APPROVAL

ALBERTA ENERGY REGULATOR

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

9-02-00
APPROVAL NO.:................................................................................................................

008-009
APPLICATION NO.:..............................................................................................................

March 18, 2015
EFFECTIVE DATE:....................................................................................................................

February 28, 2025
EXPIRY DATE:...........................................................................................................................

Husky Oil Operations Limited
APPROVAL HOLDER:..................................................................................................................

ACTIVITY:  Construction, operation and reclamation of the.

Provost Sour Gas Processing Plant

is subject to the attached terms and conditions.

Craig A. Melin for Gary Sasseville
A/for Approvals Manager, Authorizations Branch
Alberta Energy Regulator

March 18, 2015
TERMS AND CONDITIONS ATTACHED TO APPROVAL

PART 1: DEFINITIONS

SECTION 1.1: DEFINITIONS

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

1.1.2 In all PARTS of this approval:

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

(b) “air effluent stream” means any substance in a gaseous medium released by or from a plant;

(c) “application” means the written submissions from the approval holder to the Director in respect of application number 008-009 and any subsequent applications where amendments are issued for this approval;

(d) “container” means any portable device in which a substance is kept, including but not limited to drums, barrels and pails which have a capacity greater than 18 litres but less than 210 litres;

(e) “day”, when referring to sampling, means any sampling period of 24 consecutive hours;

(f) “decommissioning” means the dismantling and decontamination of a plant undertaken subsequent to the termination or abandonment of any activity or any part of any activity regulated under the Act;

(g) “decontamination” means the treatment or removal of substances from the plant and affected lands;

(h) “Director” means an authorized employee of the Alberta Energy Regulator;

(i) “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 plant;

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

(l) “grab”, when referring to a sample, means an individual sample collected in less than 30 minutes and which is representative of the substance sampled;

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

(n) “incompatible waste” means waste materials which could cause dangerous reactions from direct contact with one another;

(o) “industrial runoff” means precipitation that falls on or traverses the plant developed area;

(p) “industrial runoff control system” means the parts of the plant that collect, store or treat industrial runoff from the plant;

(q) “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 plant;

(r) “industrial wastewater control system” means the parts of the plant that collect, store or treat industrial wastewater;

(s) “local environmental authority” means the Department of Environment and Sustainable Resource Development or the Alberta Energy Regulator, in the Province of Alberta, or the agency that has the equivalent responsibilities for any jurisdiction outside the Province;

(t) “month” means calendar month;

(u) “plant” means all buildings, structures, process and pollution abatement equipment, vessels, storage facilities, material handling facilities, roadways, railways, pipelines and other installations, and includes the land, located on the Subdivision 08 of Section 14, Township 40, Range 3, West of the 4th Meridian that is being or has been used or held for or in connection with the Provost Sour Gas Processing Plant;

(v) “plant developed area” means the areas of the plant used for the storage, treatment, processing, transport, or handling of raw material, intermediate product, by-product, finished product, process chemicals, or waste material;
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(w) “QA/QC” means quality assurance and quality control;

(x) “regulations” means the regulations enacted pursuant to the Act, as amended;

(y) “representative grab” means a sample consisting of equal volume portions of water collected from at least four sites between 0.20-0.30 metres below the water surface within a pond;

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

(aa) “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;

(bb) “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;

(cc) “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;

(dd) “waste storage area(s)” means the area(s) designated for storage of waste as described in the application;

(ee) “week” means any consecutive 7-day period; and

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

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;

(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,
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(ii) the dates the analyses were performed,

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

(iv) the names of the persons who collected and analysed each sample, and

(v) the results of the analyses.

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,

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

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

(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
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(iii) for soil:

(A) the Soil Monitoring Directive, Alberta Environment, May 2009, as amended;

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

(C) the Directive for Monitoring the Impact of Sulphur Dust on Soils, Alberta Environment and Water, December 2011, as amended;

(iv) 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


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.
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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 *Environmental Protection and Enhancement Act* Approval No. 9-01-00 is cancelled.

2.4.3 All industrial wastewater and process liquids contained in aboveground and underground storage tanks shall be contained in accordance with the Alberta Energy Regulator Directive D-55: *Storage Requirements for the Upstream Petroleum Industry*, as amended.

2.4.4 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

Not used at this time.

PART 4: OPERATIONS, LIMITS, MONITORING AND REPORTING

SECTION 4.1: AIR

OPERATIONS

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

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

(a) the 2051 kW amine reboiler (H-820) dual exhaust stacks;
(b) the 879 kW glycol reboiler (H-840) exhaust stack;
(c) the 293 kW utility heater (H-850) exhaust stack;
(d) the two 604 kW compressor engine (K-600 and K-610) exhaust stacks;
(e) the 298 kW compressor engine (K-615) exhaust stack;
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(f) the acid gas flare stack (M-905);
(g) the high pressure flare stack (M-900);
(h) the space ventilation exhaust stacks;
(i) the space heater exhaust vents;
(j) the compressor starter gas vents; and
(k) any other source authorized in writing by the Director.

4.1.3 The approval holder shall maintain the following stacks according to the minimum height requirements specified in:

(a) TABLE 4.1-A; and
(b) TABLE 4.1-B:

TABLE 4.1-A STACK HEIGHTS

<table>
<thead>
<tr>
<th>STACK</th>
<th>MINIMUM HEIGHT ABOVE GRADE (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid gas flare stack (M-905)</td>
<td>68.8</td>
</tr>
<tr>
<td>High pressure flare stack (M-900)</td>
<td>18.4</td>
</tr>
<tr>
<td>2051 kW amine reboiler (H-820) dual exhaust stacks</td>
<td>11.6</td>
</tr>
<tr>
<td>879 kW glycol reboiler (H-840) exhaust stack</td>
<td>8.1</td>
</tr>
<tr>
<td>293 kW utility heater (H-850) exhaust stack</td>
<td>5.4</td>
</tr>
</tbody>
</table>

TABLE 4.1-B STACK HEIGHTS

<table>
<thead>
<tr>
<th>COMPRESSOR ENGINE RATED CAPACITY KILOWATTS (kW)</th>
<th>NUMBER OF ENGINES</th>
<th>MINIMUM HEIGHT ABOVE GRADE (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>604</td>
<td>2</td>
<td>9.4</td>
</tr>
<tr>
<td>298</td>
<td>1</td>
<td>6.1</td>
</tr>
</tbody>
</table>

4.1.4 The approval holder shall continuously operate the acid gas flare stacks with the following minimum systems:
TERMS AND CONDITIONS ATTACHED TO APPROVAL

(a) wind guard;
(b) pilot light; and
(c) electric igniter

unless an equivalent system is authorized in writing by the Director.

4.1.5 All plant pressure safety valves in sour gas service shall be connected to the flare system.

4.1.6 The approval holder shall ensure the combustion of all combustible gases released to the flare stacks.

4.1.7 The approval holder shall control fugitive emissions and any source not specified in 4.1.2 in accordance with 4.1.8 of this approval unless otherwise authorized in writing by the Director.

4.1.8 With respect to fugitive emissions and any source not specified in 4.1.2, the approval holder shall not release a substance or cause to be released a substance that causes or may cause any of the following:

(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.

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

AIR LIMITS

4.1.10 Residue gas shall be added to the sour gas released to the acid gas flare stack such that the net or lower heating value of the combined gas stream is not less than 20 MJ/m³ (at 101.325 kPa and 15°C).

4.1.11 The approval holder shall reinject all acid gas to a subsurface reservoir except as provided for in 4.1.12.

4.1.12 Acid gas normally reinjected shall only be sent to the acid gas flare stack as specified in TABLE 4.1-C.
TABLE 4.1-C SHORT TERM ACID GAS FLARING CONDITIONS

<table>
<thead>
<tr>
<th>DURATION OF FLARING EVENT (HOURS)</th>
<th>PLANT PROCESSING CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8</td>
<td>Full capacity</td>
</tr>
<tr>
<td>8 – 24</td>
<td>Half capacity</td>
</tr>
<tr>
<td>&gt; 24 – 72</td>
<td>Quarter capacity</td>
</tr>
<tr>
<td>&gt; 72</td>
<td>Shutdown</td>
</tr>
</tbody>
</table>

4.1.13 Notwithstanding 4.1.12, if more than three 24-hour duration or longer flaring events occur in any year, then the approval holder shall provide in the monthly report to the Director:

(a) a description of the events or circumstances that lead to the events;

(b) an outline of the action taken to control the magnitude and/or duration of these events; and

(c) a description of any long-term measures or actions that are required to prevent or minimize such occurrences in the future and a schedule of implementation for these measures or actions.

MONITORING AND REPORTING

4.1.14 The approval holder shall monitor the air emission sources as specified in TABLE 4.1-D.

4.1.15 The approval holder shall report to the Director the results of the air emission source monitoring as required in TABLE 4.1-D.

TABLE 4.1-D SOURCE MONITORING AND REPORTING

<table>
<thead>
<tr>
<th>Emission Source</th>
<th>Parameter</th>
<th>Frequency</th>
<th>Method of Monitoring</th>
<th>Method of Analysis</th>
<th>Reporting Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid gas and residue or fuel gas to the flare stacks</td>
<td>Volumetric flow rates</td>
<td>Continuous</td>
<td>Measured or estimated</td>
<td>Measured or estimated</td>
<td>Monthly, before the end of the next month</td>
</tr>
<tr>
<td>Acid gas flare stack</td>
<td>Sulphur dioxide</td>
<td>Daily</td>
<td>Measured or estimated</td>
<td>Measured or estimated</td>
<td>Monthly, before the end of the next month</td>
</tr>
</tbody>
</table>
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4.1.16 The approval holder shall monitor ambient air parameters as specified in TABLE 4.1-E, unless otherwise authorized in writing by the Director.

4.1.17 The approval holder shall report to the Director the results of the ambient air monitoring as required in TABLE 4.1-E, unless otherwise authorized in writing by the Director.

**TABLE 4.1-E AMBIENT AIR MONITORING AND REPORTING**

<table>
<thead>
<tr>
<th>MONITORING STATION</th>
<th>PARAMETER TO BE ANALYSED OR MEASURED</th>
<th>FREQUENCY</th>
<th>METHOD OF ANALYSIS OR MEASUREMENT</th>
<th>REPORT FREQUENCY (one copy required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four passive exposure monitoring stations</td>
<td>Sulphur dioxide</td>
<td>Monthly</td>
<td>Air Monitoring Directive</td>
<td>Monthly, before the end of next month</td>
</tr>
<tr>
<td></td>
<td>Hydrogen sulphide</td>
<td></td>
<td></td>
<td>Annually</td>
</tr>
</tbody>
</table>

**SECTION 4.2: INDUSTRIAL WASTEWATER AND INDUSTRIAL RUNOFF OPERATIONS**

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

4.2.2 The approval holder shall manage:

(a) industrial wastewater; and

(b) industrial runoff

as described in the application, unless otherwise authorized in writing by the Director.

4.2.3 The approval holder shall only dispose of industrial wastewater as follows:

(a) to an Alberta Energy Regulator approved disposal well;

(b) to an Alberta Energy Regulator approved Waste Processing and Disposal Facility; or

(c) as otherwise authorized in writing by the Director.
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4.2.4 The approval holder shall direct all industrial runoff from the plant developed area to the Industrial Runoff Control System.

4.2.5 The approval holder shall only release industrial runoff from the Industrial Runoff Control System at the following discharge point:

(a) the discharge point from the storm water retention pond as described in the application.

LIMITS

4.2.6 Releases from the Industrial Runoff Control System shall meet the limits for the parameters specified in TABLE 4.2-A.

**TABLE 4.2-A  INDUSTRIAL RUNOFF CONTROL SYSTEM LIMITS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>PARAMETER OR CONCENTRATION LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge volume</td>
<td>---</td>
</tr>
<tr>
<td>pH</td>
<td>$\geq 6.0$ and $&lt; 9.5$ pH units</td>
</tr>
<tr>
<td>Oil and grease</td>
<td>No visible sheen</td>
</tr>
<tr>
<td>TSS</td>
<td>$\leq 25$ mg/L</td>
</tr>
<tr>
<td>Chemical oxygen demand</td>
<td>$\leq 50$ mg/L</td>
</tr>
<tr>
<td>Ammonia nitrogen</td>
<td>$\leq 5$ mg/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>$\leq 500$ mg/L</td>
</tr>
</tbody>
</table>

MONITORING AND REPORTING

4.2.7 The approval holder shall monitor the Industrial Runoff Control System as required in TABLE 4.2-B prior to release.

4.2.8 The approval holder shall monitor the release of industrial runoff from the Industrial Runoff Control System as required in TABLE 4.2-B throughout the release period.

4.2.9 The approval holder shall report to the Director the results of the Industrial Runoff Control System monitoring as required in TABLE 4.2-B.

4.2.10 For the purpose of TABLE 4.2-B:

(a) Sample location A is defined as discharge point from the storm water retention pond.
TABLE 4.2-B INDUSTRIAL RUNOFF CONTROL SYSTEM MONITORING AND REPORTING

<table>
<thead>
<tr>
<th>PARAMETER, TEST, EVENT, STUDY PROPOSAL OR REPORTING REQUIREMENT</th>
<th>MONITORING</th>
<th>REPORTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRIOR TO RELEASE</td>
<td>THROUGHOUT THE RELEASE PERIOD</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Sample Type</td>
</tr>
<tr>
<td>Discharge volume (m³)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>pH</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
<tr>
<td>Oil and grease</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
<tr>
<td>TSS (mg/L)</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
<tr>
<td>COD (mg/L)</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
<tr>
<td>Ammonia nitrogen (mg/L)</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
<tr>
<td>Chloride (mg/L)</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
<tr>
<td>Sulphate (mg/L)</td>
<td>Once</td>
<td>Representative grab</td>
</tr>
</tbody>
</table>

4.2.11 The approval holder shall submit an annual Industrial Wastewater and Industrial Runoff Report to the Director.

4.2.12 The annual Industrial Wastewater and Industrial Runoff Report shall include, at a minimum, all of the following information:

(a) an assessment of the performance of the:
   (i) Industrial Wastewater Control System, and
   (ii) Industrial Runoff Control System.

(b) an overview of the operation of the plant;

(c) a summary and evaluation of management and disposal of the industrial wastewater for the previous year;

(d) a summary and evaluation of management and disposal of industrial runoff for the previous year; and

(e) any other information as required in writing by the Director.
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SECTION 4.3: WASTE MANAGEMENT

OPERATIONS

4.3.1 The approval holder shall dispose of waste generated at the plant only:
   (a) to facilities holding a current Act authorization; or
   (b) to facilities approved by a local environmental authority outside of Alberta.

4.3.2 The approval holder shall not:
   (a) release; or
   (b) dispose of
   any waste to the surrounding environment, except in accordance with 4.3.1.

4.3.3 The approval holder shall not:
   (a) receive; or
   (b) store
   any third party waste at the plant.

4.3.4 The approval holder shall:
   (a) treat; and
   (b) store
   waste generated at the plant in accordance with this approval.

4.3.5 The approval holder shall not:
   (a) transfer;
   (b) treat; or
   (c) store
   waste or recyclables in an amount or in a manner that will cause or may cause an adverse effect on human health or the environment.
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4.3.6 The approval holder shall not:

(a) treat; or

(b) store waste or recyclables at the plant in an amount or in a manner that causes or may cause:

(i) fire,
(ii) explosion,
(iii) violent reaction,
(iv) emission of toxic dust, mist, fumes or gases, or
(v) emission of flammable fumes or gases.

SECTION 4.4: DOMESTIC WASTEWATER OPERATIONS

4.4.1 The approval holder shall direct all domestic wastewater to the domestic wastewater system which shall include, at a minimum, a septic system.

4.4.2 The approval holder shall only dispose of domestic wastewater from the domestic wastewater system to a wastewater treatment facility holding a current Approval of Registration under the Act.

4.4.3 The approval holder shall only dispose of sludge from the domestic wastewater system to a wastewater treatment facility holding a current Approval of Registration under the Act.

SECTION 4.5: GROUNDWATER

4.5.1 The approval holder shall implement the Groundwater Monitoring Program described in application no. 008-009.

4.5.2 The approval holder shall:

(a) protect from damage; and

(b) keep locked except when being sampled
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all groundwater monitoring wells unless otherwise authorized in writing by the Director.

4.5.3 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

unless otherwise authorized in writing by the Director.

4.5.4 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.

4.5.5 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.

4.5.6 The approval holder shall compile a Groundwater Monitoring 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 plant and a map illustrating the plant boundaries;
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(c) a topographic map of the plant;

(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 five kilometre radius of the plant;

(f) a general hydrogeological characterization of the region within a five kilometre radius of the plant;

(g) a detailed hydrogeological characterization of the plant, including an interpretation of groundwater flow patterns;

(h) a cross-section showing depth to water table, patterns of groundwater movement and hydraulic gradients at the plant;

(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 plant;

(k) a map of surface drainage within the plant 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 plant;

(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 4.5.1 and 4.5.3(b);

(o) a summary of fluid elevations recorded as required in 4.5.4(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
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(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,

(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 plant; and

(v) recommendations for changes to the groundwater monitoring program to make it more effective.

4.5.7 The approval holder shall submit the Groundwater Monitoring Report to the Director on or before March 31 of every second year commencing in the year 2016 unless otherwise authorized in writing by the Director.

4.5.8 If the Groundwater Monitoring 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 4.6: SOIL

4.6.1 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;
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(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.

MONITORING AND REPORTING

4.6.2 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 December 1, 2016; and

(b) for the second soil monitoring event on or before December 1, 2021; or unless otherwise authorized in writing by the Director.

4.6.3 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.

4.6.4 Subject to 4.6.3, the approval holder shall implement the Soil Monitoring Program as authorized in writing by the Director.

4.6.5 If an authorization or a deficiency letter is not issued within 120 days of the applicable date required by 4.6.2, 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 4.6.2.

4.6.6 The approval holder shall submit to the Director each Soil Monitoring Program Report obtained from the soil monitoring referred to in 4.6.4 and 4.6.5 according to the following schedule:

(a) for the first Soil Monitoring Program Report on or before December 1, 2017; and

(b) for the second Soil Monitoring Program Report on or before December 1, 2022; or unless otherwise authorized in writing by the Director.
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4.6.7 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

4.6.8 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.

4.6.9 If a Soil Management Program Proposal is required pursuant to 4.6.8, 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 4.6.6(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 4.6.6(b); or

(c) for any other soil monitoring event not specified in this approval within six months of completion of the soil monitoring event.

4.6.10 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.

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

4.6.12 If the approval holder is required to implement a Soil Management Program pursuant to 4.6.11, the approval holder shall submit a written Soil Management Program Report to the Director on or before March 31 of each year following the year in which the information was collected, unless otherwise authorized in writing by the Director.

4.6.13 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.
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PART 5: DECOMMISSIONING AND LAND RECLAMATION

SECTION 5.1: GENERAL

5.1.1 The approval holder shall apply for an amendment to this approval to reclaim the plant by submitting a:

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

to the Director.

5.1.2 The approval holder shall submit the:

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

referred to in 5.1.1 within six months of the plant ceasing operation, except for repairs and maintenance, unless otherwise authorized in writing by the Director.

SECTION 5.2: DECOMMISSIONING

5.2.1 The Decommissioning Plan referred to in 5.1.1 shall include, at a minimum, all of the following:

(a) a plan for dismantling the plant;
(b) a comprehensive study to determine the nature, degree and extent of contamination at the plant and affected lands;
(c) a plan to manage all wastes at the plant;
(d) evaluation of remediation technologies proposed to be used at the plant and affected lands;
(e) a plan for decontamination of the plant and affected lands in accordance with the following:

(i) for soil or groundwater, Alberta Tier 1 Soil and Groundwater Remediation Guidelines, Alberta Environment, February 2009, as amended,
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(ii) for soil or groundwater, *Alberta Tier 2 Soil and Groundwater Remediation Guidelines*, Alberta Environment, February 2009, as amended,

(iii) for drinking water, *Canadian Environmental Quality Guidelines*, Canadian Council of Ministers of the Environment, PN 1299, 1999, as amended, and

(iv) 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.

5.2.2 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 5.3: LAND RECLAMATION

5.3.1 The Land Reclamation Plan referred to in 5.1.1 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 plant including:

(i) species list, seed source and quality, seeding rates and methods,

(ii) fertilization rates and methods, and
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(iii) wildlife habitat plans where applicable;

(g) reclamation schedule; and

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

5.3.2 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.

Craig A. Melin for Gary Sasseville
A/for Approvals Manager, Authorizations Branch
Alberta Energy Regulator

March 18, 2015