Alberta Energy Regulator
New Oilfield Waste Management Application Requirements

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E-mail: Directive058@aer.ca
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New Oilfield Waste Management Application Requirements

The regulator may require information other than what is identified below during review of the application.

Part 1   Application Facility Activity/Type (Check all Boxes that Describe the Application)

☐ New oilfield waste management facility activity/type

☐ Waste transfer/storage: The collection and storage of oilfield waste until volumes are sufficient for economic transfer to treatment and disposal facilities. See section 12 of Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry for information on waste transfer/storage stations.

☐ Surface facilities associated with a disposal well: The receipt of fluids meeting the requirements of Directive 051: Injection and Disposal Wells – Well Classifications, Completions, Logging, and Testing Requirements for injection down a disposal well. May also include the collection and deep-well disposal of residual fluids generated at the facility (e.g., by waste processing, custom treating, etc.). See section 13 of Directive 058 for information on surface facilities associated with a disposal well.

☐ Waste processing: The receipt and processing of wastes for the purpose of hydrocarbon recovery, the physical separation of fluids and solids, and the processing of residuals generated by the facility. Different types of treatment and systems (e.g., tank treatment, centrifuging, filtering, and shaker systems, etc.) are used for phase separation and hydrocarbon recovery. Solids pads are used to receive and dewater waste materials. See section 14 of Directive 058 for information on waste processing.

☐ Custom treating: Receiving and treating production fluids (e.g., crude oil and emulsions) from oil and gas exploration, and hydrocarbons recovered from the processing of wastes. A treater or tank treatment, or both, is used to render hydrocarbons to meet pipeline specifications.

☐ Clean oil terminalling: The receipt of crude oil and subsequent transfer either by truck or pipeline to a third party for sales.

☐ Tank/truck washing: Consists of a wash bay where fresh or produced water (or both) is used in combination with high-pressure washing equipment.

*Note: Tank/truck washing infrastructure is to be constructed in accordance with Directive 055: Storage Requirements for the Upstream Petroleum Industry bulk pad requirements.
Biodegradation facilities: Aerobically biodegrade hydrocarbon-contaminated soils and sludges under the catabolic process conducted by soil-residing microorganisms. See section 16 of Directive 058 for information on biodegradation.

*Note: If applying for an AER biodegradation facility, the applicant must respond in writing to all parts of section 26 in Directive 058 (question/answer format).

Thermal treatment facilities: Remove organic components in oilfield waste by incineration, thermal oxidation, thermal desorption, thermal phase separation, or thermal distillation recovery. See section 17.0 of Directive 058 for information on thermal treatment.

*Note: If applying for an AER thermal facility, the applicant must respond in writing to all parts of section 27 of Directive 058 (question/answer format).

*Note: If the type of activity you wish to conduct at the new oilfield waste management facility is not listed above, contact the Waste and Storage Section at Directive058@aer.ca for direction.

*Note: If you applying for an AER landfill, contact the Waste and Storage Section at Directive058@aer.ca for direction.

Part 2 General Information

1. Provide the name of the proposed oilfield waste management facility: _________________________

2. Provide the surface location of the facility site: ___________________________________________

3. Identify the current land use and zoning for the site: _____________________________________

4. Identify the estimated year of final closure of the facility: _________________________________

5. Indicate whether 1st- or 3rd-party waste is accepted: _____________________________________

1st-party waste: Waste generated by an oil and gas company, but can come from various sites.

3rd-party waste: Waste generated by various oil and gas companies from various sites.
Part 3  Site-Specific Information

A concise summary of the information obtained for the environmental site assessment (refer to appendix 4 of Requirements for Site Assessment and Groundwater Protection) must be included with the application. Note that the full environmental site assessment report should not be included with the application; however, it must be made available upon AER request and may be subject to an audit, investigation, or inspection.

☐ Facility plot plan

The facility plot plan must clearly indicate the location of all equipment identified on the lease and include all surface improvements, water bodies, and vegetation for at least 100 metres past the edge of the lease, to demonstrate that all off-lease spacing requirements have been met (e.g., distance to a residence, water bodies, road allowance, etc.).

Included on the plot plan, in a separate plot plan, or in a written discussion, the applicant must identify any surface or buried pipelines, utility lines, conduits, pits, and tanks; disposal wells or source wells; existing or abandoned monitoring wells or standpipes; any area containing buried fill material or waste; known groundwater directional flow; all groundwater monitoring wells; and any areas of known extensive or frequent spills.

☐ Are any surface waters, inferred areas of groundwater discharge, or local groundwater and surface water users within a three-kilometre radius of the site? Yes or No.

If Yes, provide a summary, the location, and the distances (in metres) of all items within three kilometres of the site.

☐ Describe the regional hydrogeology and geology of the site as derived from data in the public domain.

Describe the soil. The description must include the physical characteristics of the soil, including the thickness, texture (e.g., coarse- or fine-grained), internal drainage characteristics, evidence of fracturing, and estimate of the moisture content.

The description must also include the background chemical characteristics of the soil, including pH, electrical conductivity, sodium adsorption ratio, major ions (Ca, Mg, Na, Cl, SO4, K), cation exchange capacity, total metals, petroleum hydrocarbon fractions F1, F2, F3, F4, and benzene, toluene, ethylbenzene, and xylene (BTEX).

☐ Attach all borelogs associated with soil assessment.

* Note: If there are exceedances, justify the exceedances in the baseline soil parameters and discuss how you will manage and monitor these exceedances.
For those facilities that require groundwater monitoring (listed below), provide a written response to the items identified in section 21.3(g) of Directive 058.

Groundwater monitoring is required for facilities that store or transfer dangerous oilfield waste, facilities that process waste, surface facilities associated with a class 1a disposal well, landfills, bioremediation facilities, thermal treatment facilities, and facilities that have site sensitivities (which include course grained soils, shallow groundwater, etc.).

Provide a description of how the surface run-off water will be controlled, accumulated, and discharged at the facility. Note that if a pond or dike is used, it must be sized to contain a 1- in 10-year 24-hour storm event.

Part 4 Operational Specific Information

Provide a process flow diagram (PFD). The PFD must clearly identify the following:

- Process equipment
- Measurement points
- Storage vessels and tanks (including pop tanks)
- Sources of receipt and deliveries, including all fluid lines, flare lines, and vent points

Accompany the PFD with a description of the treatment and process technologies, from receipt to disposition of waste.

Provide a list of all proposed waste streams to be received for each facility activity (see appendix 3 of Directive 047: Waste Reporting Requirements for Oilfield Waste Management Facilities for a full list of waste streams).

Will the facility be accepting Alberta-generated non-oilfield waste streams? Yes or No

If Yes, the applicant must address section 3.2.6.1 of Directive 058 Addendum 2015-01-14: Oilfield Waste Management Facility Approvals – Notification and Amendment Procedures, the question/answer format, and include it as part of the application.

Note: Alberta-generated hazardous non-oilfield waste stream must have a recoverable component upon receipt. Hazardous non-oilfield waste streams can therefore not be accepted for fluid disposal.

Will the facility be accepting imported oilfield waste streams? Yes or No

If Yes, the applicant must address section 3.2.6.2 of Directive 058 Addendum 2015-01-14, question/answer format, and include it as part of the application.
Will the facility design and construction meet the equipment spacing requirements detailed in the *Oil and Gas Conservation Rules*, part 8 (including proximity to a water body), and as required by *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting* and *Directive 058*?

Yes or No

No means that due to exceptional circumstances, not all applicable requirements cited above have been met in the facility design.

If No, you must include

- a copy of the spacing waiver obtained from the AER;

or

- a detailed explanation of what equipment will not meet the requirements and why,

- a description of how safety will not be compromised by a relaxation of the requirement, and

- for water body spacing, the preventive measures that will be employed at the facility to minimize the risk of a spill, and in the event of a spill, the preventive measures for ensuring that the spill does not reach a water body.

Will the facility design and operation meet the storage requirements of AER directives (e.g., *Directive 055* and *Directive 055 Addendum*)? Yes or No

No means that due to exceptional circumstances, not all applicable requirements cited above have been met or the facility is being designed or operated in a way other than what is described in *Directive 055*.

If No, you must include

- a detailed explanation of why the storage requirements are not being met or a description of the alternative storage methods and design, or both,

- a discussion of the mitigative measures that will be taken to ensure that a level of environmental protection and safety equal to the level provided by following AER directives is achieved, and

- signed engineering (registered with APEGA) diagrams of the storage systems and design.

Note: Alternative storage systems will continue to be reviewed up front to avoid the need for a separate *Directive 055* alternative storage system application. However, a full upfront review of the storage systems that will meet all storage requirements at the facility will not be conducted. The waste and storage audit program will be used as a tool to ensure compliance with all storage requirements and will be conducted after the facility is built.
Provide a list of all storage equipment (e.g., tanks, solids pad, receiving pad, etc.) on site. The list must identify the notation associated with the equipment, the size of the storage unit (in cubic metres as well as in length by width for solid pads).

Note: Applicants must designate tanks to conduct single activities (e.g., waste processing, custom treating, fluid disposal, etc.) at any one time. Tanks must be cleaned before another facility activity occurs, especially for custom treating or clean-oil terminalling. A record of tank operations must be maintained at the facility, including the time frames for each management operation and the date of change in activity.

Note: Approval holders are still responsible for measuring and accounting for waste streams transferred between areas (e.g., oil going from waste processing tanks to custom treating tanks).

Will waste streams containing hydrogen sulphide be accepted at the facility? Yes or No

If Yes, provide a written discussion of how sour material will be handled at the facility and the operational procedures put in place to manage vapours.

Part 5 Public Consultation – See Section 2 of Directive 056 for Information

Personal consultation, confirmation of non-objection, and notification requirements have been met in accordance with section 21.4 of Directive 058 and section 2 of Directive 056: Upstream Petroleum Industry Flaring, Incinerating, and Venting for both the public and industry: Yes or No

Yes means that written landowner consent has been received; that landowners, occupants, and residents within 0.5 km have provided confirmation of non-objection; and that crown disposition holders, local authority, landowners, occupants, and urban authorizations within a 1.5 km radius (facility not accepting H2S material) or a 2.0 km radius (facility accepting H2S material) have been notified before the application is submitted.

No means that because of exceptional circumstances, not all applicable requirements cited above have been met. This includes being unable to contact a party or receive confirmation of non-objection, as required.

If No, you must attach

- the participant involvement summary of all personal consultation and notification that has been completed;
- the names, addresses, telephone numbers, and legal land descriptions of participants for which personal consultation and notification requirements have been completed;
- a detailed explanation of why not all notification requirements can be completed; and
• an explanation of how you would like the AER to proceed with this application.

The AER will review the circumstance and decide whether an exemption is warranted.

☐ There are outstanding statements of concern related to this application: Yes or No

Yes means that there are public or industry concerns with the proposed project.

If Yes, you must attach

• names, addresses, telephone numbers, and legal land descriptions of the participants with statements of concern;

• the approximate distance from the proposed facility to the land and residence, if applicable, of the participants with statements of concerns;

• a copy of the written statement of concern received; if not available, a summary of issues;

• a chronology of the participant involvement program conducted with the party;

• steps taken to mitigate the outstanding statements of concern;

• a copy of the project-specific information package provided;

• a list of other documents distributed; and

• a discussion of how you would like the AER to proceed with your application.

No means there are not outstanding public or industry statements of concern.

Part 6  Financial Security – Submitted under a Separate Cover

☐ Under a separate attachment as part of the application, submit the required information outlined in Directive 075: Oilfield Waste Liability (OWL) Program and Directive 001: Requirements for Site-Specific Liability Assessments in Support of the AER’s Liability Management Programs, which includes the following:

• Phase I environmental site assessment;

• Phase II environmental site assessment, if applicable;

• Directive 075, appendix 7 Facility Liability Declaration Form; and

• Documentation that clearly itemizes the subtotals for all major tasks as required by section 5 of Directive 001, including Directive 001 forms 001-A to 001-F.

Please note that this list is not exhaustive. Review Directive 001 and ensure that all of the required information is addressed. Send any questions about financial security requirements to liabilitymanagement@aer.ca.
Note: An approval will not be issued until financial security has been posted in accordance with Directive 075.

Part 7 To be Met or Considered when Building and Operating an Oilfield Waste Management Facility

1) The approval holder must develop a surface water run-off control system within the boundaries of the oilfield waste management facility. The surface water run-off control system must be able to accommodate the volume of water from a 1-in-10-year, 24-hour storm event. For more information of surface water runoff control systems, see section 11.6.2 of Directive 058.

2) The approval holder must put control measures in place to manage odours resulting from receiving, processing, handling, and disposing of oilfield and non-oilfield waste streams at the oilfield waste management facility. For more information on emissions and odours, see sections 11.3.1 and 11.3.2 of Directive 058.

3) If fresh water is being used in the operation of the facility, the approval holder must determine and obtain, if necessary, a groundwater diversion permit or water withdraw permit.

4) The approval holder must implement a quality assurance and quality control program for materials accepted for management and for residuals intended for disposition and further management.

5) If the facility has an active facility licence under Directive 056 and those activities are going to be integrated into the new oilfield waste management facility, the applicant will need to cancel the Directive 056 facility licence once an oilfield waste management approval has been issued.

6) Directive 055 does not allow for penetrations through liners; however, the AER recognizes that piles are required in some circumstances. Therefore, the AER requires licensees to consider whether this is the most appropriate option, and if so, ensure the following are considered during the design, construction, and operation of a tank farm with piles:
   - Piles are not drilled down, near, or through the water table
   - Piles are properly sealed to the liner to ensure integrity
   - A monitoring program is put in place to ensure that the seal between the pile and the liner is maintained for the life of the tank farm

7) The AER is aware of the installation of wood either as a tank foundation (directly below the tank) in tank farms or as a tank farm base foundation (a continuous base under the liner), or as a combination of both. These scenarios have led to both flammability and stability issues; therefore, the AER suggests that wood is not an appropriate material to be used in any tank farm design.

   However, it is up to the licensee to use sound engineering judgment when designing all aspects of a tank farm. Specifically, licensees need to ensure that any use of wood in a tank farm is developed and
approved by a qualified engineer and at the very least meets the national fire-code standards when storing flammable fluids. Furthermore, appropriate measures should be taken (e.g., inspection and monitoring) to ensure that the tank foundation does not degrade over the life of the tank farm.