

APPROVAL

PROVINCE OF ALBERTA

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

APPROVAL NO.: 144-02-00

APPLICATION NO.: 015-144

EFFECTIVE DATE: November 12, 2010

EXPIRY DATE: March 1, 2019

APPROVAL HOLDER: ADM AGRI-INDUSTRIES COMPANY

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ACTIVITY: **Construction, operation and reclamation of the.**

The oil seed processing plant in the City of Lloydminster

is subject to the attached terms and conditions.

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

Date Signed: November 12, 2010

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 015-144 and any subsequent applications where amendments are issued for this approval;
 - (d) "CEMS Code" means the *Continuous Emission Monitoring System (CEMS) Code*, Alberta Environmental Protection, Pub.No.Ref: 107, May 1998, as amended;
 - (e) "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;
 - (f) "day", when referring to sampling, means any sampling period of 24 consecutive hours;
 - (g) "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;
 - (h) "decontamination" means the treatment or removal of substances from the plant and affected lands;
 - (i) "Director" means an employee of the Government of Alberta designated as a Director under the Act;
 - (j) "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;

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- (k) "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;
- (l) "downtime" means the period of time when equipment is not effectively functioning due to breakdown, repair, calibration, servicing, maintenance or replacement of any of its components;
- (m) "dry" means a condition that does not include uncombined water vapour;
- (n) "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;
- (o) "ISO/IEC 17025" means the international standard, developed and published by International Organization for Standardization (ISO), specifying management and technical requirements for laboratories;
- (p) "incompatible wastes" means waste materials which could cause dangerous reactions from direct contact with one another;
- (q) "industrial runoff" means precipitation that falls on or traverses the plant developed area;
- (r) "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;
- (s) "industrial wastewater control system" means the parts of the plant that collect, store or treat industrial wastewater;
- (t) "local environmental authority" means the Department of Environment, in the Province of Alberta, or the agency that has the equivalent responsibilities for any jurisdiction outside the Province;
- (u) "manual stack survey" means a survey conducted in accordance with the *Alberta Stack Sampling Code*, Alberta Environment, 1995, as amended;
- (v) "month" means calendar month;
- (w) "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

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the East Half of Section 2, Township 50, Range 1, West of the 4th Meridian, that is being or has been used or held for or in connection with the oil seed processing and bio-diesel plant;

- (x) "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;
- (y) "QA/QC" means quality assurance and quality control;
- (z) "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;
- (aa) "regulations" means the regulations enacted pursuant to the Act, as amended;
- (bb) "soil" means the unconsolidated mineral or organic materials at the surface of the earth that serves as a medium for plant growth;
- (cc) "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;
- (dd) "topsoil" means the uppermost layer of soil and consists of:
 - (i) the A-horizons and all organic horizons as defined in *The System of Soil Classification for Canada*, Agriculture and Agri-Food Canada, Third Edition, 1998, as amended, and
 - (ii) the soil ordinarily moved during tillage;
- (ee) "TRS" means Total Reduced Sulphur as defined in the *Alberta Stack Sampling Code*, Alberta Environment, 1995, as amended;
- (ff) "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;
- (gg) "waste storage area" means the area designated for storage of waste as described in the application;
- (hh) "week" means any consecutive 7-day period; and
- (ii) "year" means calendar year, unless otherwise specified.

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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 using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the reports required by this approval.
- 2.1.5 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:

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- (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) 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,

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- (C) the *Air Monitoring Directive*, Alberta Environment, 1989, as amended, and
 - (D) the CEMS Code;
- (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:

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- (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;
- (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, 1998, 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 as used in 2.3.2 does not include samples directed to continuous monitoring equipment, until 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 *Environmental Protection and Enhancement Act* Approval No. 144-01-00 is cancelled.

TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 2.4.3 By August 31, 2011, 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.
- 2.4.4 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

SECTION 3.1: GENERAL

- 3.1.1 If construction of the expansion and bio-diesel plant as described in application 015-144 has not commenced by June, 2012, the approval holder shall apply for an amendment to this approval unless otherwise authorized in writing by the Director.
- 3.1.2 The approval holder shall notify the Director in writing at least 14 days before commencing operations of the modifications as described in the application unless otherwise authorized in writing by the Director.
- 3.1.3 The approval holder shall construct the expansion to the oilseed processing plant and the biodiesel plant as described in the application and shall include, at a minimum, all of the following:
- (a) biobed;
 - (b) biodiesel process scrubber;
 - (c) anaerobic waste water treatment flare; and
 - (d) methanol/methoxide thermal oxidizer.

SECTION 3.2: AIR

- 3.2.1 The approval holder shall construct the stacks identified in TABLE 3.2-A according to the corresponding height requirements referred to in the TABLE 3.2-A.

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TABLE 3.2-A STACK HEIGHTS

STACK	MINIMUM HEIGHT ABOVE GRADE (metres)
anaerobic waste water treatment Flare Stack as identified in the application by the designation source 29	5
Methanol/Methoxide Thermal Oxidizer as identified in the application by the designation source 30	7.6
Biodiesel Process Scrubber vent as identified in the application by the designation source 31	23.8

3.2.2 Before commencing operations, the approval holder shall install the following minimum systems on the anaerobic waste water treatment flare stack as identified in the application by the designation source 29:

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

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

POLLUTION ABATEMENT EQUIPMENT

3.2.3 The approval holder shall install pollution abatement equipment as specified in the application.

SECTION 3.3: INDUSTRIAL WASTEWATER

3.3.1 The approval holder shall construct the industrial wastewater control system according to the application and shall include, at a minimum, all of the following:

- (a) the anaerobic wastewater treatment system; and
- (b) oil/water separators for vegetable oil removal.

SECTION 3.4: DOMESTIC WASTEWATER

Not used at this time.

SECTION 3.5: LAND CONSERVATION

3.5.1 The approval holder shall:

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(a) salvage; and

(b) conserve

all topsoil for land reclamation.

3.5.2 The approval holder shall:

(a) salvage; and

(b) conserve

all upper subsoil for land reclamation.

3.5.3 The approval holder shall:

(a) conserve; and

(b) stockpile

all topsoil separately from the upper subsoil.

3.5.4 The approval holder shall locate all:

(a) topsoil stockpiles; and

(b) upper subsoil stockpiles

at the plant.

3.5.5 The approval holder shall stockpile all topsoil as follows:

(a) on stable foundations; and

(b) on undisturbed topsoil.

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

(a) on stable foundations; and

(b) on areas where the topsoil has been removed.

3.5.7 The approval holder shall take all steps necessary to prevent erosion, including but not limited to, all of the following:

(a) revegetating the stockpiles; and

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(b) any other steps authorized in writing by the Director.

3.5.8 The approval holder shall immediately suspend conservation of:

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

when wet or frozen conditions will result in mixing, loss or degradation of topsoil or upper subsoil.

3.5.9 The approval holder shall recommence conservation of:

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

only when wet or frozen field conditions in 3.5.8 no longer exist.

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 boiler #1 identified in the application by the designations 22;
- (b) the boiler #2 identified in the application by the designation 23;
- (c) the boiler #3 identified in the application by the designation 24;
- (d) the turbine identified in the application by the designation 25;
- (e) the prepress scrubber stack identified in the application by the designation prepress scrubber stack;
- (f) the biobed identified in the application by the designation 6;
- (g) the extractor purge vent identified in the application in section 2.18;

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- (h) the 23 baghouse exhaust stacks identified in the application in "Table 2: Air Emission Control Systems";
- (i) the solvent extraction scrubber stack identified in the application by the designation SX Stack;
- (j) the methanol emission control scrubber stack identified in the application by the designation EU046;
- (k) the hydrochloric acid emissions scrubber stack identified in the application by the designation T-514;
- (l) the solvent recovery thermal oxidizer stack identified in the application by the designation THOX;
- (m) the methanol and sodium methylate receiving thermal oxidizer stack identified in the application by the designation METHTOX;
- (n) the anaerobic waste water treatment facility flare stack identified in the application by the designation WWTTOX;
- (o) the tank vents identified in the application;
- (p) the evaporative cooling tower vents;
- (q) the space ventilation exhaust stacks as described in the application;
- (r) the space heater exhaust vents as described in the application;
- (s) minor conveyor, elevator leg, or other equipment aspiration as identified in the application;
- (t) the emergency diesel powered generator identified in the application by the designation;
- (u) any other source authorized in writing by the Director.

4.1.3 In addition to the limits specified in 4.1.10, and subject to 4.1.12, the approval holder shall not operate the process equipment unless and until the following pollution abatement equipment associated with the process equipment is operating:

Particulate Collectors

- (a) particulate emissions from:
 - (i) the rail car and truck receiving hoppers in the seed receiving area;

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- (ii) the seed cleaning operation;
- (iii) the flaking mills;
- (iv) meal storage bins;
- (v) the pellet coolers;
- (vi) the pellet transfer system;
- (vii) meal and pellet storage bins;
- (viii) the pneumatic loading of diatomaceous earth into the DE storage silo;
and
- (ix) the pneumatic loading of clay into the bleach clay storage silo;
- (x) meal and pellet shipping;

shall be directed to the associated baghouses as identified in the application;

Biobed

- (b) emissions from the whole seed conditioner, flaked seed conditioner and the expellers shall be directed to the BIOBED to control odors;

Scrubbers

- (c) emissions from the desolventizer/Toaster//Dryer shall be directed to the scrubber identified in the application by the designation SX Stack to control odours;
- (d) emissions from the reaction columns and processes consuming or handling methanol in the biodiesel process shall be directed to the scrubber identified in the application by the designation EU046;
- (e) emissions from the hydrochloric acid tank shall be directed to the scrubber identified in the application by the designation T-514;
- (f) emissions from the whole seed conditioner, flaked seed conditioner, and the expellers shall be directed to the prepress scrubber identified in the application by the designation prepress scrubber until such time as the biobed is constructed;

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Others

- (g) emissions from the solvent recovery system shall be directed to the thermal oxidizer identified in the application by the designation THOX;
 - (h) emissions from the methanol and sodium methylate tanks shall be directed to the thermal oxidizer identified in the application by the designation METHTOX during receiving;
 - (i) emissions from the anaerobic waste water treatment facility shall be directed to the flare stack identified in the application by the designation WWTOX.
- 4.1.4 The approval holder shall maintain the following stacks according to the minimum height requirements specified in TABLE 4.1-A;

TABLE 4.1-A STACK HEIGHTS

STACK	MINIMUM HEIGHT ABOVE GRADE (metres)
Thermal Oxidizer (Solvent Extraction) THOX	50.8
Methanol/Methoxide Thermal Oxidizer	7.6
Anaerobic Waste Water Treatment Flare	5.0
Biodiesel Process Scrubber Vent	23.8

- 4.1.5 The approval holder shall continuously operate the flare stack identified in the application by the designation Anaerobic waste water treatment flare with the following minimum systems:

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

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

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

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 the plant or animal life.

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

4.1.9 The approval holder shall ensure the combustion of combustible gases from the anaerobic waste water treatment system released to the flare stack identified in the application by the designation "#29 anaerobic waste water flare".

AIR LIMITS

4.1.10 Releases of the following substances to the atmosphere shall not exceed the limits specified in TABLE 4.1-B.

TABLE 4.1-B LIMITS

PLANT UNIT	EMISSION SOURCE	SUBSTANCE	LIMIT
Pelletizers	Pellet Cooler Stacks	TRS	18 mg/m3
Oilseed Extraction Plant	Solvent Extraction Scrubber Stack	TRS	35 mg/m3
Prepress,	Prepress scrubber stack, until such time as the Biobed is operational	TRS	20 mg/m3
Oilseed Extraction Plant	Thermal Oxidizer Stack	Total Hydrocarbons	14 mg/m3
		TRS	3 mg/m3
Oilseed Extraction Plant	All Baghouse stacks	Particulates	0.20 g/kg of effluent
Pelletizers	Pellet Cooler Stacks	Formaldehyde	28 mg/m3
Biodiesel Plant	Methanol/Methoxide	Methanol	0.45 g/m3

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	Thermal Oxidizer	Sodium Methylate	0.12 g/m3
Biodiesel Plant	Biodiesel Process Vent	Methanol	0.27 g/m3
Gas Turbine	Gas Turbine Exhaust Stack	Nitrogen Oxides (expressed as NO2)	7.66 kg/hr

4.1.11 The approval holder shall not exceed the operating limits for each parameter specified in TABLE 4.1-C.

TABLE 4.1-C OPERATING LIMITS

PLANT UNIT	EQUIPMENT	PARAMETER	LIMIT
Prepress	Prepress scrubber, until such time as the Biobed is operational	ph	8.5
		ORP	150 mV
Oilseed Extraction Plant	Solvent Extraction Scrubber	pH	minimum 9.5
Hydrochloric Acid Tank	Hydrochloric Acid Scrubber	pH	minimum 4.5

4.1.12 Downtime for each piece of pollution abatement equipment due to unscheduled shutdown shall not exceed 10 hours in a 3 month period unless otherwise authorized in writing by the Director.

MONITORING AND REPORTING

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

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

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TABLE 4.1-D SOURCE MONITORING AND REPORTING

Emission Source	Parameter	Frequency	Method of Monitoring	Sample Location	REPORTING FREQUENCY		
					Monthly	Annually	Special
Solvent Extraction Scrubber	pH	Continuous	pH meter	Recirculation Pipe	Monthly	Annual Summary	As per AMD
	TRS	Twice a year with a minimum of four months between stack surveys	Manual Stack Survey	In Stack			
	total Aldehydes						
n-hexane							
Solvent Extraction Thermal Oxidizer	TRS	Twice a year with a minimum of four months between stack surveys	Manual Stack Survey	In Stack			
Baghouses 2, 3, 4, 5, 10, 11, 12	particulate matter	Once only upon commissioning	Manual Stack Survey	In Stack			
Pellet Cooler Stacks	formaldehyde	Twice a year with a minimum of four months between stack surveys	Stack Survey				
Prepress scrubber stack until such time as the Biobed is operational	pH	Continuous	pH meter	Recirculation Pipe	Monthly	Annual Summary	
	ORP	Continuous	ORP meter	Recirculation Pipe			
	TRS	Twice a year with a minimum of four months between stack surveys	Manual stack survey	In Stack			
	total aldehydes						

4.1.15 The monitoring required by 4.1.13, shall at a minimum, comply with:

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- (a) the *Alberta Stack Sampling Code*, Alberta Environment, 1995 as amended;
- (b) the CEMS Code; and
- (c) the *Air Monitoring Directive*, Alberta Environment, 1989, as amended.

4.1.16 The approval holder shall notify the Director in writing a minimum of two weeks prior to any manual stack survey that is required to be conducted by this approval.

SECTION 4.2: INDUSTRIAL WASTEWATER

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 release industrial wastewater to the City of Lloydminster municipal sanitary system subject to the City's bylaws.

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

4.3.2 The approval holder shall not:

- (a) release; or
- (b) dispose

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

4.3.6 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.

4.3.7 The approval holder shall not:

- (a) treat; or
- (b) store

waste or recyclables in an amount or in a manner that causes or may cause:

- (i) fire,
- (ii) explosion,
- (iii) violent reaction,

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(iv) emission of toxic dust, mist, fumes or gases, or

(v) emission of flammable fumes or gases.

4.3.8 The approval holder shall store waste generated at the plant only in the designated waste storage areas.

4.3.9 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.

4.3.10 The approval holder shall prevent incompatible waste from direct contact with one another.

MONITORING AND REPORTING

4.3.11 Prior to the consignment or storage of any waste generated at the plant, the approval holder shall:

(a) identify;

(b) characterize; and

(c) classify

the waste including waste for deep well disposal but not including industrial runoff and air effluent streams, 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.

4.3.12 The approval holder shall measure or, when not practical to measure, estimate the quantity of waste generated at the plant each year.

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- 4.3.13 The approval holder shall maintain an up to date inventory of waste stored in the waste storage areas.
- 4.3.14 The approval holder shall submit a copy of the daily inventory required in 4.3.13 when requested by the Director.
- 4.3.15 The approval holder shall compile all the information required by 4.3.11 and 4.3.12 in an Annual Waste Management Summary Report:
 - (a) as indicated in TABLE 4.3-A; 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 4.3-A ANNUAL WASTE MANAGEMENT SUMMARY

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

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

SECTION 4.4: DOMESTIC WASTEWATER

Not used at this time.

SECTION 4.5: GROUNDWATER

- 4.5.1 The approval holder shall develop a proposal for a Groundwater Monitoring Program for the plant which shall include, at a minimum, all of the following:
 - (a) a hydrogeologic description and interpretation of the plant;
 - (b) a map and description of surface water drainage patterns for the plant;

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- (c) a lithologic description and maps, including cross-sections, of the surficial and the upper bedrock geologic materials at the plant;
 - (d) a site map showing the location and type of current and historical potential sources of groundwater contamination;
 - (e) cross-sections showing depth to water table, patterns of groundwater movement and hydraulic gradients at the plant;
 - (f) the hydraulic conductivity of all surficial and bedrock materials at the plant;
 - (g) a map showing the location of existing and additional proposed groundwater monitoring wells at the plant;
 - (h) a lithologic description of all boreholes drilled at the plant;
 - (i) construction and completion details of existing groundwater monitoring wells;
 - (j) a rationale for proposed groundwater monitoring well locations and proposed completion depths of those wells;
 - (k) a description of groundwater monitoring well development protocols;
 - (l) a list of parameters to be monitored and the monitoring frequency for each groundwater monitoring well or group of groundwater monitoring wells at the plant;
 - (m) a description of the groundwater sampling and analytical QA/QC procedures;
 - (n) details of a groundwater response plan specifying actions to be taken should contaminants be identified through the Groundwater Monitoring Program; and
 - (o) any other information relevant to groundwater quality at the plant.
- 4.5.2 The approval holder shall submit the proposal for the Groundwater Monitoring Program to the Director on or before February 1, 2012.
- 4.5.3 If the Groundwater Monitoring Program proposal 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.
- 4.5.4 The approval holder shall implement the Groundwater Monitoring Proposal as authorized in writing by the Director.
- 4.5.5 The approval holder shall:

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- (a) protect from damage; and
- (b) keep locked except when being sampled

all groundwater monitoring wells unless otherwise authorized in writing by the Director.

4.5.6 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.

4.5.7 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.

4.5.8 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.

4.5.9 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;

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- (b) a legal land description of the plant and a map illustrating the plant boundaries;
- (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-sections 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 4.5.6(b);
- (o) a summary of fluid elevations recorded as required in 4.5.7 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 years;
- (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.

4.5.10 The approval holder shall submit the Groundwater Monitoring Report to the Director on or before March 31 of every year commencing in the year 2013 unless otherwise authorized in writing by the Director.

4.5.11 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 March 31, 2011; and
 - (b) for the second soil monitoring event on or before March 31, 2017;
- 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 Report on or before November 30, 2011; and
 - (b) for the second Soil Monitoring Report on or before November 30, 2017; 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 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 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.
- 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.
- 4.6.14 The approval holder shall continue to report on the Soil Management Program

PART 5: FINANCIAL SECURITY REQUIREMENTS

Not used at this time.

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PART 6: DECOMMISSIONING AND LAND RECLAMATION

SECTION 6.1: GENERAL

6.1.1 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.

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 months of the plant 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 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.
- 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 plant including:
 - (i) species list, seed source and quality, seeding rates and methods,
 - (ii) fertilization rates and methods, and
 - (iii) wildlife habitat plans where applicable;

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(g) reclamation schedule; and

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

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.

November 12, 2010

DATE SIGNED



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