to measure, estimate, the quantity of each waste and hazardous recyclable identified in 4.6.24 each year.

4.6.26 The approval holder shall keep a daily:

- (a) total; and
- (b) inventory

of all materials being stored at the HWRSP Facility.

4.6.27 The daily total and inventory records in 4.6.26 shall be available at the facility at all times for inspection by the Director or an inspector.

4.6.28 The approval holder shall submit a Monthly Waste Management Report to the Director.

4.6.29 The approval holder shall compile all of the information indicated in TABLE 4.6-B in the Monthly Waste Management Report which shall contain, at minimum, all of 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:
 - (i) within the province, and
 - (ii) from outside the province;
- (c) the amount and type of waste and hazardous recyclables:
 - (i) shipped for recycling or product,
 - (ii) shipped off-site for disposal, and
 - (iii) disposed on-site;
- (d) any adjustments, including but not limited to, consolidation, reclassification, losses to processing, spills, volume miscalculations, or any other

TERMS AND CONDITIONS ATTACHED TO APPROVAL

TABLE 4.6-B: MONTHLY WASTE INVENTORY REPORT (BY WASTE CLASS)

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.

** Identify 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

circumstances, which would affect the mass balance of the monthly inventory report;

- (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.

4.6.30 The approval holder shall compile all the information required by 4.6.24 and 4.6.25 in an Annual Waste Management Summary Report:

- (a) as specified in TABLE 4.6-C; and
- (b) in accordance with the:
 - (i) *Industrial Waste Identification and Management Options*, Alberta Environment, May 1996, as amended, and
 - (ii) *Alberta User Guide for Waste Managers*, Alberta Environment, August 1996, as amended.

TABLE 4.6-C: ANNUAL WASTE MANAGEMENT SUMMARY

Waste or Hazardous Recyclable 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											

4.6.31 The approval holder shall submit the Annual Waste Management Summary Report to the Director.

LANDFILL

OPERATIONS PLAN

4.6.32 The approval holder shall:

- (a) develop;
- (b) keep up-to-date; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (c) implement

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

4.6.33 The approval holder shall:

- (a) review the Landfill Operations Plan annually, at a minimum; and
- (b) update the Landfill Operations Plan if any of the following circumstances apply:
- (i) there are facility expansions or changes in site operations or equipment,
 - (ii) there is an applicable change to the *Standards for Landfills in Alberta*, as amended,
 - (iii) an update is required in writing by the Director, or
 - (iv) there is an update to an applicable regulation.

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

- (a) SOP for keeping and maintaining an Operating Record;
- (b) SOP for waste control, run-on and runoff controls, and nuisance controls;
- (c) SOP for the waste stabilization area operations;
- (d) SOP 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) SOP for detecting, preventing and disposal of unauthorized wastes;
- (f) SOP for placing waste in a landfill cell including:
- (i) working face width,
 - (ii) lift depth,

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (iii) compaction, and
- (iv) waste placement location using a grid system;
- (g) SOP for managing contaminated sulphur and sulphur containing wastes;
- (h) SOP for managing asbestos wastes;
- (i) SOP 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;
- (j) SOP for lab screening of pyrophoric wastes for water quenching;
- (k) SOP for water quenching treatment of pyrophoric wastes;
- (l) an Odour and Fugitive Dust Response Program, including odour from the HWRSP Facility;
- (m) a Fugitive Dust and Odour Best Management Plan, including odour from the HWRSP Facility;
- (n) a runoff and industrial wastewater monitoring and management program;
- (o) a leachate monitoring and management program;
- (p) a leak detection liquid monitoring and management program;
- (q) a groundwater monitoring program;
- (r) a Remediation Plan to deal with groundwater quality deterioration;
- (s) a soil monitoring program;
- (t) a soil management program;
- (u) a landfill cell cover system;
- (v) a monitoring and maintenance program for the scale house and heavy operational equipment;
- (w) a health and safety program;
- (x) a Facility Wildlife Management Plan, pursuant to 4.1.15;
- (y) a Community Complaint Response Plan, pursuant to 4.1.22;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (z) a Facility Emergency Management Plan, pursuant to 4.1.30; and
 - (aa) an up-to-date plan of the landfill layout with survey records showing the location of all infrastructure components of the landfill including final cover elevations and contours.
- 4.6.35 The approval holder shall include, at a minimum, all of the following in the SOP referred to in 4.6.34(j) for lab screening of pyrophoric wastes to assess the suitability of using water quenching to neutralize the reactivity of the pyrophoric wastes:
- (a) procedures and methods for obtaining representative pyrophoric wastes sample for lab test;
 - (b) procedures and methods for conducting lab screening test using representative sample of pyrophoric wastes, including:
 - (i) setup of lab test equipment,
 - (ii) test procedures,
 - (iii) collection of samples of off-gases from lab water quenching test,
 - (iv) screening parameters, including, at a minimum, odour, ammonia, H₂S, PM, total metals, VOCs, TNMOCs, and total hydrocarbons, and
 - (v) analytical methods for testing the screening parameters;
 - (c) assessment of lab test results and passing criteria for screening; and
 - (d) documentation and record keeping of lab screening test results.
- 4.6.36 The approval holder shall retain a copy of the most recent Landfill Operations Plan at the facility.
- 4.6.37 The approval holder shall submit to the Director the most recent Landfill Operations Plan when requested in writing by the Director within the timeline specified in writing by the Director.
- 4.6.38 The approval holder shall correct all deficiencies in the Landfill Operations Plan submitted pursuant to 4.6.37, as outlined in writing by the Director, within the timeline specified in writing by the Director.
- 4.6.39 The approval holder shall implement the latest Landfill Operations Plan, unless otherwise authorized in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL**OPERATIONS**

- 4.6.40 The approval holder shall classify all materials entering the landfill in accordance with the:
- (a) *Waste Control Regulation (AR 192/96)*;
 - (b) *Industrial Waste Identification and Management Options*, Alberta Environment, May 1996, as amended; and
 - (c) *Alberta User Guide for Waste Managers*, May 1995, as amended.
- 4.6.41 The approval holder shall obtain a detailed representative physical and chemical analysis of a waste prior to disposal of the waste into the landfill at the following times, at a minimum:
- (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.
- 4.6.42 The approval holder shall not dispose of hazardous waste in any Class II landfill cell.
- 4.6.43 The approval holder:
- (a) shall only carry out waste stabilization or solidification or both within the waste stabilization area(s);
 - (b) shall only operate waste:
 - (i) receiving, and
 - (ii) stabilizationarea(s) as described in the application;
 - (c) shall not transfer waste from the waste stabilization area to the Class I landfill cell before the waste stabilization or solidification or both have been completed; and

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (d) may treat pyrophoric wastes by water quenching only within the waste stabilization area, subject to passing lab screening criteria;

unless otherwise authorized in writing by the Director.

4.6.44 The approval holder shall only dispose of any liquid collected within the waste stabilization area by one or more of the following methods:

- (a) to facilities holding a current Act authorization to accept such waste;
- (b) to facilities approved by a local environmental authority outside of Alberta to accept such waste;
- (c) to a disposal well approved by AER; or
- (d) as otherwise authorized in writing by the Director.

4.6.45 The approval holder shall conduct:

- (a) annually, in-house visual inspections for corrosion; and
- (b) biennially, ultrasonic testing to monitor thickness

of the steel plate liner of the stabilization pits in the waste stabilization area, unless otherwise authorized in writing by the Director.

4.6.46 The approval holder shall dispose of asbestos wastes in accordance with "*Guidelines for the Disposal of Asbestos Waste*", Environmental Protection Services, Alberta Environment, 1989, as amended.

4.6.47 The approval holder shall dispose of sulphur waste in accordance with "*Guidelines for Landfill Disposal of Sulphur Wastes and Remediation of Sulphur Containing Soils*", Alberta Environment, 2011, as amended.

4.6.48 The approval holder shall only dispose of wastes that the landfill is not authorized to dispose of:

- (a) to facilities holding a current Act authorization;
- (b) to facilities approved by a local environmental authority outside of Alberta; or
- (c) as otherwise authorized in writing by the Director.

4.6.49 If an unauthorized waste is received at the landfill, the approval holder shall remove the waste from the landfill within seven (7) days of the receipt, unless otherwise authorized in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.6.50 The approval holder shall restrict the working face of each landfill cell to the smallest practical area.
- 4.6.51 For any waste disposed of at the landfill that is subject to wind dispersal or release of offensive odours or both, the approval holder shall:
- (a) wet the waste to prevent dispersal of particulate matter; and
 - (b) immediately apply effective cover on top of the waste to control releases of:
 - (i) particulate matter, and
 - (ii) offensive odours.
- 4.6.52 Notwithstanding 4.6.1(v), the approval holder may place any of the following wastes over the surface of the active landfill area for the purpose of dust suppression:
- (a) specified runoff;
 - (b) leachate;
 - (c) leak detection liquid;
 - (d) sump waste of car wash bays or similar operations;
 - (e) waste from hydrovac excavation operations; or
 - (f) any other waste authorized by *the Alberta User Guide for Waste Managers*, May 1995, as amended;
- provided that placement of such wastes will not cause offensive odours.
- 4.6.53 The approval holder shall inspect the landfill, at a minimum:
- (a) weekly; and
 - (b) immediately after each storm event to:
 - (i) detect evidence of deterioration of any infrastructure components, including the composite liner,
 - (ii) detect any malfunction or improper operation of the run-on and runoff control systems, leachate collection system, or leak detection system, and
 - (iii) take corrective measures to repair any damage to infrastructure components, including the composite liner.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.6.54 The approval holder shall:
- (a) keep a record of inspections conducted pursuant to 4.6.53;
 - (b) have the record of inspections available for review upon written request from the Director; and
 - (c) immediately report any deficiencies detected by the inspection in 4.6.53 to the Director in writing along with any corrective measures taken or proposed.
- 4.6.55 The approval holder shall not stockpile waste exceeding the maximum designated waste elevation of the landfill for a period of more than two (2) weeks, unless otherwise authorized in writing by the Director.
- 4.6.56 The approval holder shall take all practical and effective measures to prevent off-site tracking of waste from vehicles and equipment leaving the facility.
- 4.6.57 The approval holder shall operate the laydown area in the NE 9-50-17 W4M area of the facility only as described in the application.

MONITORING AND REPORTING

- 4.6.58 The approval holder shall monitor the landfill operations as required in TABLE 4.6-D.
- 4.6.59 The approval holder shall report to the Director the results of the landfill operations monitoring as required in TABLE 4.6-D.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

TABLE 4.6-D: LANDFILL OPERATIONS MONITORING AND REPORTING REQUIREMENTS

MONITORING AND REPORTING				
Parameter	Frequency	Sample Type	Sampling Location	Reporting
Quantity and type of waste received	Continuously, When operating	Measured or estimated	At entrance to landfill	Annual Landfill Operations Report
Quantity 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 active landfill area, or survey coordinates	
Leachate head	at least: - once every three working days; - after storm event; and - immediately prior to leachate removal	Calculated	At primary leachate collection system sumps for existing landfill Cell 1	
		Measured	At primary leachate collection system sumps for all other landfill cells	
Leachate analysis, as per TABLE 4.4-A	At least once every quarter year, unless insufficient sample volume is available	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 sumps	
Leak detection liquid analysis, as per TABLE 4.4-A	At least once every quarter year, unless insufficient sample volume is available	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 sumps	
Final cover	When final cover is applied	Final cover by survey cores or test pits or both	On each completed landfill cell	

4.6.60 The Annual Landfill Operations Report required in TABLE 4.6-D shall include, at a minimum, all of the following:

- (a) the name and contact information of the person responsible for the facility;
- (b) a summary of all information collected as required in TABLE 4.6-D;
- (c) a summary of the results of any audit conducted in accordance with 4.1.7;
- (d) a summary of the operations of the waste stabilization area;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (e) a summary of the performance of the run-on and runoff control systems, including a comparison to the limits in TABLES 4.3-B and 4.3-C;
- (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 Response Action Plan for the leak detection system pursuant to 4.4.10;
- (i) the Annual Dugout and Water Well Sampling Program Report pursuant to 4.5.4;
- (j) a summary of all revisions to the Landfill Operations Plan pursuant to 4.6.33(b);
- (k) any groundwater remedial action taken pursuant to 4.6.34(r);
- (l) a summary of records of landfill inspections pursuant to 4.6.53;
- (m) a summary of:
 - (i) operational issues encountered,
 - (ii) emergencies occurred, and
 - (iii) measures or actions taken;
- (n) a summary of records of:
 - (i) public complaints, and
 - (ii) the approval holder's responses;
- (o) an up-to-date financial security estimate pursuant to 5.1.2;
- (p) an updated site development plan showing the status of the landfill progression at the end of the operating year, including but not limited to:
 - (i) contour mapping,
 - (ii) the location of active and inactive disposal areas,
 - (iii) areas where a final cover has been placed, and
 - (iv) the location of new landfill cell(s) constructed;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (q) the Annual Landfill Cell Closure Report pursuant to 7.1.7;
- (r) a summary of contraventions reported pursuant to 2.1.1 related to landfill operations; and
- (s) any other information as required in writing by the Director.

4.6.61 The approval holder shall submit the Annual Landfill Operations Report to the Director.

SECTION 4.7: DOMESTIC WASTEWATER

OPERATIONS

- 4.7.1 The approval holder shall not release any substances from the domestic wastewater system to the surrounding watershed except as authorized by this approval.
- 4.7.2 The approval holder shall direct all domestic wastewater to the domestic wastewater system.
- 4.7.3 The approval holder shall only dispose of substances from the domestic wastewater system:
 - (a) to facilities holding a current Act authorization;
 - (b) to facilities approved by a local environmental authority outside of Alberta; or
 - (c) as otherwise authorized in writing by the Director.

SECTION 4.8: WATERWORKS

Not used at this time.

SECTION 4.9: GROUNDWATER

BASELINE MONITORING AND REPORTING

- 4.9.1 The approval holder shall submit a proposal for a Baseline Groundwater Monitoring Program for the NE 9-50-17 W4M area of the facility on or before October 31, 2022, unless otherwise authorized in writing by the Director.
- 4.9.2 If the Baseline Groundwater Monitoring Program proposal submitted pursuant to 4.9.1 is found deficient by the Director, the approval holder shall correct all deficiencies as outlined in writing by the Director within the timeline specified in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.9.3 The approval holder shall implement the Baseline Groundwater Monitoring Program referred to in 4.9.1 as authorized in writing by the Director prior to commencing operation of any new landfill cell(s) in the NE 9-50-17 W4M area of the facility, unless otherwise authorized in writing by the Director.
- 4.9.4 The approval holder shall submit a Baseline Groundwater Monitoring Program Report to the Director within six (6) months of completing the Baseline Groundwater Monitoring Program, unless otherwise authorized in writing by the Director.

MONITORING

- 4.9.5 The approval holder shall continue to implement the existing Groundwater Monitoring Program as authorized in writing by the Director, unless and until otherwise authorized in writing by the Director pursuant to 4.9.8.
- 4.9.6 The approval holder shall submit a revised Groundwater Monitoring Program to the Director on or before December 31, 2022, unless otherwise authorized in writing by the Director.
- 4.9.7 If the revised Groundwater Monitoring Program submitted pursuant to 4.9.6 is found deficient by the Director, the approval holder shall correct all deficiencies as outlined in writing by the Director within the timeline specified in writing by the Director.
- 4.9.8 The approval holder shall implement the revised Groundwater Monitoring Program submitted pursuant to 4.9.6 as authorized in writing by the Director within the timeline specified in writing by the Director.
- 4.9.9 The approval holder shall:
 - (a) collect a representative groundwater sample from each of the groundwater monitor wells specified in the Groundwater Monitoring Program, including the groundwater monitoring wells designated as points of compliance; and
 - (b) analyze each sample for the parameters listed in TABLE 4.9-A.

TABLE 4.9-A: GROUNDWATER MONITORING PROGRAM

PARAMETERS	
pH	Metals
Electrical conductivity	Major ions
COD	Nutrients
DOC	BTEX
TDS	Petroleum Hydrocarbons Fractions F1 and F2

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.9.10 The monitoring required in 4.9.9 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 landfill life, landfill cell closure, final landfill closure, and post-closure periods; and
 - (b) a minimum of four times per year following detection of leachate constituents in groundwater at levels above those specified in 4.9.11, and until the levels specified in 4.9.11 have been met.
- 4.9.11 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.
- 4.9.12 The approval holder shall implement the Remediation Plan as specified in the Landfill Operations Plan, when groundwater quality exceeds the groundwater performance criteria in 4.9.11.
- 4.9.13 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.
- 4.9.14 The approval holder shall:
- (a) protect from damage; and
 - (b) keep locked except when being sampled
- all groundwater monitoring wells unless otherwise authorized in writing by the Director.
- 4.9.15 If a representative groundwater sample cannot be collected because the groundwater monitoring well is damaged or is no longer capable of producing a representative groundwater sample, the approval holder shall:
- (a) clean, repair or replace the groundwater monitoring well; and
 - (b) collect and analyse a representative groundwater sample prior to the next scheduled sampling event;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

unless otherwise authorized in writing by the Director.

- 4.9.16 In addition to the sampling information recorded in 2.2.1, 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, and depth below ground surface of fluid phases in the groundwater monitoring 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
 - (e) the specific conductance of each sample at the time of sampling.
- 4.9.17 The approval holder shall carry out remediation of the groundwater in accordance with the following:
- (a) *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, Alberta Environment, February 2009, as amended; and
 - (b) *Alberta Tier 2 Soil and Groundwater Remediation Guidelines*, Alberta Environment, February 2009, as amended.

REPORTING

- 4.9.18 The approval holder shall compile an Annual Groundwater Monitoring Program Report which shall include, at a minimum, all of the following information:
- (a) a completed *Record of Site Condition Form*, Alberta Environment, 2009, as amended;
 - (b) a legal land description of the facility and a map illustrating the facility boundaries;
 - (c) a topographic map of the facility;
 - (d) a description of the industrial activity and processes;
 - (e) 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;
 - (f) a general hydrogeological characterization of the region within a five kilometre radius of the facility;

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (g) a detailed hydrogeological characterization of the facility, including an interpretation of groundwater flow patterns;
- (h) cross-sections showing depth to water table, patterns of groundwater movement and hydraulic gradients at the facility;
- (i) borehole logs and completion details for groundwater monitoring wells;
- (j) a map showing locations of all known buried channels within at least five kilometre of the facility;
- (k) a map of surface drainage within the facility and surrounding area to include nearby water bodies;
- (l) a map of groundwater monitoring well locations and a table summarizing the existing groundwater monitoring program for the facility;
- (m) a summary of any changes to the groundwater monitoring program made since the last groundwater monitoring report;
- (n) analytical data recorded as required in 4.9.9 and 4.9.15(b);
- (o) a summary of fluid elevations recorded as required in 4.9.16(b) and an interpretation of changes in fluid elevations;
- (p) an interpretation of QA/QC program results;
- (q) an interpretation of all the data in this report, including the following:
 - (i) diagrams indicating the location and extent of any contamination,
 - (ii) a description of probable sources of contamination, and
 - (iii) a site map showing the location and type of current and historical potential sources of groundwater contamination;
- (r) a summary and interpretation of the data collected since the groundwater monitoring program began including:
 - (i) control charts which indicate trends in concentrations of parameters, and
 - (ii) the migration of contaminants;
- (s) a description of the following:
 - (i) contaminated groundwater remediation techniques employed,

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (ii) source elimination measures employed,
- (iii) risk assessment studies undertaken, and
- (iv) risk management studies undertaken;
- (t) a proposed sampling schedule for the following year(s);
- (u) a description of any contaminant remediation, risk assessment or risk management action conducted at the facility; and
- (v) recommendations for:
 - (i) changes to the groundwater monitoring program to make it more effective, and
 - (ii) remediation, risk assessment or risk management of contamination identified.

4.9.19 The approval holder shall submit the Annual Groundwater Monitoring Program Report to the Director.

4.9.20 If the Annual Groundwater Monitoring Program Report is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director, within the timeline specified in writing by the Director.

SECTION 4.10: SOIL

4.10.1 In addition to any other requirements specified in this approval, the approval holder shall conduct all of the following activities related to soil monitoring and soil management required by this approval in accordance with the *Soil Monitoring Directive*, Alberta Environment, 2009, as amended:

- (a) designing and developing proposals for the Soil Monitoring Program;
- (b) designing and developing proposals for the Soil Management Program;
- (c) all other actions, including sampling, analysing, and reporting, associated with the Soil Monitoring Program; and
- (d) all other actions, including sampling, analysing and reporting, associated with the Soil Management Program.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

BASELINE MONITORING AND REPORTING

- 4.10.2 The approval holder shall submit a proposal for a Baseline Soil Monitoring Program for the NE 9-50-17 W4M area of the facility on or before October 31, 2022, unless otherwise authorized in writing by the Director.
- 4.10.3 If the Baseline Soil Monitoring Program proposal submitted pursuant to 4.10.2 is found deficient by the Director, the approval holder shall correct all deficiencies as outlined in writing by the Director within the timeline specified in writing by the Director.
- 4.10.4 The approval holder shall implement the Baseline Soil Monitoring Program referred to in 4.10.2 as authorized in writing by the Director prior to commencing operation of any new landfill cell(s) in the NE 9-50-17 W4M area of the facility, unless otherwise authorized in writing by the Director.
- 4.10.5 The approval holder shall submit a Baseline Soil Monitoring Program Report to the Director within six (6) months of completing the Baseline Soil Monitoring Program, unless otherwise authorized in writing by the Director.

MONITORING AND REPORTING

- 4.10.6 The approval holder shall submit the Soil Monitoring Program proposal to the Director according to the following schedule:
 - (a) for the first soil monitoring event on or before January 31, 2019; and
 - (b) for the second soil monitoring event on or before January 31, 2024;unless otherwise authorized in writing by the Director.
- 4.10.7 If any Soil Monitoring Program proposal is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.
- 4.10.8 Subject to 4.10.7, the approval holder shall implement the Soil Monitoring Program as authorized in writing by the Director.
- 4.10.9 If an authorization or a deficiency letter is not issued within 120 days of the applicable date required by 4.10.6, the approval holder shall implement the Soil Monitoring Program:
 - (a) in accordance with the program as set out in the proposal submitted by the approval holder; and
 - (b) within 270 days after the applicable date required by 4.10.6.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.10.10 The approval holder shall submit to the Director each Soil Monitoring Program Report obtained from the soil monitoring referred to in 4.10.8 and 4.10.9 according to the following schedule:
- (a) for the first Soil Monitoring Program Report on or before January 31, 2020; and
 - (b) for the second Soil Monitoring Program Report on or before January 31, 2025;
- unless otherwise authorized in writing by the Director.
- 4.10.11 If any Soil Monitoring Program Report is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.

SOIL MANAGEMENT PROGRAM

- 4.10.12 If the Soil Monitoring Program, or any other soil monitoring, reveals that there are substances present in the soil at concentrations greater than any of the applicable concentrations set out in the standards in the *Soil Monitoring Directive*, Alberta Environment, 2009, as amended, the approval holder shall develop a Soil Management Program Proposal.
- 4.10.13 If a Soil Management Program Proposal is required pursuant to 4.10.12, the approval holder shall submit a Soil Management Program Proposal to the Director according to the following schedule:
- (a) for Soil Management Program Proposal that is triggered by the findings from the first soil monitoring event on or before the date in 4.10.10(a);
 - (b) for Soil Management Program Proposal that is triggered by the findings from a second soil monitoring event on or before the date in 4.10.10(b); or
 - (c) for any other soil monitoring event not specified in this approval within six months of completion of the soil monitoring event.
- 4.10.14 If any Soil Management Program Proposal is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.
- 4.10.15 The approval holder shall implement the Soil Management Program as authorized in writing by the Director.
- 4.10.16 If the approval holder is required to implement a Soil Management Program pursuant to 4.10.15, the approval holder shall submit a written Soil Management

TERMS AND CONDITIONS ATTACHED TO APPROVAL

Program Report to the Director on or before March 31 of each year following the year in which the information was collected.

- 4.10.17 If any Soil Management Program Report is found deficient by the Director, the approval holder shall correct all deficiencies identified by the Director by the date specified 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 and land reclamation.
- 5.1.2 The annual revised cost estimate for the facility shall be submitted to the Director by March 31 of each year.
- 5.1.3 The approval holder shall review and revise the cost estimate for reclamation of the facility when one or more of the following occurs:
- (a) the cost estimate of future conservation and reclamation of the facility changes;
 - (b) the extent of the operation of the facility is increased or reduced;
 - (c) the facility or any portion of it is conserved and reclaimed;
 - (d) the conservation and reclamation plan required by this approval is changed;
or
 - (e) the activities conducted at the facility for which security is required is increased or decreased.
- 5.1.4 The approval holder shall submit the revised cost estimate arising from 5.1.3 to the Director within 30 days after the occurrence of any of the circumstances described in 5.1.3.
- 5.1.5 The approval holder shall provide additional financial security as required in writing by the Director.
- 5.1.6 The approval holder shall renew the financial security for the facility at least 30 days prior to the date it expires.
- 5.1.7 The approval holder shall maintain the financial security for the facility until returned in accordance with the Act or the regulations.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

PART 6: DECOMMISSIONING AND LAND RECLAMATION OF HWRSP FACILITY

SECTION 6.1: GENERAL

6.1.1 The approval holder shall apply for an amendment to this approval to reclaim the HWRSP Facility by submitting to the Director:

- (a) a Decommissioning Plan; and
- (b) a Land Reclamation Plan.

6.1.2 The approval holder shall submit the:

- (a) Decommissioning Plan; and
- (b) Land Reclamation Plan

referred to in 6.1.1 within six (6) months of the HWRSP Facility ceasing operation, except for repairs and maintenance, unless otherwise authorized in writing by the Director.

SECTION 6.2: DECOMMISSIONING

6.2.1 The Decommissioning Plan referred to in 6.1.1 shall include, at a minimum, all of the following:

- (a) a plan for dismantling the HWRSP Facility;
- (b) a comprehensive study to determine the nature, degree and extent of contamination at the HWRSP Facility and affected lands;
- (c) a plan to manage all wastes at the HWRSP Facility;
- (d) evaluation of remediation technologies proposed to be used at the HWRSP Facility and affected lands;
- (e) a plan for decontamination of the HWRSP Facility and affected lands in accordance with the following:
 - (iii) for soil or groundwater, *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, Alberta Environment, February 2009, as amended,
 - (iv) for soil or groundwater, *Alberta Tier 2 Soil and Groundwater Remediation Guidelines*, Alberta Environment, February 2009, as amended,

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (v) for drinking water, *Canadian Environmental Quality Guidelines*, Canadian Council of Ministers of the Environment, PN 1299, 1999, as amended, and
- (vi) for surface water, *Surface Water Quality Guidelines for Use in Alberta*, Alberta Environment, November 1999, as amended;
- (f) confirmatory testing to indicate compliance with the remediation objectives;
- (g) a plan for maintaining and operating contaminant monitoring systems;
- (h) a schedule for activities (a) through (g) above; and
- (i) any other information as required in writing by the Director.

6.2.2 If the Decommissioning Plan is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.

SECTION 6.3: LAND RECLAMATION

6.3.1 The Land Reclamation Plan referred to in 6.1.1 shall include, at a minimum, all of the following:

- (a) the final use of the reclaimed area and how equivalent land capability will be achieved;
- (b) removal of infrastructure;
- (c) restoration of drainage;
- (d) soil replacement;
- (e) erosion control;
- (f) revegetation and conditioning of the HWRSP Facility including:
 - (i) species list, seed source and quality, seeding rates and methods,
 - (ii) fertilization rates and methods, and
 - (iii) wildlife habitat plans where applicable;
- (g) reclamation schedule; and
- (h) any other information as required in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 6.3.2 If the Land Reclamation Plan is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.

PART 7: FINAL LANDFILL CLOSURE AND POST-CLOSURE

SECTION 7.1: LANDFILL CELL CLOSURE AND MAINTENANCE

- 7.1.1 The approval holder shall submit a Landfill Cell Closure Plan for individual landfill cell closure to the Director on or before September 30, 2017, unless otherwise authorized in writing by the Director.
- 7.1.2 The Landfill Cell Closure Plan submitted pursuant to 7.1.1 shall be signed and stamped by a professional registered with APEGA.
- 7.1.3 If the Landfill Cell Closure Plan submitted pursuant to 7.1.1 is found deficient by the Director, the approval holder shall correct all deficiencies as outlined in writing by the Director within the timeline specified in writing by the Director.
- 7.1.4 The approval holder shall implement the Landfill Cell Closure Plan submitted pursuant to 7.1.1 as authorized in writing by the Director.
- 7.1.5 The approval holder shall maintain the closed landfill cells to:
- (a) protect and maintain the integrity of the final cover and surface water drainage systems;
 - (b) prevent erosion;
 - (c) prevent surface water ponding;
 - (d) remediate areas affected by subsidence and differential settlement; and
 - (e) prevent leachate break out.
- 7.1.6 If the approval holder completes landfill cell closure in a year, the approval holder shall prepare an Annual Landfill Cell Closure Report, and include, at a minimum, all of the following information in the Report:
- (a) as-built plans and details on the location of landfill cells that have been closed;
 - (b) certified construction QA/QC procedures employed during cover construction and installation; and
 - (c) survey reports showing the final cover depths.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

7.1.7 The approval holder shall submit the Annual Landfill Cell Closure Report with the Annual Landfill Operations Report required in 4.6.60.

SECTION 7.2: FINAL LANDFILL CLOSURE AND POST-CLOSURE

7.2.1 The approval holder shall apply for an amendment to this approval for final landfill closure by submitting to the Director:

- (a) a Detailed Final Landfill Closure Plan ; and
- (b) a Landfill Post-Closure Plan.

7.2.2 The approval holder shall submit the:

- (a) Detailed Final Landfill Closure Plan; and
- (b) Landfill Post-Closure Plan

referred to in 7.2.1 within six (6) months of the landfill ceasing operations, unless otherwise authorized in writing by the Director.

DETAILED FINAL LANDFILL CLOSURE PLAN

7.2.3 The Detailed Final Landfill Closure Plan shall be developed in accordance with sections 6.1(b) and 6.1(c) of the *Standards for Landfills in Alberta*, as amended.

7.2.4 In addition to 7.2.3, the Detailed Final Landfill Closure Plan shall include, at a minimum, all of the following:

- (a) a plan for replacement of soil;
- (b) a QA/QC Program; and
- (c) any deviations from the most recently submitted closure plan.

7.2.5 The Detailed Final Landfill Closure Plan shall be signed and stamped by a professional registered with APEGA.

7.2.6 If the Detailed Final Landfill Closure Plan is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.

7.2.7 The approval holder shall implement the Detailed Final Landfill Closure Plan as authorized in writing by the Director.

TERMS AND CONDITIONS ATTACHED TO APPROVAL**LANDFILL POST-CLOSURE PLAN**

- 7.2.8 The Landfill Post-Closure Plan shall be developed in accordance with sections 6.2 and 6.3 of the *Standards for Landfills in Alberta*, as amended.
- 7.2.9 In addition to 7.2.8, the Landfill Post-Closure Plan shall include, at a minimum, all of the following:
- (a) the groundwater monitoring program including performance standards and points of compliance;
 - (b) the subsurface landfill gas monitoring program and performance standards at points of compliance;
 - (c) a plan for erosion control;
 - (d) a plan for maintaining vegetative cover; and
 - (e) any other information requested in writing by the Director.
- 7.2.10 The Landfill Post-Closure Plan shall be signed and stamped by a professional registered with APEGA.
- 7.2.11 If the Landfill Post-Closure Plan is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.
- 7.2.12 The approval holder shall implement the Landfill Post-Closure Plan as authorized in writing by the Director.

PART 8: DECOMMISSIONING AND LAND RECLAMATION OF OLD SURFACE WATER DETENTION POND

- 8.1.1 The approval holder shall:
- (a) decommission; and
 - (b) reclaim
- the old surface water detention pond prior to construction of Cell 4.
- 8.1.2 The approval holder shall submit a Decommissioning and Land Reclamation Plan for the old surface water detention pond to the Director a minimum of six (6) months prior to decommissioning and land reclamation of the pond.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 8.1.3 If the Decommissioning and Land Reclamation Plan is found deficient by the Director, the approval holder shall correct all deficiencies identified in writing by the Director by the date specified in writing by the Director.



June 21, 2022

DATE SIGNED

DESIGNATED DIRECTOR UNDER THE ACT
Mohammad Habib, P. Eng.