Manual **034**

Alberta Energy Regulator

Oilfield Waste Management

March 2026

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Abbreviations

AEPA	Alberta Environment and Protected Areas
AER	Alberta Energy Regulator
DOW	dangerous oilfield waste
EPEA	*Environmental Protection and Enhancement Act*
non-DOW	non-dangerous oilfield waste
OWD	oilfield waste disposition
TDG	transportation of dangerous goods
TDGR	*Transportation of Dangerous Goods Regulation*
WCR	*Waste Control Regulation*

1 Introduction

1.1 About This Manual

This manual provides guidance and information on oilfield waste management and is not a substitute for the applicable regulatory requirements set out in acts, rules, regulations, directives, and requirements in other relevant guidelines and standards. The manual does not create, modify, or waive any requirements. The user is responsible for complying with all applicable requirements. Where an inconsistency exists between this manual and the applicable requirements, the requirements prevail.

The principles and purpose of this manual and *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry* are as follows:

- Providing industry with methods to manage oilfield waste that protect the environment and the public, and, where applicable, harmonize with provincial and federal waste management regulations.
- Describe the Alberta Energy Regulator's (AER) expectations for managing oilfield waste.
- Identify the oilfield waste management responsibilities of licensees and approval holders.
- Promote waste minimization through the reduce, reuse, recycle, and recover principles (see appendix 1).
- Ensure the duty holder's oilfield waste management practices meet the AER requirements and achieve environmental outcomes through monitoring and reporting.
- Require record retention and submission of oilfield waste information to assist in waste management compliance practices.

1.2 How to Use This Manual

This manual supports *Directive 058* by providing guidance on oilfield waste management topics and filing applications under *Directive 058*.

To use this manual, the reader is expected to understand *Directive 058*, the appropriate AER designated-digital information submission systems, and all energy resource enactments and specified enactments relating to oilfield waste management, including those relating to the extraction and management of geothermal and brine-hosted mineral resources.

In this manual, the term "duty holder" refers to both licensees and approval holders.

2 Oilfield Waste Scope

Oilfield waste includes all secondary or incidental products or substances (except for acid gas, produced water not stored for reuse on a standalone site, solution gas, sulphur, and coke) that remain following or resulting from the construction, operation, abandonment, or reclamation of any AER-regulated well, facility, or pipeline.

Any substance or by-product that fits the above description is "oilfield waste" for AER regulatory purposes, regardless of whether the generator, handler, or receiver of the substance or by-product considers it to be of commercial value or a "wanted" substance or by-product.

The definition of oilfield waste in the *Oil and Gas Conservation Rules* excludes substances received at an AEPA-managed facility.

3 Jurisdictional Overview

The AER and Alberta Environment and Protected Areas (AEPA) share responsibility for regulating waste in Alberta. Responsibility is based on the type of waste management facility or activity. Generally, the AER is responsible for oilfield waste, while AEPA is responsible for most other types of waste.

The AER, under the *Oil and Gas Conservation Act* and *Oil and Gas Conservation Rules*, is responsible for regulating oilfield waste. AEPA, under the *Environmental Protection and Enhancement Act* (*EPEA*) and its regulations, is responsible for regulating all other waste in Alberta. This jurisdictional split is based on the premise that each agency's requirements provide an equivalent level of environmental protection and public safety, while acknowledging that the AER's and AEPA's processes may not be the same operationally.

4 Land Use Plans

In addition to legislation and policies, activities on public lands are guided by land use plans, including integrated resource plans and plans approved under the *Alberta Land Stewardship Act*. These plans provide direction and guidance on managing activities on public lands. Therefore, duty holders are required to understand and identify whether the proposed activity falls within a designated plan area. Where a proposed development is within a designated plan area, the duty holder is expected to complete assessments to determine whether the proposed activity complies with the plans, including any triggers and limits. Depending on the plan requirements, the assessment would be a component of the *Public Lands Act* disposition application process. Duty holders should also review *Bulletin 2016-27: Application Requirements for Activities within the Boundary of a Regional Plan*.

5 Roles and Responsibilities

Oilfield waste generators and receivers have clear responsibilities as defined in section 8.150 of the *Oil and Gas Conservation Rules*.

When sending oilfield waste to an approved waste management facility, the oilfield waste generator (i.e., the duty holder) is responsible for adhering to all AER oilfield waste management requirements, including its classification, characterization, shipping documentation, tracking, and reporting.

6 Waste Characterization and Classification

The waste generator is responsible for appropriately characterizing and classifying (see figure 1) each waste product before transporting it on a public road.

Characterization is an assessment of the waste's chemical, physical, and toxicological properties. Once characterized, the duty holder can appropriately handle, treat, and dispose of the waste to manage any environmental consequences.

Following its characterization, the waste is classified as either dangerous oilfield waste (DOW) or non-dangerous oilfield waste (non-DOW). Table 1 lists the properties of DOW and the corresponding transportation of dangerous goods (TDG) class.

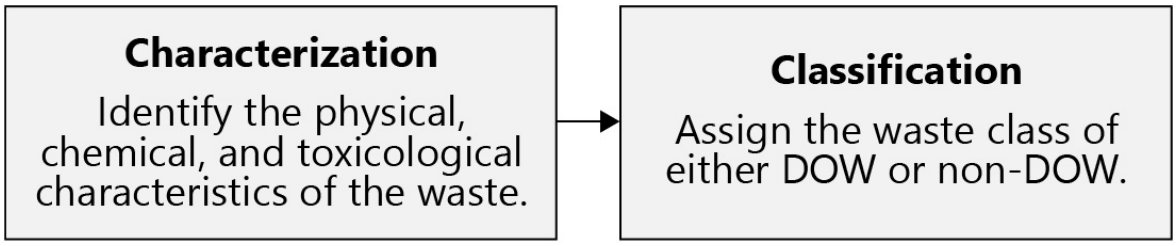

Figure 1. Waste characterization and classification

Table 1. DOW properties and TDG classes

Dangerous property	TDG class	Description (adapted from the *Waste Control Regulation*, Schedule 1)
Flammable	3 or 4	• Flash point ≤60.5ºC • Ignites and propagates combustion in a test sample
Oxidizing substances	5	• Contributes oxygen for combustion at a rate equal to or greater than that provided by ammonium persulphate, potassium perchlorate, or potassium bromate
Toxicity (acute)	6	• Rat oral toxicity LD_{50} not greater than 200 mg/kg (solid) or 500 mg/kg (liquid) • Dermal toxicity LD_{50} not greater than 1000 mg/kg • Inhalation toxicity LC_{50} not greater than 10 000 mg/m^3 at normal atmospheric pressure
Corrosive	8	• pH <2.0 or >12.5

Dangerous property	TDG class	Description (adapted from the *Waste Control Regulation*, Schedule 1)
Polychlorinated biphenyls (PCB) content	9	• Contains PCBs at a concentration ≥50 mg/kg
Toxicity (chronic)	Former TDG class 9*	• Toxic leachate in a dispersible form and o it contains a concentration of 100 mg/L or higher of any substance listed in table 1 of the schedule to the *Alberta User Guide for Waste Managers* o its leachate contains a substance listed in table 2 of the schedule to the *Alberta User Guide for Waste Managers* in excess of the concentrations listed in that table o it contains any of the following substances in concentrations >0.001 mg/L: ▪ hexachloro-dibenzo-p-dioxins pentachloro-dibenzo-p-dioxins ▪ tetrachloro-dibenzo-p-dioxins ▪ hexachloro-dibenzofurans ▪ pentachloro-dibenzofurans ▪ tetrachloro-dibenzofurans

*See the *Designation of Leachable Wastes in Alberta: acceptable industry practices*. It describes acceptable industry practices for the designation of leachable waste in Alberta (former *TDGR* class 9). Former *Transportation of Dangerous Goods Regulation* (*TDGR*) class 9 materials generate toxic leachate when subjected to the toxicity characteristic leaching procedure and will continue to be regulated as hazardous waste in Alberta.

Schedule 1 of the *Waste Control Regulation* (*WCR*) lists the following as DOW:

- waste types listed in table 3 of the schedule to the *Alberta User Guide for Waste Managers*
- commercial products or off-specification products listed in Part A of table 4 of the schedule to the *Alberta User Guide for Waste Managers*
- a container, other than an empty container, that has an internal volume greater than 5 litres and contains a substance listed in Part A of table 4 of the schedule to the *Alberta User Guide for Waste Managers*
- a number of containers, other than empty containers, that have an aggregate internal volume greater than 5 litres and contain a substance listed in Part A of table 4 of the schedule to the *Alberta User Guide for Waste Managers*
- commercial products or off-specification products listed in Part B of table 4 of the schedule to the *Alberta User Guide for Waste Managers*
- an unrinsed empty container that has an internal volume greater than 5 litres that contained a substance listed in Part B of table 4 of the schedule to the *Alberta User Guide for Waste Managers*
- a number of unrinsed empty containers that have an aggregate internal volume greater than 5 litres and contained a substance listed in Part B of table 4 of the schedule to the *Alberta User Guide for Waste Managers*

A waste or recyclable is dangerous if it has one or more of the properties listed in Schedule 1 of the WCR when tested using a test method set out in the *Alberta User Guide for Waste Managers*.

6.1 Waste Classification Process

The waste generator will characterize the oilfield waste and classify it as either DOW or non-DOW depending on its properties. Figure 2 is a process flowchart to aid in classifying oilfield waste.

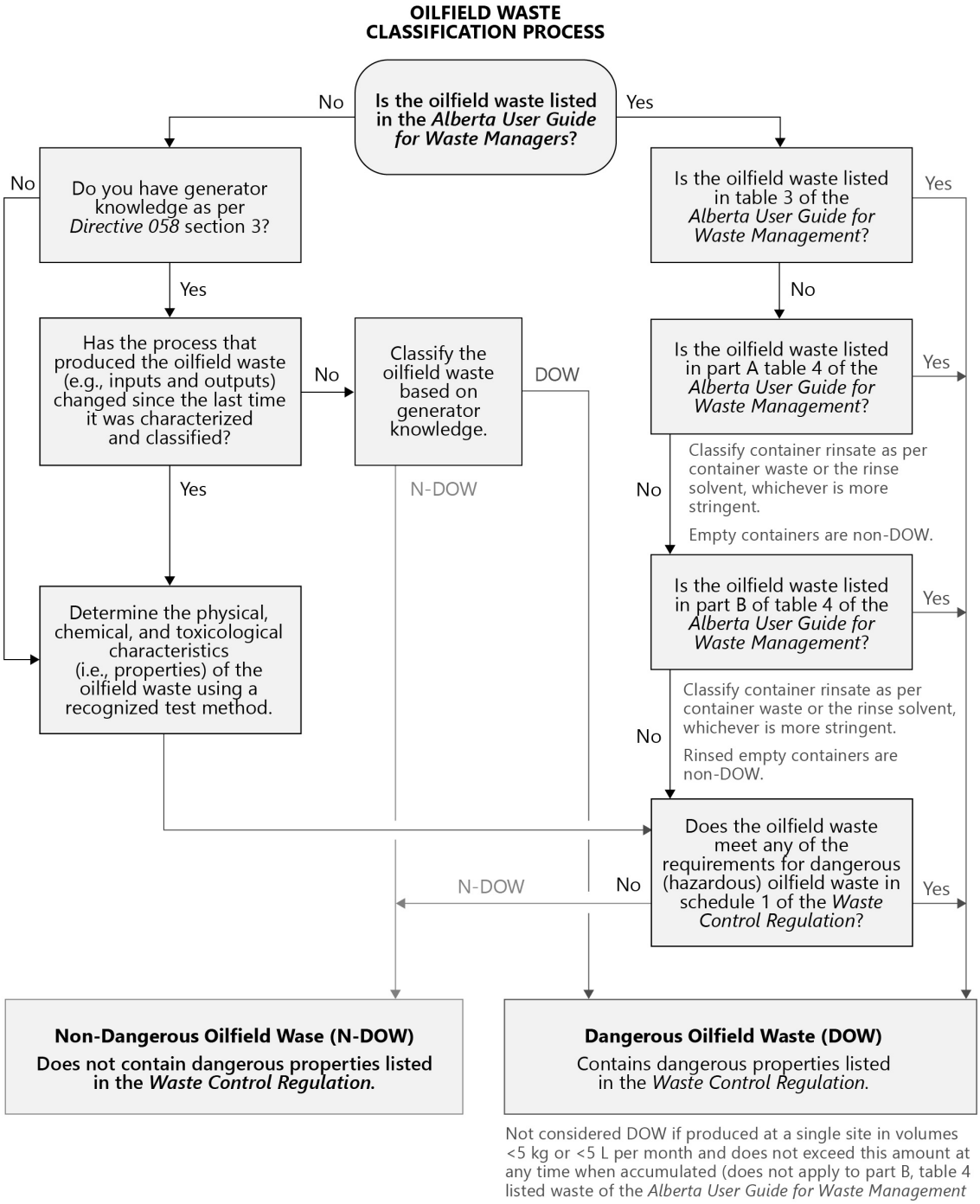

Figure 2. Oilfield waste classification flowchart

6.2 Waste Generator Knowledge

It is acceptable for the waste generator to use its knowledge to classify an oilfield waste, including waste origin, the process that produced it, any previous chemical or physical characterizations, feedstock, and other reliable and relevant information. Knowledge of the waste includes the generator's understanding of the process that generates the waste, as well as previous test results and information from similar operations and trade associations.

A critical factor when using generator knowledge to characterize waste is that the generator applies its knowledge appropriately. Any knowledge that is applied must be valid and verifiable. A waste generator cannot assume a waste is non-dangerous without providing supporting, verifiable information (see *Directive 058*) to justify that conclusion. Using generator knowledge to determine waste classification (i.e., DOW or non-DOW) involves a well-thought-out process that considers the properties of the waste materials or the process generating the waste.

A safety data sheet (SDS) typically provides information about the flash point, pH, and whether a discarded product is a dangerous waste or contains dangerous constituents. However, an SDS may not be reliable for determining whether a used material is a DOW, as it does not include information about possible contaminants introduced during its use or changes in concentration. Since the SDS was designed to meet occupational safety requirements, it may not include all the dangerous constituents requiring evaluation under the environmental regulations, and additional testing may be required to classify the waste.

Waste generators are responsible for any compliance action taken against them if the oilfield waste is incorrectly classified, regardless of the background information used.

7 Mixing and Dilution

Under section 16 of the *WCR*, oilfield waste must not be mixed with any solid or liquid for dilution to avoid Alberta regulatory requirements. Using dilution to reduce contaminant concentrations is not permissible unless authorized by the appropriate regulatory authority under an operating approval, code of practice, or directive. For example, the addition of a substance, such as adding an adsorbent to pass the paint filter test, to alter the chemical or physical properties of a waste (i.e., from DOW to non-DOW) to meet a waste management facility's acceptance restriction is not permitted.

8 Incompatible Waste

In accordance with section 3 of *Directive 058*, duty holders should be aware of when various types of waste are combined and that they can create dangerous effects that are harmful to human health and the environment. These effects may include

- heat or pressure,

- fire or explosions,
- violent reactions,
- toxic dust, mists, fumes, or gases, and
- flammable fumes or gases.

9 Oilfield Waste Transportation Documentation

Table 2 lists the type of shipping documents and when to use each. For more information, see section 5 of *Directive 058*.

Table 2. List of applicable shipping documents and when to use

Destination	Shipping Document
Dangerous Oilfield Waste	
AEPA hazardous waste management facility	AER Alberta Oilfield Waste Form
AEPA recycling facility	AER Alberta Oilfield Waste Form or AEPA recycle docket
AER oilfield waste management facility	AER Alberta Oilfield Waste Form
Exported out of Alberta*	Federal manifest
On-site treatment per *Directive 058*	No document
Non-Dangerous Oilfield Waste	
AEPA non-hazardous or hazardous waste management facility	AER Alberta Oilfield Waste Form, truck ticket, or bill of lading
AEPA recycling facility	AER Alberta Oilfield Waste Form, truck ticket, bill of lading, or AEPA recycle docket
AER oilfield waste management facility	AER Alberta Oilfield Waste Form, truck ticket, or bill of lading
Exported out of Alberta*	AER Alberta Oilfield Waste Form, truck ticket, or bill of lading
On-site treatment per *Directive 058*	No document

*Be aware of other transportation documentation requirements in jurisdictions where waste is being shipped.

10 AER Alberta Oilfield Waste Form

The Alberta Oilfield Waste Form includes specific information about the waste, its source, and its destination. A fillable PDF waste form is available on the directive forms webpage or from the AER Products and Services Catalogue. To order printed copies of the waste form, email InformationRequest@aer.ca or from the AER Products and Services Catalogue.

If using the fillable PDF version of the form, a printed copy of the waste form is required for the transporter to be compliant with TDG requirements, unless otherwise authorized in writing by Transport Canada.

Follow the instructions on the reverse side of the waste form. The comment section of the form may be used for additional information, such as authorization for expenditure (AFE) numbers, truck ticket numbers, bottomhole locations, etc., as the generator deems appropriate. For information on the use of "residue-last contained," see the *Transportation of Dangerous Goods Regulations* (*TDGR*).

10.1 Alberta Oilfield Waste Form Exemptions

The exemptions from using the waste form identified in *Directive 058* do not exclude a waste generator from ensuring that all tracking and supporting documentation is completed before shipment. For example, waste generators are required to track even small quantities of DOW (see section 6 of *Directive 058*).

10.2 Multiple Waste Attachment Sheet

The Alberta Oilfield Waste Form provides four lines on which to record all waste transported in one shipment from one consignor to one consignee. If required, attach additional pages to the waste form to list additional waste types (see section 5 of *Directive 058*). The AER has developed a "Multiple Waste Attachment Sheet" (see appendix 2) that waste generators or carriers may use. Alternatively, waste generators or carriers may also develop and use their own attachment sheets if they meet *WCR*, *TDGR,* and *Directive 058* requirements (where applicable).

10.3 Misleading Dangerous Goods Information

Oilfield waste generators are responsible for ensuring that shipping documentation is complete and accurate (i.e., correct TDG shipping information). Section 6 of the *Transportation of Dangerous Goods Act* stipulates that a person is not to display a prescribed safety mark on dangerous goods, a means of containment, or a means of transport if the mark is misleading as to the presence or the nature of the danger.

For example, UN 1267 represents petroleum crude oil, a dangerous good, which is a production fluid and not oilfield waste. UN 1267 should only be used when transporting waste if the truck last carried UN 1267 and the waste load is identified as "residue-last contained" UN 1267. Refer to the TDG bulletin *Produced Water* for further information.

10.4 Mixed Waste Loads

For waste collection via vac trucks or bin and bag systems across single or multiple sites (single or multiple licensees), shipping documentation and tracking requirements still apply for each site and waste stream, including the licensee, source location, waste code, quantity, and other pertinent information on the shipping document.

Where multiple compatible waste streams consisting of DOW and non-DOW are mixed, as per section 5.1 of *Directive 058*, identify each waste stream with the applicable waste code and classification. However, for transportation purposes, the entire waste load must be classified and managed as DOW.

11 Oilfield Waste Accounting – Units of Measure

Oilfield waste volumes can be reported on the Alberta Oilfield Waste Form in tonnes (t), kilograms (kg), cubic metres (m^3), or litres (L). The oilfield waste disposition (OWD) report requires the oilfield waste to be reported in tonnes for solid oilfield waste and cubic metres for liquid oilfield waste.

If the shipping document does not describe oilfield waste in tonnes or cubic metres, the oilfield waste generator or waste receiver must convert the quantities into tonnes or cubic metres.

Waste is often contained in drums or other containers, which can make determining quantity difficult. The following are suggested criteria to enable consistent reporting.

11.1 Drummed Liquid Waste

For shipping documentation and reporting requirements, sum the volume of waste in all the drums and convert to cubic metres. Use the following formula for the conversion of liquid waste:

Number of drums x *volume per drum (L)* x *conversion factor of 1 m^3/1000 L*

Example: 6 drums x 205 L/drum x 1 m^3/1000 L = 1.23 m^3

11.2 Drummed Solid Waste

For shipping documentation and reporting requirements, sum the weight of waste in all the drums and convert to tonnes. If the weight is unknown, calculate it using the drum volume and the density of the solid waste. The duty holder is expected to use the appropriate waste density whenever possible. Use the following formula for the conversion of solid waste:

Number of drums x *material density (kg/L)* x *volume per drum (L)* x *conversion factor of 1 t/1000 kg*

If the weight of the solid waste is unknown, assume a density of 1 kg/L or a weight that most likely represents the waste being shipped, as determined by the duty holder.

Example: 6 drums x 1 kg/L x 205 L/drum x 1 t/1000 kg = 1.23 t

11.3 Bulk Packaged Waste

For bulk packaged waste, report the solid waste and liquid waste in cubic metres. If the weight of the bulk solid waste is unknown but the volume of the container is known, use 1 L = 1 kg for general conversion/estimation.

12 Oilfield Waste Disposition Report

The OWD report is a summary of a generator's type and quantity of oilfield waste, the points of generation or consolidation, and the specific disposal or treatment methods used.

12.1 Submission Format

In accordance with section 6.3 of *Directive 058*, the oilfield waste generator is required to submit the OWD report to the AER within 45 calendar days of a request. The OWD report is to be submitted in Excel to Directive058@aer.ca or by other means as directed by the AER. Table 3 outlines what to include in the OWD report. Appendix 3 provides an example Excel spreadsheet.

Table 3. OWD report details

Field	Definition
BA code	AER-assigned company code (e.g., 0338).
Waste generation year	Calendar year for which the report applies (e.g., 2026).
Licence	The licence or approval type (well [W], pipeline [P], or facility [F]) to describe the licence for where the oilfield waste was generated. Enter W, P, or F.
Licence number	The licence number for the location where the oilfield waste was generated (e.g., 0000001).
Surface location	The complete surface location for the licensed site (includes location exception, LSD, section, township, range, meridian) (e.g., 01-02-003-04W4M).
DOW/N-DOW	Waste classification (D = DOW and N = non-DOW).
Waste code	AER-assigned waste code.
Waste volume	Total quantity of each specific type of oilfield waste shipped or treated (to three decimal places, e.g., 123.000).
Waste volume adjustment	The adjustment quantity (positive or negative) is required to balance the differences between the total quantities of each specific oilfield waste type sent for management and quantities received at the management location, should the quantities be different (to three decimal places, e.g., 123.000). Negative numbers are indicated with a minus sign.
Waste volume units	The unit of measure for the oilfield waste type is reported in (i.e., cubic metres or tonnes). Enter M or T.
Disposal or treatment method	Disposal or treatment method used for each oilfield waste type (see appendix 4 for codes).
Disposal or treatment volume	Quantity of oilfield waste disposed or treated for the disposal or treatment method used (up to three decimal places, e.g., 123456789.000).

13 Receiver Oilfield Waste Reporting

Table 4 identifies waste activity types and the respective directive for waste receiver reporting requirements. See section 7.6 of *Directive 058*. For oilfield waste management facilities that include an integrated custom treater or clean oil terminal, see *Directive 007: Volumetric and Infrastructure Requirements* for reporting requirements and section 10.2.7 of *Directive 017: Measurement Requirements for Oil and Gas Operations* for measurement requirements at integrated processing facilities; any fluids transferred between the different reporting facilities within the integrated site are to be measured and reported.

Table 4. Waste receiver activity type and reporting (applicable directive)

Waste management activity	*Directive 047**	*Directive 058*
Waste processing	✓	
Waste storage (including water for reuse)		✓
Waste transfer		✓
Fixed thermal treatment		✓
Drilling fluid facility		See drilling fluid facility approval for reporting requirements
Landfill		Refer to the *Standards for Landfills in Alberta*
Waste caverns	✓	
Surface facilities associated with class 1a or 1b wells/fluid disposal	✓	
Biodegradation		✓

**Directive 047: Waste Reporting Requirements for Oilfield Waste Management Facilities*

14 Oilfield Waste Management Facilities and Oilfield Waste Management Components

Oilfield waste management facilities are permanent facilities that accept oilfield waste and are constructed on a standalone site or a segregated portion of an AER-licensed or AER-approved upstream petroleum site (e.g., well or facility site). Oilfield waste accepted for management may be first party (the duty holder of the sites generating the oilfield waste is the same as the oilfield waste management facility approval holder) or third party (the duty holder of the sites generating the oilfield waste is different from the oilfield waste management facility approval holder).

Oilfield waste management components are permanent infrastructure established on an active portion of an AER-licensed or AER-approved upstream petroleum site (e.g., well or facility site) for managing first-party oilfield waste generated from sites within the same production system.

The following are exceptions, as they are considered an oilfield waste management facility and not approved as an oilfield waste management component:

- first-party landfills
- water for reuse storage sites
- a well or facility is licensed under the *Geothermal Resources Development Rules*
- a well or facility is licensed under the *Brine-Hosted Minerals Resource Development Rules*

The primary purpose of an upstream well or facility is the production of oil or gas authorized by the AER's licence or approval of the energy development. The management of oilfield waste generated by that production is a secondary operation. As such, an oilfield waste management component generally has fewer application requirements than an oilfield waste management facility, and an AER letter authorizing the construction and operation of the oilfield waste management component is issued to the licensee or approval holder of the upstream well or facility.

15 Oilfield Waste Management Activity Types

An oilfield waste management facility or oilfield waste management component may involve one or more waste management activity types. An oilfield waste management facility or oilfield waste management component approval will identify each activity type and may specify the type of waste that may be managed by each activity. Additional activities that can be integrated into an oilfield waste management facility are custom treating, clean oil terminalling, and class II fluid injection/disposal. When not integrated into an oilfield waste management facility, these activities are subject to licensing under *Directive 056: Energy Development Application and Schedules*. All standalone landfills and thermal treatment facilities are regulated by AEPA regardless of the source of the waste being managed.

The types of waste management activities addressed in *Directive 058* are not exhaustive. For example, the directive does not address these activity types: soil washing, solvent extraction, solidification or stabilization, volatilization, or boiling or heating for volume reduction. Use the application and approval process to include other waste management activities or types into an oilfield waste management facility or oilfield waste management component. See schedules 2 and 3 (available on the directive forms webpage) for design and operations information to submit for waste management activities or types in the application.

15.1 Waste Processing

Waste processing involves receiving and processing waste for hydrocarbon recovery, physical separation of fluids and solids, and processing of residuals generated by the facility. Examples of waste processing include centrifuging, filtering, tank treatment, chemical treatment, neutralizing caustic with a carbon dioxide diffuser, and shaker systems for phase separation and hydrocarbon recovery. A bulk pad may be used for the receipt and dewatering of waste material.

15.2 Waste Storage and Waste Transfer

Waste storage and transfer involve collecting and storing oilfield waste until volumes are sufficient for economic transfer to another facility for treatment, processing, recycling, disposal, or reuse.

Filter and container crushing and liquid removal by gravity settling can be performed as part of a waste storage and transfer activity. However, if any additional waste treatment is performed, then the facility is referred to as a waste processing facility. *EPEA* defines treat as "to apply any method, technique or process, including without limitation, neutralization and stabilization, that is designed to change the physical, chemical or biological character or composition of a substance."

15.3 Surface Facility Associated with a Disposal Well (Class Ia or Class Ib)

Surface facilities associated with class Ia or Ib disposal wells may receive fluids for disposal in accordance with *Directive 051*. The surface facilities may be integrated into an oilfield waste management facility or oilfield waste management component along with other activity types.

15.4 Biodegradation

Biodegradation involves microbial processes that reduce the organic constituents of waste. Successful waste biodegradation requires optimal conditions for microbial activity (e.g., temperature, pH, moisture, and nutrient and oxygen levels) and a degradable organic constituent. Carbon dioxide, water, and nontoxic residue compounds are the expected by-products of an aerobic microbiological process.

The biodegradation process is the same for permanent biodegradation facilities as for one-time biocells and biopiles (a biocell includes a walled containment system, a biopile does not). Both biopiles and biocells are constructed on an impervious liner or base pad on the ground surface, with the waste material placed in windrows or as a pile.

15.5 Oilfield Landfill

Alberta landfills are either under the jurisdiction of the AER or AEPA. See section 10.5 of *Directive 058* for landfills under AER jurisdiction.

A landfill contains waste in perpetuity; therefore, AER-regulated landfills are approved as an oilfield waste management facility.

The Government of Alberta transferred regulatory responsibility for municipal waste management facilities from the *Public Health Act* to *EPEA*.

The disposition of oilfield waste into any landfill registered under the *Code of Practice for Landfills* and any landfill operating under an Alberta public health permit is prohibited, except for construction and demolition debris, garbage and domestic waste, and scrap metal.

To enable a consistent approach towards the design of landfills and the landfilling of waste in Alberta, AER oilfield landfill requirements are consistent with the AEPA's *Standards for Landfills in Alberta*.

15.6 Thermal Treatment

Thermal treatment involves removing organic components in oilfield waste by incineration, thermal oxidation, thermal desorption, thermal phase separation, or thermal distillation recovery.

15.7 Drilling Waste Reuse and Recycling

Drilling fluid facilities may accept, store, and process hydrocarbon- or water-based drilling waste fluids for blending, storage, recycling, and reuse by third parties.

16 Pilot Projects and One-Time Waste Management

Companies interested in testing new processes or technologies using oilfield waste management must solicit support from a licensee or an oilfield waste management facility approval holder. Pilot projects may only occur on an active licensed site or an active approved oilfield waste management facility. The AER does not endorse or sponsor any commercial product, service, or activity.

For clarity and guidance on the AER's process for regulated sectors regarding how to apply and obtain approval for field-level pilots for new technology or processes, see *Manual 031: Guidelines for Pilot Applications for New Technology or Processes*.

17 Manufacture of a Product Derived from Oilfield Waste

If interested in creating a product derived from oilfield waste, the duty holder should apply to amend its approval or apply for a one-time waste management option. Approved products derived from oilfield waste may only be used within AER-regulated sites or as otherwise directed by the AER.

18 Reporting Facility Identification Codes

Depending on the activity type, the duty holder may be required to obtain a reporting facility ID code from Petrinex, such as those listed in table 5. See also table 2 of *Manual 011: How to Submit Volumetric Data to the AER* for additional details on facility and facility subtypes.

Table 5. Reporting facility ID codes for oilfield waste management activities

Waste management activity type	Petrinex facility identifier	Petrinex facility subtype
Waste plant	ABWPXXXXXXX	701 702
Custom treating (integrated)	ABCTXXXXXXX	612
Clean oil terminal (integrated)	ABTMXXXXXXX	671, 673, and 675
Injection/disposal	ABIFXXXXXXX	507

19 Closure

In accordance with section 8 of *Directive 058*, substances released from oilfield waste management facilities must be remediated to *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* and may be remediated in accordance with *Alberta Tier 2 Soil and Groundwater Remediation Guidelines*. When the duty holder deems that the necessary remedial measures are complete, it can submit to the AER via OneStop the documentation demonstrating that it met the relevant standards of remediation, before applying for closure.

In accordance with section 7.3 of *Directive 058*, all environmental site assessments and remediation reports are submitted to the AER via OneStop using the "RoSC" (record of site condition) feature. Where the RoSC submission is used in support of an application for a waste management facility closure, under "Intent of Submission," select "Regulatory and Administrative Closure of Contamination" and submission type "Oilfield Waste Management Facility (WM) Closure Contamination Review."

20 Hydrovac Material

Hydrovac material may or may not be contaminated and must be managed appropriately by the duty holder. Figure 3 summarizes the options for managing hydrovac material (i.e., impacted, non-impacted, or uncertain). Send any questions about managing hydrovac material to Directive058@aer.ca.

Where testing indicates that the hydrovac material does not meet *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, the duty holder must manage the impacted hydrovac material as oilfield waste. The *Tier 1 Guidelines* are not "pollute-up-to" levels. The AER requires duty holders to use responsible environmental practices and does not accept "polluting up to a limit." Tracking and reporting requirements apply if sending non-impacted hydrovac waste to a waste management facility.

Contaminated (Impacted) Hydrovac Material

If hydrovac material is contaminated (i.e., impacted), it is considered oilfield waste and managed according to *Directive 058* and *Directive 055: Storage Requirements for the Upstream Petroleum Industry*. See section 3 of *Directive 058* for waste characterization and classification.

Uncertain if Hydrovac Material is Contaminated

Where it is unclear whether the hydrovac material is contaminated, it should be contained in accordance with section 4.2.2 of *Directive 055* until testing confirms whether the material is contaminated. Ultimately, the duty holder must ensure they take appropriate steps to determine whether the material is contaminated or not (i.e., impacted or non-impacted [reported as HYDVNI]).

Uncontaminated (Non-Impacted) Hydrovac Material

If the hydrovac material is uncontaminated, it may be returned to the originating site.

Non-impacted hydrovac material must be managed in a way that ensures the material does not cause an adverse environmental effect (per *EPEA* requirements).

Management options for non-impacted hydrovac material transported using a clean truck (i.e., no residue last contained) include

- using it to backfill hydrovac holes,
- spreading it on the site of origin to dry, then incorporating it as fill material (e.g., on a well-site pad or road grade),
- moving it to private land, with permission from the landowner, and
- moving it to another *Public Lands Act* disposition or site and notifying the AER using the appropriate email address below.

Topsoil or subsoil removal from an approved disposition is not permitted without written authorization from the regulatory body. If the duty holder does not have an approved variance or waiver in place to remove soil from the disposition or was otherwise not identified within the formal disposition application, contact AERAuth.OilGas@aer.ca.

Requirements for managing non-impacted hydrovac material are found in various legislation, such as *EPEA* and the *Public Lands Act*, and include the following:

- Soil quality must be similar chemically and physically to the receiving site's soil quality.
- Burial of topsoil or admixing of topsoil and subsoil is not permitted.
- End-use site reclamation objectives must not be compromised or limited (e.g., by introducing saline or alkaline subsoils that adversely affect vegetation communities).
- Non-impacted hydrovac material managed on a *Public Lands Act* disposition must meet the terms and conditions of approval for the public land disposition.

Send questions about managing non-impacted hydrovac material generated from AER-regulated sites to the following email addresses:

- AERAuth.OilGas@aer.ca
- AERAuth.InSitu@aer.ca
- AERAuth.Mining@aer.ca

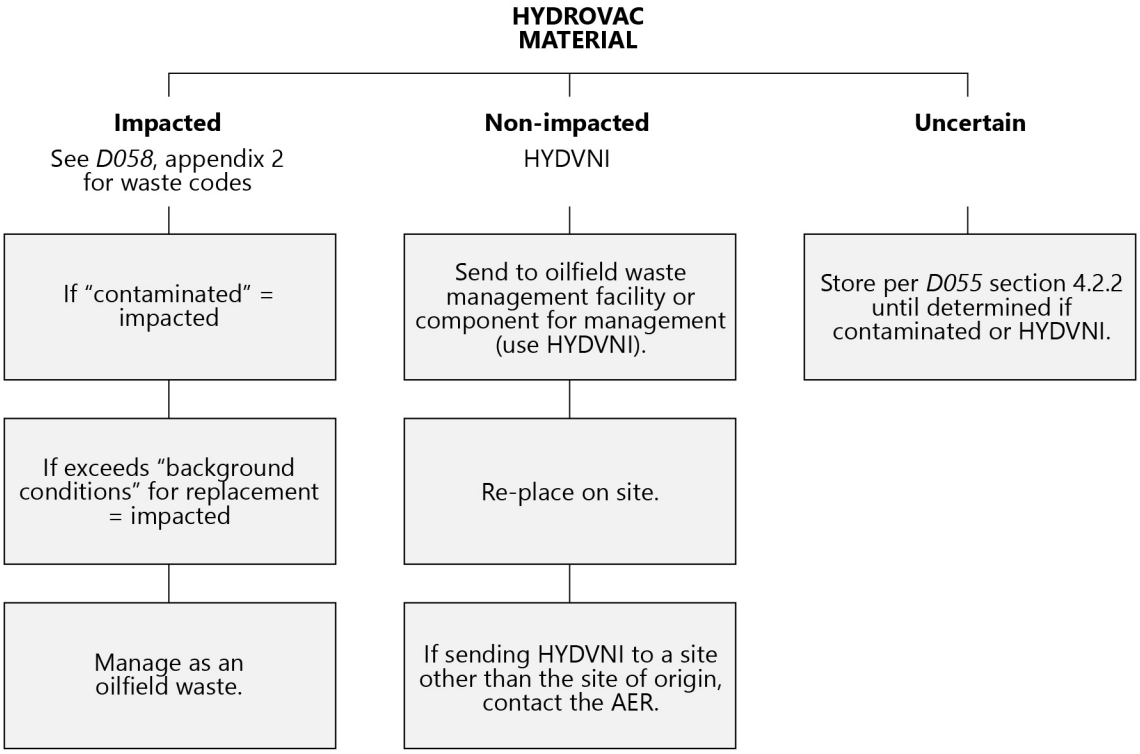

Figure 3. Hydrovac material management options

Appendix 1 Reduce, Reuse, Recycle, Recover Examples

The most effective waste management practice is to avoid producing waste. If that is not possible, the AER expects companies to minimize waste production. Below are examples of how to minimize waste through reducing, reusing, recycling, and recovering.

Ways to Reduce

- Minimize waste at the source.
- Purchase bulk chemicals to reduce container waste and possible handling spills.
- Segregate process streams to minimize the production of sludge or liquids.
- Dry sludge before treatment and disposal, thereby reducing the waste volume.
- Install more efficient processing equipment or improve the operating efficiency of existing equipment.
- Analyze compressor and engine lubricating oils to determine if an oil change is necessary.
- Reduce the use of filters in water injection streams.
- Discontinue the use of treater hay from treater vessels.
- Use less hazardous substitutes for toxic products.

Ways to Reuse

- Reuse cleaned oil rags.
- Use reusable filters.
- Reuse filtered lube oil for chemical injection pumps.
- Filter gear lubricating oil to extend its use.
- Reuse water-based hydraulic fracturing flowback and produced water as an alternative water for hydraulic fracturing.

Ways to Recycle

- Segregate waste for recycling from other waste to prevent cross-contamination.
- Use waste acids to neutralize caustic waste.
- Recycle lube oil, glycol, solvents, unspent chemicals, batteries, paper, metal, plastic containers, and glass.

Ways to Recover

- Separate and recover hydrocarbons in wash water.
- Recover oil from oily sludges.

Appendix 2 Multiple Waste Attachment Sheet

Alberta Oilfield Waste Form: Multiple Waste Attachment Sheet

Form No.: BA Code-123456789

Source Site Location (Surface Location): **100/01-02-003-04W5/02**

05-26-056-05 W4M

Receiving Site Location:

Waste Code	DOW (D) or Non-DOW (N)	UN #	TDG Shipping Name if (DOW); / Common Name if Non-DOW	Class	Packing Group	Qnty Shipped	Unit	Packaging		Handling Code	Quantity Received	Units	%O	%W	%S	Handling Code	Trans Decon
								No.	Code								

I declare that the information in Part A of the Alberta Oilfield Waste Form is correct and complete. I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.

Signature (Generator): _____ **Date:**

Signature (Carrier): _____ **Date:**

Identify discrepancies between waste received and details listed in Part A on the accompanying Alberta Oilfield Waste Form.

Signature (Receiver): _____ **Date:**

Appendix 3 OWD Report Example

Header Record Layout General Info.		Oilfield Waste Details								Disposal / Treatment Details	
BA Code	Waste Generation Year	License / Approval Type	License Number or WM No.	Surface Location	DOW / N-DOW	Waste Code	Waste Volume	Waste Volume Adjustment	Waste Volume Units	Disposal / Treatment Method	Disposal / Treatment Volume
A7J9	2024	F	1234567	01-02-003-04W5	DOW	SOILCO	10.000	0.200	T	08	10.200
A7J9	2024	W	3456789	10-20-030-40W4	N-DOW	WSHWTR	100.000	-1.000	M3	05	99.000
A7J9	2024	F	1234567	01-02-003-04W5	DOW	SLGHYD	7.000	-0.500	M3	03	6.500
A7J9	2024	WM	999	11-22-033-44W4	N-DOW	SWTRIM	12.000	0.300	M3	05	12.300

Appendix 4 Oilfield Waste Disposition Report (Treatment and Disposal Method Codes and Descriptors)

Use these codes and descriptors for disposal and treatment methods to complete the oilfield waste disposition (OWD) report.

Handling code	Descriptor
01	Storage facility (specify final treatment/disposal)
02	Transfer station (specify final treatment/disposal)
03	Oilfield waste processing facility
04	Class 1a disposal well
05	Class 1b disposal well
06	Class II disposal well
07	Cavern
08	Class I landfill
10	Class II landfill
11	Class III landfill
12	Thermal treatment
13	Biodegradation facility
14	Small oilfield waste incinerator
15	Used oil recycler
16	Recycling facility (excluding used oil)
17	Swan Hills facility
18	Road spreading
19	Biodegradation (on-site)
20	Burial (on-site)
21	Other (specify)
22	Waste transport by pipeline
23	Manufacture