

Directive 073

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Requirements for Inspection and Compliance of Oil Sands Mining and Processing Plant Operations in the Oil Sands Mining Area

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1 Introduction

1.1 Purpose of This Directive

Directive 073: Requirements for Inspection and Compliance of Oil Sands Mining and Processing Plant Operations in the Oil Sands Mining Area is designed to ensure that oil sands mining and processing plant operations in the surface mineable area of Alberta are inspected by Alberta Energy Regulator (AER) inspection staff in a consistent manner. “Facility” in this directive means all infrastructure associated with oil sands mining and processing plant operations. “Processing plant” in this directive means a facility for obtaining crude bitumen from oil sands that have been recovered or for obtaining oil sands products from oil sands, crude bitumen, or derivatives of crude bitumen that have been recovered.

This directive and its inspection program are also intended to inform industry personnel about what is required to achieve a satisfactory AER inspection result.

This directive details the AER minimum requirements that operators of oil sands mining and processing plant operations must follow. In addition, the directive provides a reference for AER inspection staff to assist in completing inspections and is a guide to industry for what operators can expect during and following an inspection.

The requirements of this directive are based on the following:

- *Responsible Energy Development Act (REDA)*
- *Oil Sands Conservation Act (OSCA)*
- *Oil Sands Conservation Rules (OSCR)*
- *Alberta Dam and Canal Safety Directive*
- *Directive 082: Operating Criteria: Resource Recovery Requirements for Oil Sands Mine and Processing Plant Operations*
- *Directive 038: Noise Control*
- *Interim Directive 2001-03: Sulphur Recovery Guidelines for the Province of Alberta*

Operators also have requirements set out in

- their approval conditions for each oil sands mining and processing plant scheme, and
- their S-23 production accounting manual, which provides the measurement methodology to meet the requirements in sections 20, 21 and 22 of the *OSCR*.

References are also made in this directive to the following regulatory documents:

- *Oil and Gas Conservation Act (OGCA)*
- *Oil and Gas Conservation Rules (OGCR)*
- *Directive 055: Storage Requirements for the Upstream Petroleum Industry*

To the extent that they are referred to in *OSCA*, the *OSCR*, and this directive, they apply to oil sands mining and processing plant operations within the surface mineable area.

1.2 What This Directive Contains

This directive

- describes the role of the AER inspector,
- provides instructions for the inspector, and
- includes the noncompliance statements for oil sands mining and processing plant operations (see appendix 1).

Five appendices supplement information in the directive.

The purpose of an inspection is to ensure that operators achieve compliance with AER requirements and have safe and efficient practices at all oil sands mining and processing plant operations.

1.3 AER Requirements

Following AER requirements is mandatory for the responsible duty holder as specified in legislation (e.g., licensee, operator, company, applicant, approval holder, or permit holder). The term “must” indicates a requirement, while terms such as “should,” “recommends,” and “expects” indicate a recommended practice.

Each AER requirement that is unique to this directive is numbered.

1.4 What’s New in This Edition

This directive has been brought up to AER formatting standards, obsolete information has been removed, and references to *Directive 055* have been updated. In addition, AER requirements unique to this directive have been numbered.

1.5 Inspector Safety and Conduct

Inspectors represent the AER and are expected to display a professional attitude and fairness to all operators.

Inspectors will comply whenever possible with company policies that require the company be notified prior to inspection or lease entry or if the inspection involves the use of specific safety equipment or procedures.

The inspector's authority is set out in sections 8 and 9 of *OSCA*, as well as in the *OSCR*. Prior to an inspection, the AER inspector will receive the appropriate orientation in health and safety rules specific to the oil sands mine and processing plant.

Inspectors will be equipped with appropriate safety equipment for inspections (e.g., safety glasses, hard hat, coveralls), as well as area-specific equipment unique to individual operations. This is to be coordinated with the company being inspected, as appropriate.

Inspectors have the jurisdiction to enter a facility without a company representative. However, having a representative present is preferred.

AER vehicles accessing the site will be clearly marked with the AER logo and will adhere to all site safety and visibility protocols.

The inspector will carry and produce on demand AER personal identification, as per section 8(2) of *OSCA*.

Where practical, the inspector should have a debriefing discussion with the company's senior personnel on site after an inspection. This opportunity should be used to establish contacts, exchange information, discuss deficiencies and follow-up, and enhance relations.

Inspectors must follow the AER's *Occupational Health and Safety Policy* and applicable procedures, guidelines, and safe work practices.

The inspector will point out any unsafe operating conditions and practices to the operator. Also, according to the AER safety policy and procedures, the inspector must advise appropriate provincial and federal agencies of relevant information.

1.6 Jurisdictional Overview

The AER's legislative mandate for oil sands is defined by *REDA* and more specifically *OSCA*. With respect to oil sands resources, the AER has the primary responsibility to

- effect conservation and prevent waste of the oil sands resources of Alberta;
- ensure orderly, efficient, and economical development in the public interest of the oil sands resources of Alberta;
- provide for the appraisal of Alberta's oil sands resources;

- provide for appraisals of oil sands, crude bitumen, derivatives of crude bitumen, and oil sands product requirements in Alberta and in markets outside Alberta;
- assist the provincial government in controlling pollution in the development and production of the oil sands resources of Alberta;
- provide for the recording and the timely and useful dissemination of information regarding the oil sands resources of Alberta; and
- ensure the observance, in the public interest, of safe and efficient practices in the exploration for and the recovery, storing, processing, and transporting of oil sands, discard, crude bitumen, derivatives of crude bitumen, and oil sands products.

The AER will refer potential noncompliance issues to the appropriate legislative body when the issue is outside the AER's jurisdiction. Further, the AER may consult with other regulatory bodies or conduct joint inspections.

1.7 Industry Conduct

Industry must grant inspectors access to oil sands mines and processing plants, as per section 8(1) of *OSCA*.

1.8 Industry Compliance

Industry is responsible for understanding and complying with all relevant requirement, including conditions of approvals.

The AER conducts inspections and audits to check for compliance.

2 Inspection Preparation

In preparation for any planned inspection, each inspector becomes familiar with the facilities to be visited.

The inspector will check the AER's Field Inspection System (FIS) for information such as when the facility was last inspected, any deficiencies found, and the compliance history of the operator.

As part of a planned facility inspection, each inspector will review any relevant information to become familiar with the facility's current status and performance. This could include the facility's monthly or annual reports, performance reports, and mine plans. For a sour products processing facility, the inspector may also determine if there is an emergency response plan (ERP).

While the inspector is not responsible for an in-depth review of the reports, they will be able to confirm that the activities at the facility are reflected in Petrinex (e.g., that products and by-products

in inventory are not wasted), are as applied-for in mine plans, and are in accordance with the facility's approval conditions.

3 Inspection Completion

Inspectors should have a copy of this directive on site when conducting an inspection, as well as copies of relevant legislation and pertinent documents for reference such as the operator's S-23 production accounting manual and other applicable AER directives.

Oil sands mining inspections include any inspection at the site, including those conducted at the extraction plant, upgrader, tailings ponds, and tank farms.

The inspector will document the following in FIS when inspecting oil sands mining and processing plants, along with the results.

An AER inspector can use the mining inspection and observation sheet in appendix 2 when inspecting the mine face and active mining areas.

Facility Identification

Facility name

Enter the complete name of the facility.

Location

Enter the facility location (township, range, and meridian).

Approval Number

Enter the approval number.

Inspection Date

Enter the date of the inspection.

Type of Inspection

Initial – An inspection not considered a follow-up.

Follow-up – An inspection performed due to an unsatisfactory initial inspection. All follow-ups about unsatisfactory items are to be done by telephone or email whenever possible.

Surveillance – A routine field inspection.

Audit

- A “reporting audit” is an audit of the operator’s records to ensure compliance with the acts and regulations and that reporting is in accordance with the operator’s S-23 production accounting manual (including calibration of flow meters, sampling, and material balances). It could also be a follow-up on resource conservation issues.
- An “operational” audit is conducted on oil sands mining and processing plant operations and on-site pilot plant technology testing.

Other – Any other type of inspection (identify), including complaint-driven inspections, AER air-monitoring unit inspections, and those triggered by explosions, fires, sulphur block and coke storage, or any other requests.

Operation at Time of Inspection

Mining/Producing – Facility is operating (include general observations noted about the operation during inspection, such as mine status, plant status, equipment status).

Shut down – Facility is not operating.

Other – Facility is being discontinued, equipment has been removed, site is being reclaimed.

Inspection Results

All items inspected are marked “X” for satisfactory.

Any irregularities found during the inspection should be noted and discussed with a company representative. If required, further investigation and follow-up will occur after the inspection by AER staff to determine or confirm noncompliance.

Mining / Tailings

1 Mining / Tailings

As per section 27(a) and (c) of the *OSCR*, an operator must carry out a mining or tailings operation in a manner that does not render the recovery of other oil sands more difficult and ensures public safety. For example,

- an operator must have approval from the AER to construct stockpiles, waste disposal areas, tailings ponds, and pit walls;

- an operator must have geotechnically stable stockpiles, waste disposal areas, tailings ponds, and pit walls; and
- an operator must follow their operation, maintenance, and surveillance (OMS) manual.

Processing Plants

Measurement/Conservation

2 Process Gas

General

- 1) The operator must
 - a) install and operate the meter run, also known as a meter package, and measurement devices; and
 - b) conduct meter calibrationsas set out in the operator's S-23 production accounting manual.

Fuel Gas

- 2) The operator must measure fuel gas as set out in the operator's S-23 production accounting manual.

Flared/Vented Gas

- 3) The operator must
 - a) measure continuously or estimate the flare gas volumes, including emergency flaring, and
 - b) estimate stock tank vapoursas set out in the operator's S-23 production accounting manual.

The operator of a processing plant must not discharge any gas containing hydrogen sulphide (H₂S), unless it is burned so that essentially all of the sulphur is converted to sulphur dioxide (SO₂), as per section 51 of the *OSCR*.

Gas discharged must be burned as per sections 6 and 7(1)(b) of the *OSCR* to meet section 7(2) of the *OSCR*.

Acid Gas

- 4) The operator must
 - a) measure the sulphur plant inlet and outlet to determine sulphur recover, and
 - b) measure emergency acid gas flaring from gas sweetening systems
 as set out in the operator’s S-23 production accounting manual.

The operator must maximize the gathering of gaseous mixtures containing H₂S for delivery to the sulphur recovery plant (e.g., by ensuring that vapour recovery units are being operated) as per *ID 2001-03* and section 49(e) of the *OSCR*.

3 Hydrocarbon Liquids (crude bitumen, derivatives of crude bitumen, diluent, or solvent)

Extraction

- 5) For oil sands feed, rejects, primary extraction tailings, froth treatment product, froth treatment tailings, and diluent/solvent recovery unit tailings, the operator must
 - a) install and operate the meter run and measurement devices,
 - b) conduct sampling, and
 - c) analyze samples using standard analytical techniques
 as set out in the operator’s S-23 production accounting manual.
- 6) The operator must calibrate the meters as set out in the operator’s S-23 production accounting manual.

Upgrading

- 7) For diluent recovery unit (DRU) feed, make-up diluent or solvent, and tank farm and diversion streams (upgrading wastewater that includes oily water sewer, API separators discharge, and slops not recovered), the operator must
 - a) install and operate the meter run and measurement devices,
 - b) conduct sampling, and
 - c) analyze samples using standard analytical techniques
 as set out in the operator’s S-23 production accounting manual.
- 8) The operator must calibrate the meters as set out in the operator’s S-23 production accounting manual.

Delivery Point Measurement

- 9) The operator must develop measurement, sampling, and sample analyses of
 - a) imported, produced, or exported bitumen; and
 - b) diluent or solvent and upgraded productsas set out in the operator's S-23 production accounting manual.
 - 10) The operator must measure trucked-in bitumen as set out in the operator's S-23 production accounting manual.
- 4 Tailings Production
- 11) The operator must measure or determine production as set out in the operator's S-23 production accounting manual for flow and composition.
- 5 Other Products

Sulphur, Coke, and Asphaltenes

- 12) The operator must measure or determine sulphur, coke, and asphaltene production as set out in the operator's S-23 production accounting manual.

The operator must store and discard sulphur, coke, and asphaltenes as per section 49(c) of the *OSCR*.

For example,

- any sulphur that has spilled in the sulphur plant, at block, at truck, or at loading site must be cleaned up immediately and moved to a suitable location;
- any coke that has spilled or leaked from pipelines, vessels, or trucks must be removed to a suitable location; and
- any asphaltene that has spilled or leaked from pipelines, vessels, or trucks must be removed to a suitable location.

By-product – Fertilizer

The operator must store and discard fertilizers as per section 49(c) of the *OSCR*. For example, any fertilizer spilled must be removed to a suitable location.

Equipment

6 Spacing

- 13) Equipment spacing must be as per section 8.090(2) of the *OGCR* to meet section 9 of the *OSCR*.
- 14) If pressure relief valves and burst plates, which are considered a source of ignitable vapours, are in the same process building as flame-type equipment, they must be vented above roof level, as per section 8.090(6) of the *OGCR*, to meet section 3(g) of *OSCA*.

7 Flare System

Any significant volume of gas directed to a flare stack or incinerator must be burned, as specified in section 8.080 of the *OGCR* to meet section 51 of the *OSCR*.

- 15) Vent lines from storage tanks directed to flare stacks must be provided with flame arresters or other equivalent safety devices, as per section 8.090(7) of the *OGCR*, to meet section 3(g) of *OSCA*.

8 Drain System

- 16) All hydrocarbon process piping drains must be bull-plugged to meet section 3(g) of *OSCA*.
- 17) Vessel drains, lube oil drains, and floor drains must be tied into a suitable containment and recovery system, (e.g., slop system or oily water separator) to meet section 3(g) of *OSCA*.

9 Signage/Security

- 18) Identification and warning signs must be erected at the entrance of an oil sands site when the H₂S content is greater than 10 moles per kilomole (mol/kmol) or any lower concentration stipulated by the AER, as per section 6.020 of the *OGCR*, to meet the requirements of section 7(1) of the *OSCR*.
- 19) Facilities where the gas has more than 10 mol/kmol H₂S must be fenced, as per section 8.170 of the *OGCR*, to meet the requirements of section 9 of the *OSCR*.

10 Storage Requirements

Directive 055 sets out requirements for aboveground storage tanks (AST), underground storage tanks (UST), containers, lined earthen excavations, and bulk pads.

When these storage devices are used, the applicable sections in *Directive 055*, as set out below, must be met in order to meet section 3(g) of *OSCA* and section 9 of the *OSCR*.

Directive 055 does not apply to tailings ponds, extraction primary separation vessels, thickeners, emergency dump ponds, and processing equipment.

- 20) The operator must meet *Directive 055* except section 5.4 (on surface water discharge) for developing green field sites, expanding existing facilities, and adding new installations at existing facilities.
- 21) USTs, including associated piping, oily water sewers, process drains, sumps, API separators, and slop systems must meet *Directive 055*.
- 22) Existing ASTs and USTs at grandfathered facilities must
 - a) be retrofitted or their mechanical integrity verified as per section 1.6.3 of *Directive 055*, or
 - b) conform with the integrity testing set out in *API Standard 653* or the Canadian Council of Ministers of the Environment's *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (PN 1326)* and associated updates.

Grandfathered facilities are listed in appendix 3.

11 Vapour Recovery

An operator must maximize the gathering and utilization of gas produced, in accordance with section 49(d) of the *OSCR*.

- 23) Vapour recovery systems must have sufficient capacity to operate within the design service factor.

Environment

12 Odour Emissions

- 24) An operator must immediately notify the AER of emissions off site that have the potential to cause public concern in order to meet section 3(g) of *OSCA* (see appendix 4).
- 25) The operator or company representative must take corrective actions to reduce or eliminate the emission source.

13 Noise Emissions

- 26) Facilities must meet the requirements in *Directive 038*.

Normally noise levels are not checked during a surveillance inspection. Unless the inspection is the result of a public complaint and a noise monitoring survey has been requested. The results of the noise monitoring survey are recorded in FIS.

14 Housekeeping

Facilities must be maintained in a clean and safe condition, as per section 8.150(4) of the *OGCR*, to meet the requirements of section 9 of the *OSCR*.

27) Oil-stained areas must be cleaned up. If the spill material is removed, it must be disposed of as per section 8.050 of the *OGCR* to meet the requirements of section 9 of the *OSCR*.

All dikes and firewalls must be maintained in good condition and the area must be kept free of grass, weeds, or other combustible materials, as per section 4.2 of *Directive 055*.

15 Spills

Contaminated spill materials must be handled and disposed of as per section 8.050, 8.051, and 8.052 of the *OGCR* to meet the requirements of section 9 of the *OSCR*.

Inspectors are expected to use discretion when differentiating between spill and housekeeping deficiencies. However, spillage having the potential to adversely impact the environment is considered a spill rather than a housekeeping deficiency. The following situations are examples of a spill rather than a housekeeping deficiency:

- areas with pooled hydrocarbons or areas heavily caked with hydrocarbons
- extensive staining throughout the lease area
- cumulative spillage of small volumes of hydrocarbons over a long period of time
- spills outside the lease area

16 Other Releases

28) An operator must immediately notify the AER of releases off site that have the potential to cause public concern to meet the requirement of section 3(g) of *OSCA* (see appendix 4).

17 Pits

29) Pits must not be used as storage for crude bitumen, liquid hydrocarbons, process chemicals, or water produced from a facility, as per section 8.010 of the *OGCR*, to meet the requirements of section 9 of *OSCR*.

18 Fire

An operator must prevent loss, injury, damage, and fire at an oil sands site, as per section 9 of the *OSCR*.

30) To prevent fire, the operator must keep operating procedures current.

19 Emergency Response Plans

ERPs for facilities must be submitted on request, as per section 8 of the *OSCR*.

31) An operator must notify the AER and participate in a spill deployment exercise annually, as per section 8.052 of the *OGCR*, to meet the requirements of section 9 of the *OSCR*.

Other AER Requirements

20 Approvals

An operator must not commence, suspend, or abandon an oil sands site, an experimental scheme, a mining operation, or a processing plant until the AER has granted approval to do so, as per section 3(1) of the *OSCR*.

An operator must not commence any substantial modification at an oil sands site, an experimental scheme, a mining operation, or a processing plant until the AER has granted approval to do so, as per section 3(2) of the *OSCR*.

An operator must obtain approval of the AER for storage or disposal of any oil sands or discard accumulated during mining or overburden removal, as per section 24 of the *OSCR*.

The location, dimensions, and elevation of mine storage or disposal structures, such as stockpiles, waste areas, and tailings ponds, must not exceed the conditions of approval.

An operator must obtain the approval of the AER for a mine site plan and for any changes to an approved annual mine plan that would reduce the amount of oil sands recovered, as per section 26 of the *OSCR*.

An operator must not waste any significant amount of liquid hydrocarbons except in cases of emergency unless authorized in writing by the AER, as per section 11 of the *OSCR*.

An operator of an oil sands site must not cause or permit the burning of crude bitumen, gas, oily water, discard, or other material unless it has obtained written approval from the AER or its authorized representative, as per section 10(1) of the *OSCR*.

For the purpose of energy conservation, an operator must apply for and obtain approval for the storage or disposal of any oil sands, coke, sulphur, precipitator ash, or other hydrocarbon effluent or discard associated with the processing plant, as per section 48 of the *OSCR*.

21 Reports

An operator must report any collapse or instability within a mine site resulting in a change to the approved mine site plan, an interruption of mining, and the possibility of permanent loss of recoverable oil sands, as per section 32(2) of the *OSCR*.

An operator must report to the AER by the quickest effective means if an effluent is being burned under emergency conditions, as per section 10(2) of the *OSCR*.

Six months after commencement of operations or after any modifications that required an amendment to the approval, an operator must file with the AER the design and operating parameters, as per section 54(a) of the *OSCR*.

On or before the 22nd day of each month, an operator producing H₂S or other sulphur compounds must file with the AER statements of monthly and, if required, daily totals of plant input and output for the preceding calendar month in the form of a processing plant sulphur balance and a sulphur plant sulphur balance, including the details, as per section 57(1) of the *OSCR*.

On or before the 28th day of February of each year, an operator must file with the AER a report of operations conducted during the preceding calendar year, including the details as specified in the section 58 of the *OSCR*.

By September 30 each year, an operator must submit to the AER for its approval details of its annual mine plan for the next calendar year of operation, as per section 30 of the *OSCR*.

On or before the 22nd day of each month, an operator must file with the AER through Petrinex monthly statements on the oil sands, crude bitumen, oil sands products, marketable gas, and condensate received at the plant and the quantity of oil sands products derived, stored, and delivered for the preceding month, as per section 56 of the *OSCR*.

Report of Spills, Fire, or Damage

An operator must report to the AER by the quickest effective means any liquid spill and any break or leak in a vessel, gathering line, or other equipment that occurs at an oil sands site where the loss exceeds 2 cubic metres (m³) of liquid hydrocarbon or 30 000 m³ of gas or gas equivalent or where significant damage to equipment occurs, as per section 13(1)(a) and (b) of the *OSCR*.

An operator must report to the AER by the quickest effective means any fire that occurs at an oil sands site, including the sulphur storage block or handling facility, that requires major fire-fighting equipment and resources, as per section 13(1)(c) of the *OSCR*.

When so directed by the AER, the operator must further report by letter within two weeks of the AER's direction. These reports are as per section 13(1) of the *OSCR*.

Spills of refined products are the responsibility of Alberta Environment and Parks (AEP). An operator must follow AEP notification requirements for any refined product spills.

22 Records

An operator must maintain and keep available on site a record of tailings management, as per section 14 of the *OSCR*. For example, record

- performance of tailings treatment systems (e.g., record of plant availability or nonavailability, time of off-specification or on-specification production),
- thickener operation, if applicable, and
- other tailings technologies used.

An operator must maintain records of tailings piping integrity (e.g., measurements of wall thicknesses, time lapse between pipe rotations) on site and provide the record to the AER on request, as per sections 14 and 55 of the *OSCR*.

An operator of an oil sands site must keep any other records and file with the AER any other reports that the AER by order requires, as per section 14 of the *OSCR*.

An operator must retain records at the place and by the person specified by the *OSCR* for a period of 18 months from the time the record is made or any other period specified by the AER, as per section 17 of the *OSCR*.

An operator must keep at the plant site or other place of business a daily record of all oil sands, crude bitumen, and oil sands products (e.g., sulphur, coke, fertilizer, asphaltenes, flared/vented volumes) received into the processing plant, with details, as per section 55 of the *OSCR*.

23 Other

An operator must use the units and methods of measurement and standard conditions stipulated in section 19 of the *OSCR* whenever the measurement of oil sands, crude bitumen, derivatives of crude bitumen, or oil sands products is required by the provision of an act, regulation, order, direction, term, or condition made by the AER, whether the provision deals with conservation, preservation, utilization, taxation, or royalties.

An operator must provide the AER access at its plant site to piping and measurement drawings, operating procedures, and equipment specifications, as per section 54(b) of the *OSCR*.

Appendix 1 Noncompliance Statements

Noncompliance statements summarize what an inspector may look for and are not intended to include every aspect of the requirement. Accordingly, the actual requirement should always be referred to in order to understand the full extent of the requirement.

Mining / Tailings

1 Mining / Tailings

Item #	Description
1	Mining or tailings operation makes the recovery of other oil sands more difficult (section 27(a) of the <i>OSCR</i>).
2	Mining or tailings operation does not ensure public safety (section 27(c) of the <i>OSCR</i>).

Processing Plants

Measurement / Conservation

2 Process Gas

General

Item #	Description
1	Meter run and measurement device not installed and operated as set out in operator's S-23 production accounting manual (sections 20, 21, and 22 of the <i>OSCR</i>).
2	Meter not operating or not properly in service.
3	Meter subject to excessive pulsation or swinging.
4	Meter not calibrated since installation, not calibrated following repairs, or calibration expired.
5	Meter calibrations not conducted as set out in operator's S-23 production accounting manual (sections 20, 21, and 22 of the <i>OSCR</i>).

Fuel Gas

Item #	Description
1	Fuel gas measurement not conducted as set out in operator's S-23 production accounting manual (sections 20, 21, and 22 of the <i>OSCR</i>).
2	Meter not operating or not properly in service.
3	Meter subject to excessive pulsation or swinging.
4	Meter not calibrated since installation, not calibrated following repairs, or calibration expired.

Flared/Vented Gas

Item #	Description
1	Flare gas volumes, including emergency flaring, not measured continuously or estimated as set out in operator's S-23 production accounting manual (sections 20, 21, and 22 of the <i>OSCR</i>).

Item #	Description
2	Stock tank vapours not estimated as set out in operator's S-23 production accounting manual (sections 20, 21, and 22 of the <i>OSCR</i>).
3	Failure to completely burn any gas containing H ₂ S so that essentially all the sulphur is converted to SO ₂ (section 51 of the <i>OSCR</i>).
4	Gas discharged not burned in accordance with sections 6 and 7(1)(b) of the <i>OSCR</i> (section 7(2) of the <i>OSCR</i>).

Acid Gas

Item #	Description
1	Sulphur plant inlet and outlet not measured as set out in operator's S-23 production accounting manual to determine a sulphur recovery (ID 2001-03 and sections 20, 21, and 22 of the <i>OSCR</i>).
2	Emergency acid gas flaring from gas sweetening systems not measured as set out in in operator's S-23 production accounting manual (section 22 of the <i>OSCR</i>).
3	Operator not maximizing the gathering of gaseous mixtures containing H ₂ S for delivery to the sulphur recovery plant (ID 2001-03 and section 49(e) of the <i>OSCR</i>).

3 Hydrocarbon Liquids (crude bitumen, derivatives of crude bitumen, diluent, or solvent)

Extraction

Item #	Description
1	For oil sands feed, rejects, primary extraction tailings, froth treatment product, froth treatment tailings, and diluent or solvent recovery unit tailings: <ul style="list-style-type: none"> Meter run and measurement devices not installed and operated as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>). Sampling not conducted as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>). Samples not analyzed using standard analytical techniques as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>).
2	Meter not calibrated as set out in operator's S-23 production accounting manual (section 22 of the <i>OSCR</i>).
3	Hydrocarbon liquids not measured as set out in operator's S-23 production accounting manual (section 21 of the <i>OSCR</i>).
4	Hydrocarbon liquids in tanks not measured by tank gauge as required in appendix 5 or by using another acceptable measuring device.

Upgrading

Item #	Description
1	For DRU feed, make-up diluent or solvent, and tank farm and diversion streams (upgrading wastewater that includes oily water sewer, API separators discharge, and slops not recovered): <ul style="list-style-type: none"> Meter run and measurement devices not installed and operated as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>). Sampling of crude bitumen/intermediate product/synthetic crude oil (SCO)/diluent/solvent not conducted as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>). Samples not analyzed using standard analytical techniques as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>).

Item #	Description
2	Meter not calibrated as set out in operator's S-23 production accounting manual (section 22 of the <i>OSCR</i>).
3	Hydrocarbon liquids not measured as set out in operator's S-23 production accounting manual (section 21 of the <i>OSCR</i>).

Delivery Point Measurement

Item #	Description
1	Measurement, sampling, and sample analyses of imported, produced, or exported bitumen not conducted as set out in operator's S-23 production accounting manual (sections 20 and 22 of the <i>OSCR</i>).
2	Measurement, sampling, and sample analyses of diluent or solvent and upgraded products not conducted as set out in operator's S-23 production accounting manual sections 20, 21, and 22 of the <i>OSCR</i>).
3	Trucked-in bitumen not measured as set out in S-23 production accounting manual and must be further developed (sections 20 and 22 of the <i>OSCR</i>).
4	Hydrocarbon liquids not measured as set out in operator's S-23 production accounting manual (section 21 of the <i>OSCR</i>).

4 Tailings Production

Item #	Description
1	Tailings production not measured or determined as set out in operator's S-23 production accounting manual for flow and composition (sections 20, 21, and 22 of the <i>OSCR</i>).

5 Other Products

Sulphur

Item #	Description
1	Sulphur production not measured as set out in operator's S-23 production accounting manual (section 20 of the <i>OSCR</i>).
2	Sulphur storage and discard not in accordance with section 49(c) of the <i>OSCR</i> (e.g., any sulphur that has spilled in the sulphur plant, at block, at truck, or at loading site not cleaned up immediately and moved to a suitable location).
3	Sulphur volumes not measured or determined in sulphur pit. Pit gauging equipment or procedures inadequate (e.g., estimates not using sound engineering practices).

Coke

Item #	Description
1	Coke production not measured or determined as set out in operator's S-23 production accounting manual (section 20 of the <i>OSCR</i>).
2	Coke storage and discard not in accordance with section 49(c) of the <i>OSCR</i> (e.g., any coke that has spilled or leaked from pipelines, vessels, or trucks that has not been removed to a suitable location).

Asphaltenes

Item #	Description
1	Asphaltene production not measured or determined as set out in operator's S-23 production accounting manual (section 20 of the <i>OSCR</i>).
2	Asphaltene storage and discard not in accordance with section 49(c) of the <i>OSCR</i> (e.g., any asphaltene that has spilled or leaked from pipelines, vessels, or trucks that has not been removed to a suitable location).

Fertilizer

Item #	Description
1	Storage or disposal of fertilizers not in accordance with section 49(c) of the <i>OSCR</i> (e.g., any fertilizer spilled that has not been removed to a suitable location).

Equipment

6 Spacing

Item #	Description
1	Fire ignition source less than 50 m from a hydrocarbon liquid storage tank (section 8.090(2) of the <i>OGCR</i>).
2	Fire less than 50 m from a source of ignitable vapours (section 8.090(2) of the <i>OGCR</i>).
3	Pressure relief valves and burst plates not vented above roof level (section 8.090(6) of the <i>OGCR</i> , section 3(g) of <i>OSCA</i>).

7 Flare System

Item #	Description
1	Significant volume of gas directed to a flare stack or incinerator not burned as specified in section 8.080 of the <i>OGCR</i> (section 51 of the <i>OSCR</i>).
2	No flame arrestor on line from tank to flare stack where required (section 8.090(7) of the <i>OGCR</i> , section 3(g) of <i>OSCA</i>).

8 Drain System

Item #	Description
1	Bull plugs not installed on hydrocarbon process piping drains (section 3(g) of <i>OSCA</i>).
2	Vessel drains, lube oil drains, and floor drains not tied into a suitable containment and recovery system (e.g., sloop system or oily water separator) (section 3(g) of <i>OSCA</i>).

9 Signage/Security

Item #	Description
1	Identification and warning signs not erected at the entrance of an oil sands site when H ₂ S content is greater than 10 mol/kmol or any lower concentration stipulated by the AER (section 6.020 of <i>OGCR</i> , section 7(1) of the <i>OSCR</i>).
2	Improper identification sign.
3	Facilities in excess of 10 mol/kmol H ₂ S not fenced (section 8.170 of the <i>OGCR</i> , section 9 of the <i>OSCR</i>).

10 Storage Requirements

Pre-1996 AST and UST Exemptions

Item #	Description
1	Tank farm area reconstruction does not meet requirements. [<i>Directive 055 1.6.3(1)</i>]
2	AST holding materials other than fresh water does not meet pre-96 dike requirements. [<i>Directive 055 1.6.3(2)</i>]
3	Single-walled aboveground storage tank $\geq 5\text{m}^3$ mechanical integrity not appropriately verified within the past five years. [<i>Directive 055 1.6.3(3)</i>]
4	Single-walled underground storage tank mechanical integrity not appropriately verified within past three years. [<i>Directive 055 1.6.3(3)</i>]
5	AST replacement or addition does not meet requirements. [<i>Directive 055 1.6.3(5), (6)</i>]
6	UST that failed mechanical integrity test still in service. [<i>Directive 055 1.6.3(8)</i>]

General

Item #	Description
1	No notification as required by <i>Directive 055</i> . [<i>Directive 055 2.1.1(13), 3.4(49)</i>]
2	Alternative storage method, system, device, or location without AER approval. [OGCR 8.030(3); <i>Directive 055 2.5(21), 3.4(50)</i>]
3	Storage of oilfield waste or empty barrels exceeds one year duration. [<i>Directive 055 2.4(19)</i>]
4	Storage systems and/or associated equipment do not meet spacing requirements specified in <i>Directive 055</i> . [<i>Directive 055 2.6(23)</i>]
5	Concrete being used as primary containment. [<i>Directive 055 1.6.4(9), 1.6.4(11), 3(26), 3.6(57)</i>]

Containers (Device Specific)

Item #	Description
1	On-site volume of containers exceeds 1 m^3 without secondary containment. [<i>Directive 055 3.1(27), 3.1(28)</i>]
2	Secondary containment for container(s) does not meet requirements. [<i>Directive 055 3.1(28)(a)(b)(c), 4.2(131)</i>]
3	Container storage in trailers or buildings does not meet requirements. [<i>Directive 055 3.1(28)(d)(e)(f)</i>]
4	No or inadequate weather protection for containers. [<i>Directive 055 3.1(29)</i>]

AST/UST (Device Specific)

Item #	Description
1	Aboveground storage tank not constructed, designed, or operated as required. [<i>Directive 055 3.2(30), 3.2(36), 3.2(37)</i>]
2	Tank foundation and supports does not meet requirements. [<i>Directive 055 3.2(32)</i>]
3	Underground storage tank not constructed or operated appropriately. [<i>Directive 055 3.3(39), 3.3(40), 3.3(43), 5.1(177)</i>]
4	Flare/incinerator knockout or separator integrity testing does not meet requirements. [<i>Directive 055 3.3(41), 4.3.1(151)</i>]
5	Newly installed UST and associated piping integrity testing not conducted before using. [<i>Directive 055 3.3(42)</i>]

BSF/LEE/Bulk Pad (Device Specific)

Item #	Description
1	BSF not constructed, designed, or operated as required. [Directive 055 3.4(44), 3.4(45), 3.4(48), 4.1.2(123)]
2	BSF not tested for integrity prior to use. [Directive 055 3.4(51)]
3	LEE not constructed, designed, or operated as required. [Directive 055 3.5(52), 3.5.(53), 3.5(54)]
4	Pre-2002 LEE integrity not appropriately verified within past three years. [Directive 055 1.6.4(11)]
5	Bulk pad not constructed of compacted clay, synthetic liner, concrete, or asphalt as required. [Directive 055 3.6(55)]
6	Bulk pad does not incorporate a leachate collection or leak detection system where required. [Directive 055 3.6(55), 3.6(57)]
7	Stockpiled materials causing spillage off the bulk pad. [Directive 055 3.6(56)]
8	Bulk pad storage area curb or slope to catchment device does not meet requirements. [Directive 055 3.6(55)]

Liners and Dikes (All Storage Systems)

Item #	Description
1	No dike and/or impervious liner where required. [Directive 055 3.2(38), 4.2(131), 4.2(138)]
2	Liner does not meet requirements. [Directive 055 3.4(46), 4.1(106)–(108), 4.1.1.1(114), 4.1.2(120), 4.2(139), (140)]
3	Liner not protected from damage, degradation, or unauthorized access. [Directive 055 4.1(109), 4.1.1(113), 4.1.2(128)]
4	Dike contains openings or not designed to contain fluids. [Directive 055 4.2(132)(a)–(b)]
5	Diked area volumetric capacity does not meet requirements. [Directive 055 4.2(134)–(136)]
6	Dike and secondary containment area not maintained in good condition or kept free from weeds, debris, and extraneous combustible material. [Directive 055 4.2(137)]
7	Diked area not graded to a sump or low-lying area. [Directive 055 4.2(141)]

Temporary Storage Operations

Item #	Description
1	No diking or 1 metre impervious berm for storage where diking is not optional, exceeds three months, or where combined storage capacity exceeds 3000 m ³ . [Directive 055 4.2.2(145), 4.2.2(147)]
2	Temporary storage duration exceeds one year. [Directive 055 4.2.2(145), 4.2.2(149)]
3	Contaminated materials or materials possessing the potential to leach stored directly on the ground. [Directive 055 4.2.2(146)]
4	For contaminated soil storage, temporary storage area synthetic liner not minimum of 15 mil. [Directive 055 4.2.2(148)(a)]
5	For contaminated soil storage, temporary storage area synthetic liner not extended over the dike or keyed into the outside of the dike. [Directive 055 4.2.2(148)(a)]
6	For contaminated soil storage, leachate in temporary storage area not managed. [Directive 055 4.2.2(148)(b)]
7	For contaminated soil storage, underlying soil not assessed for temporary storage area used more than three months. [Directive 055 4.2.2(148)(c)]

Leak Detection (All Storage Systems)

Item #	Description
1	No leak detection where required. [<i>Directive 055</i> 1.6.4(9), (11), 3.2(38), 3.6(57), 4.3.7(163)]
2	Monitoring or sampling of collected leak detection liquids does not meet <i>Directive 055</i> . [<i>Directive 055</i> 1.6.3(4), (7), 1.6.4(10), (11), 3.2(31), 4.2(151), (152), 4.3.4(157), 4.3.5(160), 5.6(194)]
3	Leak detection for storage devices within a diked area does not allow leakage to move preferentially through the layer to a collection area. [<i>Directive 055</i> 4.3.2(154)]
4	Automatic shutdown system not checked or documented monthly or maintained to ensure functionality. [<i>Directive 055</i> 4.3.4(158)]

Operational Controls (All Storage Systems)

Item #	Description
1	Loading and unloading area(s) not designed to contain leaks/spills. [<i>Directive 055</i> 5.1(175)]
2	Spill control or spill control device(s) not used or not adequate where required. [<i>Directive 055</i> 3.2(38), 5.1(176), (180), (181)]
3	Storage device not protected from damage. [<i>Directive 055</i> 2.3(18)]
4	Required measures not incorporated to prevent overfilling of tanks. [<i>Directive 055</i> 5.1(178)]
5	Double-walled AST not equipped with a valve as close as practical to the tank. [<i>Directive 055</i> 5.1(179)]

Withdrawal of Storage Devices from Service

Item #	Description
1	A tank taken out of service is not appropriately isolated or maintained. [<i>Directive 055</i> 5.6(192), 5.6(193)]
2	Tank out of service 180 days or less not emptied or monthly fluid level not recorded. [<i>Directive 055</i> 5.6(194)]
3	Tank taken out of service greater than 180 days not clearly marked as empty and out of service. [<i>Directive 055</i> 5.6(195)]
4	Tank taken out of service greater than 180 days does not have all fluids/solids/gases removed. [<i>Directive 055</i> 5.6(195)]
5	Tank out of service greater than one year not verified for integrity prior to putting it back in service. [<i>Directive 055</i> 5.6(196)]
6	Non-permanent storage device is not removed, suspended, or verified as required. [<i>Directive 055</i> 5.6.1]
7	Soil contamination assessment or confirmatory soil sampling not conducted as required. [<i>Directive 055</i> 1.6.4(12), 5.6(197), 5.6.2(198)–(201)]

Inspections and Documentation

Item #	Description
1	Storage system inspections not conducted at least monthly as required. [<i>Directive 055</i> 3.2(34), 5.7(203)]
2	Storage device inspections, monitoring, or documentation does not meet requirements. [<i>Directive 055</i> 4.2.1(143), 4.2(153), 4.3.4(157), 4.3.4(158), 5.8(210)]
3	No or inadequate storage device corrective actions as required. [<i>Directive 055</i> 1.6.4(12), 4.2(153), 5.7(204), 5.7(208)(d)]
4	Inventory records not maintained or retained on site or at the local field office for two years. [<i>Directive 055</i> 5.8(209)]

Item #	Description
5	Required documentation not retained for a minimum of five years. [<i>Directive 055</i> 5.8(210)]
6	Applicable approvals, licences, or permits not on site or at field/plant offices. [<i>Directive 055</i> 5.8(211)]

11 Vapour Recovery

Item #	Description
1	Failure to maximize the gathering and utilization of gas produced (section 49(d) of the <i>OSCR</i>).
2	Vapour recovery equipment inadequate or not operable (e.g., flame arrester plugged, thief hatch not sealing, venture not working, vapour recovery compressor down).

Environment

12 Odour Emissions

Item #	Description
1	Operator failed to immediately notify the AER of H ₂ S emissions off site that have the potential to cause public concern (section 3(g) of <i>OSCA</i>).
2	Operator failed to immediately notify the AER of other emissions off site (hydrocarbon, mercaptan, etc.) that have the potential to cause public concern (section 3(g) of <i>OSCA</i>).

13 Noise Emissions

Item #	Description
1	Production facilities not meeting the requirements of <i>Directive 038</i> (section 3(g) of <i>OSCA</i>).

14 Housekeeping

Item #	Description
1	Processing facilities not maintained in a clean and safe condition (section 8.150(4) of the <i>OGCR</i> , section 9 of the <i>OSCR</i>).
2	Disposal of spill material not in accordance with section 8.050 of the <i>OGCR</i> (section 9 of the <i>OSCR</i>).
3	Garbage and loose debris not stored in accordance with section 8.150(2)(a) of the <i>OGCR</i> .
4	Dikes and firewalls not maintained in good condition in accordance with section 4.2(133) of <i>Directive 055</i> .

15 Spills

Item #	Description
1	Contaminated spill materials not handled and disposed of in accordance with section 8.050 of the <i>OGCR</i> .
2	Unaddressed spill into water.
3	No notification of a reportable spill to the AER.
4	Late notification of a reportable spill to the AER.

16 Other Releases

Item #	Description
1	No notification to the AER of a release off site that has the potential to cause public concern (section 3(g) of OSCA).

17 Pits

Item #	Description
1	Pits used as storage for crude bitumen, liquid hydrocarbons, process chemicals, or water produced from a facility without AER approval (section 8.010 of the OGCR).

18 Fire

Item #	Description
1	Operator failed to prevent loss, injury, damage, and fire at an oil sands site (section 9 of the OSCR).

19 Emergency Response Plans

Item #	Description
1	ERPs for sour product processing facilities not submitted upon request (section 8 of the OSCR).
2	Operator failed to participate and notify the AER of a spill deployment exercise (section 8.052 of the OGCR, section 9 of the OSCR).

Other AER Requirements

20 Approvals

Item #	Description
1	Facility operating without approval (section 3(1) of the OSCR).
2	Facility not constructed or operating in compliance with condition of approvals and other AER requirements.
3	Facility not suspended in accordance with AER requirements (section 3(1) of the OSCR).
4	Storage or disposal of any oil sands or discard accumulated during mining or overburden removal without approval (section 24 of the OSCR).
5	Exceedance of approval conditions for storage or disposal areas, such as footprint, dimensions, and elevation (section 24 of the OSCR).
6	Failure to obtain approval for a mine site plan and for any changes to an approved annual mine plan that would reduce the amount of oil sands recovered (section 26 of the OSCR).
7	Failure to manage tailings in accordance with the approval.
8	Written approval not obtained to cause or permit the burning of crude bitumen, gas, oily waste, or discard or other material (section 10(1) of the OSCR).
9	Venting, flaring, or wasting of any significant amount of gas without the permission of the AER not in a case of emergency (section 11 of the OSCR).
10	Wasting of significant amount of liquid hydrocarbons not in a case of emergency (section 11 of the OSCR).

Item #	Description
11	Failure to obtain approval for the storage or disposal of any oil sands, coke, sulphur, precipitator ash, or other hydrocarbon effluent or discard associated with the processing plant (section 48 of the <i>OSCR</i>).
12	Pit containing crude bitumen, liquid hydrocarbons, processed chemicals, or water produced from a processing facility without approval of the AER (section 48 of the <i>OSCR</i>).

21 Reports

Item #	Description
1	Failure to report any collapse or instability within the mine site that changes the approved mine plan (section 32(2)(a) of the <i>OSCR</i>).
2	Failure to report any collapse or instability within the mine site that interrupts the operator's ability to continue mine operations (section 32(2)(b) of the <i>OSCR</i>).
3	Failure to report any collapse or instability within the mine site that results in the possibility of a permanent loss of recoverable oil sands (section 32(2)(c) of the <i>OSCR</i>).
4	Failure to appropriately report flared/vented volumes.
5	Failure to report to the AER by the quickest effective means an effluent being burned under emergency conditions (section 10(2) of the <i>OSCR</i>).
6	Failure to provide the details that occurred during an incident (section 13(2) of the <i>OSCR</i>).
7	Failure to file design and operating parameters 6 months after commencement of operations or after any modifications that required an amendment to the approval (section 54(a) of the <i>OSCR</i>).
8	Failure by operator producing H ₂ S or other sulphur compounds to file on or before the 22nd day of each month statements of monthly and, if required, daily totals of plant input and output for the preceding calendar month in the form of a processing plant sulphur balance and a sulphur plant sulphur balance, including the details (section 57(1) of the <i>OSCR</i>).
9	Failure to submit on or before the 28th day of February of each year a report of operations conducted during the preceding calendar year, including the details (section 58 of the <i>OSCR</i>).
10	Failure to submit to the AER for approval an annual mine plan for the next calendar year of operation on or before the 30th day of September (section 30 of the <i>OSCR</i>).
11	Failure to submit monthly report (section 56 of the <i>OSCR</i>).
12	Failure to immediately report to the AER any liquid spill or any break or leak in a vessel, gathering line, or other equipment that occurs at an oil sands site where the loss exceeds 2 m ³ of liquid hydrocarbon or 30 000 m ³ of gas or gas equivalent or where significant damage to equipment occurs (section 13(1)(a)(b) of the <i>OSCR</i> , section 8.050(2) of the <i>OGCR</i>).
13	Failure to immediately report to the AER any fire that occurs at an oil sands site, including the sulphur storage block or handling facility, that requires major fire-fighting equipment and resources (section 13(1)(c) of the <i>OSCR</i>).

22 Records

Item #	Description
1	Record of tailings management performance not maintained and kept available on site (sections 14 and 55 of the <i>OSCR</i>).
2	Failure to maintain and provide to the AER records of tailings piping integrity (sections 14 and 55 of the <i>OSCR</i>).
3	Failure to keep records and file with the AER any other reports that may be required (section 14 of the <i>OSCR</i>).
4	Failure to retain records at the place and by the person specified by the <i>OSCR</i> for a period of 18 months from the time the record is made or any other period specified by the AER (section 17 of the <i>OSCR</i>).
5	Failure to keep at the plant site or other place of business a daily record of all oil sands, crude bitumen, or oil sand products (section 55 of the <i>OSCR</i>).

23 Other

Item #	Description
1	Failure to use the units and methods of measurement and standard conditions stipulated in section 19 of the <i>OSCR</i> whenever the measurement of oil sands, crude bitumen, derivatives of crude bitumen, or oil sands products is required by the provision of an act, regulation, order, direction, term, or condition made by the AER, whether the provision deals with conservation, preservation, utilization, taxation, or royalties.
2	Failure to provide the AER or an authorized employee access at the plant site to piping and measurement drawings, operating procedures, and equipment specifications (section 54(b) of the <i>OSCR</i>).

Appendix 2 Mining Inspection and Observation Sheet

Facility Name _____ Location _____
 Approval No. _____ Inspection Date _____

Further assessment by the AER required? (Y/N)

- 1. Location and Geometry**
 - a) Is there an up-to-date as-built of the structure to confirm location and geometry? _____
 - b) Are the present elevations in accordance with the scheduled or design elevations? _____
 - c) Are there any adjacent operations or structures that could impact the subject structure? _____
- 2. Construction / Operation**
 - a) Is the construction taking place in accordance with accepted application and approval? _____
 - b) Is the construction taking place at the scheduled or normal operating rates? _____
 - c) Is any unscheduled loading or unloading of the structure taking place? _____
 - d) Have there been any recent upset conditions as a result of construction or operations? _____
 - e) Is there an operation, maintenance, and surveillance (OMS) manual for the structure? _____
 - f) Are up-to-date construction and maintenance records available for the structure? _____
- 3. Water Management**
 - a) Are the seepage control and collection elements operating in accordance with the design (modelled vs. measured)? _____
 - b) Are there any concerns about the operation of the seepage control elements (blocked pipes, sediment in ditches)? _____
 - c) Have any incidences of uncontrolled seepage been observed? _____
 - d) Are there any areas of ponding or standing water on the crest or at the downstream toe of the dike? _____
 - e) Have there been any freeboard reductions below design levels? _____
 - f) Is there any significant water-related erosion of the upstream or downstream slopes? _____
- 4. Geotechnical Stability**
 - a) Is the geotechnical performance of the structure satisfactory (within design expectations)? _____
 - b) Is there an adequate level of instrumentation monitoring for the structure? _____
 - c) Have there been any noticeable deformations in the fill or foundations? _____
 - e) Have there been any noticeable increases in piezometric levels within the fill or foundation? _____
 - f) Are there any noticeable features on the structure indicative of instability? _____
 - g) Have any abnormal features been observed (cracks, sinkholes, burrows, etc.)? _____
 - h) Are there any significant erosion gullies on the upstream or downstream slopes that could impact stability? _____
 - i) Are there or have there been any stabilization methods employed? _____
- 5. Resource Conservation and Sterilization**
 - a) Is any mine oil sands pillar left behind, either in-pit or at the boundary? _____
 - b) Is any oil sands left on the pit floor? _____
 - c) Is any oil sands being sent to a waste storage area? _____
 - d) Is oil sands being used for other purposes, e.g., road construction? _____
 - e) Is oil sands being stockpiled? _____
 - f) Is oxidation of stockpiled oil sands evident? _____
 - g) Is any unapproved structure located on mineable oil sands? _____
 - h) Has any slope failure or collapse caused resource sterilization? _____

6. Comments:

Operator's Name and Signature _____ Operator's Phone Number _____

Inspector's Name and Signature _____ Deadline Date _____

Inspector's Phone Number _____ Inspector's Fax Number _____

Alberta Energy Regulator, Fort McMurray Regional Office, 9915 Franklin Avenue, Fort McMurray, Alberta T9H 2K4

Appendix 3 Approved Grandfathered Facilities

Grandfathered projects	Approval	Comment
Albian Sands Energy Inc. Muskeg River Mine Project	8512 A	
Muskeg River Mine Expansion Project	8512 B	
Canadian Natural Resources Limited Horizon Oil Sands Project	9752	Including amendment A to approval 9752
Imperial Oil Resources Ventures Limited Kearl Oil Sands Project	10829	
Fort Hills Oil Sands Project	9241	
Shell Canada Limited Jackpine Mine –Phase 1 Project	9756	
Suncor Energy Inc. Base Plant Project Millennium Project Steepbank Mine Project North Steepbank Mine Extension Project Voyageur Upgrader Project	8535	Approval 8535 is grandfathered up to amendment E, which includes North Steepbank Mine Extension and Voyageur Upgrader Projects
Syncrude Canada Limited Mildred Lake Project Aurora Project	8573 10781	Approval 10781, Aurora South Project, is not grandfathered

Note: If date of production is delayed more than one year from the approved production date, the licensee must apply to the AER for approval for grandfathering.

Appendix 4 Notifications to the AER Required of Oil Sands Mining and Plant Operations

The requirements below are from section 13(1) and (2) of the *OSCR*. Refer to the AER website for more information on release reporting and incident response.

This appendix does not affect any existing requirements to report to other regulatory agencies.

Event	Notification time	Notification method	Information required
Spill			
Any spill of an unrefined product greater than 2 m ³ liquid or 30 000 m ³ vapour	<ul style="list-style-type: none"> • Quickest effective means. • When so directed by the AER, the operator must further report by letter within two weeks. 	Phone the AER's 24-hour Energy and Environmental Emergency Response Line at 1-800-222-6514.	<ul style="list-style-type: none"> • Time event occurred • Description of circumstances leading to the event • Discussion of action taken in response to the event • Outline and schedule for spill-site or fire-site rehabilitation and repair of affected equipment • Any other material the AER may require • Contact person's name and telephone number
Fire			
Any fire that occurs requiring major fire-fighting equipment and resources	<ul style="list-style-type: none"> • Quickest effective means. • When so directed by the AER, the operator must further report by letter within two weeks. 	Phone the AER's 24-hour Energy and Environmental Emergency Response Line at 1-800-222-6514.	<ul style="list-style-type: none"> • Time event occurred • Description of circumstances leading to the event • Discussion of action taken in response to the event • Outline and schedule for spill-site or fire-site rehabilitation and repair of affected equipment • Any other material the AER may require • Contact person's name and telephone number
Other releases including odour emissions			
Any emissions off lease that have the potential to cause adverse off-site effect (including odour issues, flaring, diverting, and other releases that are not presently reported to the AER but are having or could have off-site impacts)	<ul style="list-style-type: none"> • Quickest effective means. • When so directed by the AER, the operator must further report by letter within two weeks. 	Phone the AER's 24-hour Energy and Environmental Emergency Response Line at 1-800-222-6514.	<ul style="list-style-type: none"> • Time event occurred • Description of circumstances leading to the event • Discussion of action taken in response to the event • Outline and schedule for spill-site or fire-site rehabilitation and repair of affected equipment • Any other material the AER may require • Contact person's name and telephone number

Appendix 5 Tank Gauging Requirements

Tank gauging requirements, as stated in the *API Manual of Petroleum Measurement Standards*, Chapter 3.1A, “Standard Practice for the Manual Gauging of Petroleum and Petroleum Products” (third edition, August 2013), are as follows:

5.2 Reading and Reporting Gauges

The reported gauge shall be determined by the gauge readings from consecutive measurements as follows.

Manual gauging shall require obtaining either two consecutive gauge readings that are identical or three consecutive readings within an absolute range of 3 mm (1/8 in.). If the first two readings are identical, this reading shall be reported to the nearest 1 mm if metric tapes are used or to the nearest 1/8 in. if customary tapes are used. When three readings are taken, all three readings shall be within the 3 mm (1/8 in.) range and readings averaged to the nearest 1 mm for metric tapes and 1/8 in. for customary tapes.

For lighter materials, a suitable product-indicating paste should be used on the tape to facilitate reading the cut. The use of chalk or talcum powder is not permissible, as petroleum has a tendency to creep on chalk or powdered tapes.