

02-Environmental Protection

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ENBRIDGE

Subject
Overview of Environmental Protection

Purpose Environmental inspection and monitoring of the pipeline right-of-way (ROW) and facilities ensures continued compliance with regulatory requirements and protection of personal health and natural resources.

Scope This tab includes the minimum requirements for environmental monitoring undertaken as part of routine maintenance of the pipeline ROW and facilities.

NOTE: For environmental protection involving any aspect of construction, see the Environmental Guidelines for Construction.

Legislation

Canada

National Energy Board (NEB):

- Onshore Pipeline Regulations (OPR), latest edition

Canadian Environmental Assessment Act

Canadian Environment Protection Act

Migratory Birds Convention Act

Fisheries Act

Canada Water Act

Transportation of Dangerous Goods (TDG) Act

Specifies at Risk Act

Canadian Drinking Water Quality Guidelines

United States

Code of Federal Regulations (CFR), Title 49 – Transportation:

- Part 195—Transportation of Hazardous Liquids by Pipeline
- Part 192—Transportation of Natural and Other Gas by Pipeline

Area contingency plan/regional contingency plan

Clean Air Act

Clean Water Act

Comprehensive Environmental Response Cleanup and Liability Act (CERCLA)

Emergency Planning and Community Right to know Act (EPCRA)

Federal, state and local environmental agency regulations

Federal and state natural resource agencies
National Environmental Policy Act (NEPA)
Oil Pollution Act (OPA)
Safe Drinking Water Act

Related Standards

Corporate

Environmental Guidelines for Construction
Waste Management Plan

Industry



USA

American National Standards Institute (ANSI):

- B31.4, Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids



CAN

Canadian Council of Ministers of the Environment (CCME):

- Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products.



CAN

Canadian Standards Association (CSA):

- Z662, Oil and Gas Pipeline Systems, latest edition

**Purpose**

To identify the pipeline maintenance and repair activities that may require environmental permits, licenses, and approvals before beginning work to ensure regulatory compliance.

Responsibilities

Regions are responsible for:

- assessing the activities that may require regulatory approvals during maintenance planning and preparation
- notifying Safety & Environment of activities that may require environmental permits and approvals
- ensuring compliance with permit conditions

Safety & Environment is responsible for obtaining necessary permits and approvals from appropriate regulatory authorities.

Requirements

Since timing to obtain permits varies by jurisdiction, adequate planning is critical. Apply for licenses, permits, and approvals well in advance. Typical activities that may require environmental permits and or regulatory approvals include:

- disturbing the soil or vegetation offsite
- disturbance in or adjacent to environmentally sensitive areas (e.g., waterbodies, wetlands, cultural resources, endangered species, parks, nesting/denning areas)
- disturbance in county shore land
- hazardous waste generation, storage, and disposal
- herbicide application
- air emissions
- entering any land within regional land claims
- water withdrawals for hydrotests/dewatering
- discharging stormwater, hydrotest water, or other wastewater
- burning materials during fire season

NOTE: For lead times for permits and for a list of government agencies, contact Safety & Environment.

ENBRIDGESubject
Erosion Control**Purpose**

Erosion control is necessary to:

- contain excavated soil onsite
- prevent sediment from entering streams, wetlands, lakes, drainage ditches (dry or floating) or other watercourses
- prevent pipe exposure

Guidelines**Soil Erosion*****By Wind***

To minimize drifting soils and loss of topsoil by wind, in areas prone to wind erosion:

- limit the time between topsoil stripping and final cleanup
- suspend topsoil stripping and backfill operations during high winds
- apply a tackifier to the topsoil pile
- install wind barriers (e.g., slat fences, snow fences)
- spread wood chips or straw crimping
- sow a fast growing ground cover
- walk down tree and shrub debris over exposed soils

By Water

Use temporary erosion control measures (e.g., sandbags, logs or straw bales) on undisturbed pasture or well-sodded right-of-way (ROW) during cleanup.

Use permanent erosion control measures on disturbed steep slopes during restoration, especially if heavy runoff, spring breakup or heavy storms are likely and there is a risk of significant soil erosion:

- construct trench breakers
- install cross ditches and diversion berms
- walk down tree and shrub debris over exposed soils
- armor berms and ditches with logs, polyethylene or sandbags
- install netting or filter cloth
- apply tackifier
- install and stake sod
- hydromulch
- hydroseed, spread straw and crimp
- seed an annual crop of barley, fall rye, or oats
- plant native shrubs or willow cuttings

Stream Bank Erosion

Before working next to watercourses, contact Safety & Environment to ensure necessary approvals are in place.

NOTE: For information on installing berms and ditches and stream bank protection, see the Environmental Guidelines for Construction.

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Subject
Vegetation Management

Purpose

To control the growth of brush, trees, and noxious weeds on company property and the right-of-way (ROW) in order to:

- facilitate operating and maintenance activities
- ensure regulatory compliance
- ensure clear visibility and access along the ROW
- maintain good public relations with landowners
- minimize fire hazards

Responsibilities

Regions are responsible for selecting vegetation control methods and for coordinating vegetation control activities.

NOTE: For assistance in evaluating appropriate vegetation control methods, contact Safety & Environment.

Requirements

Scheduling

Plan annual vegetation control early in the year.

Plan and schedule vegetation control to suit local conditions considering wildlife, wetlands, and land usage.

Notification

Notify landowners a minimum of 1–2 weeks before beginning any weed or brush control program, or before applying herbicides on the ROW.

Mechanical Control

Mechanical control of weeds and brush (i.e., physically disrupting plant growth by mowing, cutting, tillage, flooding, mulching, hand pulling, or hoeing) is preferred to chemical control.

Use mechanical control for vegetation adjacent to cultivated agricultural land, and waterbodies (e.g., drainage ditches, streams, creeks, wetlands).

Control brush growth by chipping or mulching.

Minimize clearing next to watercourses and wetlands. Hand cut trees and brush close to the ground (leaving roots intact) and leave a 16 m (50 ft) buffer of undisturbed vegetation between the area of disturbance and the watercourse or wetland.

Cut woody vegetation to just above the ground surface (15 cm [6 in.]), leaving the roots intact.

Do not disturb soils within 16 m (50 ft) of wetlands or waterbodies.

Frequent shallow tillage (10-15 cm [4-6 in.]) is effective for controlling weeds.

Mow sloping lands or soils subject to erosion.

Chemical Control

Herbicides used on the ROW must be applied by licensed applicators.

Over-the-counter nonresidual herbicides (e.g., Roundup) may be used for spot applications only on company property.

NOTE: Spot applications cover an area no larger than 1m² (10ft²).

For approval to use herbicides other than non-residual, provide Safety & Environment with the following information:

- product name
- MSDS sheet(s)
- label information
- distributor's name and contact information
- application rate
- herbicidal characteristics (e.g., selective/nonselective, short term/long term residual)
- location of herbicide use

Select a herbicide that will control only those weeds growing on a particular site, and apply it at the minimum rate needed for effective control.

Alternate the use of herbicides to avoid developing resistance to specific herbicides.

Before applying herbicides, (a) obtain approval from the site supervisor, and (b) review the product label and MSDS information.



USA

Before applying herbicides within the boundaries of native reservations, obtain approval from tribal authorities .

Apply herbicides (e.g., weather conditions, application rate) in accordance with the manufacturer's instructions.

Fire Water Ponds

Contact Safety & Environment for approval to use herbicides/aquacides to control vegetation and algae in fire water ponds.

Botanical Control

Seed grass is recommended as a vegetative cover to control erosion and provide competition for weeds.

Use Canada or U.S. No.1 seed or equivalent to minimize weed content and ensure good germination and healthy growth.

Short grasses are virtually maintenance-free, and are not as much of a fire hazard as taller species.

Physical Control

Use surface cover fabrics (e.g., geotextiles, gravels, concrete, paving) or thermal methods (e.g., controlled burns, flaming, steaming) to protect sites from erosion and to control vegetation growth.

Regional management must approve the use of thermal methods to control vegetation growth.

Noxious Weeds

NOTE: Infestations of noxious weeds are usually identified by local land use authorities or the landowner when notified of upcoming vegetation control activities.

To avoid introducing or to minimize spreading undesirable weed species when working in areas that are or may be affected by invasive noxious vegetation:

- before arriving and leaving the site, ensure equipment is free of soils, vegetation, or debris
- minimize the equipment used, and limit the number of equipment passes through infested areas
- place mats over infested areas to minimize equipment transporting weed or plant material. Before removal from the site, ensure mats are free of vegetation and debris.
- during grading, strip the full ROW width and contain the spoil pile containing noxious weeds to prevent mixing with the surrounding soil during regrading and cleanup

Records

Herbicide Application

Record the type of herbicide, application rate, area of application, and the applicator's certificate number, if applicable, and retain at the facility for a minimum five years.

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Subject
Potable Water

| | |
|-------------------------|--|
| Purpose | To ensure water is safe for workers, or to provide an alternative source of potable water. |
| Scope | This standard includes the requirements for monitoring and testing water at facilities that are not connected to a licensed municipal water supply. |
| Definitions | <i>potable water</i> —water safe for human ingestion and/or absorption (e.g., drinking and/or washing). |
| Responsibilities | <p>Regions are responsible for coordinating, planning, implementing, and administering water quality testing when:</p> <ul style="list-style-type: none">• an onsite well is used as the water source• water is hauled from an offsite water source• facilities have been identified as having a water source with potential or confirmed health hazard to workers <p>Safety & Environment is responsible for:</p> <ul style="list-style-type: none">• identifying annual potable water testing requirements• monitoring water quality testing• analyzing facility water test results• providing direction to facilities with abnormal test results |
| Requirements | <p>Hauled Water</p> <p>If the water source is hauled water:</p> <ul style="list-style-type: none">• ensure the water hauling company is licensed• confirm that the tank truck is used only for hauling potable water• confirm that the hauler has a tank decontamination/disinfection program• obtain the most recent water test results from the water hauler or from the municipal water supply at the time of delivery, if possible |

Test Frequency

Sample and test potable water annually unless more frequent testing is warranted, including:

- change in water clarity, color, odor, or taste
- spill in the vicinity of a water well
- change in the surrounding land use
- change in the water hauling company

At isolated or remote work areas, regions are responsible for determining frequency of sampling and testing potable water.

For water hauled from a licensed municipal supply, obtain source water test results annually from the supply.

For water stored in above and below grade water tanks, sample and test water semi-annually.



CAN

Test Parameters

Test potable water for the parameters in Table 1. In addition, test water stored in above and below grade tanks for total coli forms. If the stored water is in a below grade tank, also test for BTEX.

Table 1
Potable Water Quality Parameters—CAN

| Water Source | Parameters |
|--|--|
| well water | <ul style="list-style-type: none"> • routine potable water: alkalinity (PP and total), bicarbonate, calcium, CO₃, chloride, conductivity, fluoride, hardness, OH, ion balance, iron, manganese, nitrate, nitrate plus nitrite, nitrite, pH, potassium, sodium, total dissolved solids, SO₄, and turbidity • benzene, toluene, ethyl benzene and xylenes (BTEX) • total and fecal coliform |
| hauled water from licensed municipal water supply | <ul style="list-style-type: none"> • total and fecal coliform |
| hauled water from non-licensed municipal water supply (ENB NW) | <ul style="list-style-type: none"> • routine potable water • total and fecal coliform |



USA

At a minimum, test potable water for:

- total coliform bacteria count
- total nitrate
- total petroleum hydrocarbons

NOTE: In the USA, for additional parameters for testing well water, contact the appropriate state regulatory agency. For testing requirements or recommendations on local groundwater conditions, contact the County Health Department.



USA

For new wells, a certified well installer must test the water for all necessary parameters to ensure it is acceptable in accordance with state or local regulations.

Sampling

For hauled water from a licensed municipal supply, take samples from a tap inside the facility.

Obtain sample bottles, analysis request forms, shipping coolers, and sampling instructions from the laboratory conducting the testing.

Follow sampling instructions from the laboratory closely.

Test Results

Laboratory test results will identify samples that exceed acceptable drinking water levels.

When laboratory test results are received, submit a copy to Safety & Environment.

Interim Health Measures

If potable water test results exceed health-based parameters (i.e., high levels of total and/fecal coliforms):

- Post signs indicating that the water source is contaminated and must not be used for drinking, washing hands, dishes, or foods (e.g., fruit). If possible, shut off valves to sink taps and shower stalls.
- Provide alternative potable water source (e.g., bottled water) for drinking, washing, and cooking.
- Check safety equipment used for emergency purposes (e.g., eye wash stations and bottles) and change out water.

- Retest the water source.
- In conjunction with Safety & Environment, investigate to determine the source of contamination.

Before removing interim health measures, retest. If, after retesting, health-based parameters (i.e., total and fecal coliforms) continue to be exceeded, do not use the source as potable water.

Health Investigation

If potable water test results exceed health-based parameters, investigation should be conducted to determine the source of contamination, for example:

- review past records to determine if the abnormal test result has been a recurring problem
- contact local water authority expertise to identify and initiate appropriate actions
- contact appropriate OHS and/or Public Health personnel if required
- investigate possible contamination sources (e.g., spring runoff, septic tanks or systems, old oil spill leak sites, facility or hauler water tank contamination)

Records

Retain laboratory test results and correspondence as follows:

- original at the facility for a minimum of five years
- copy in Safety & Environment

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Subject
Stormwater Management

Purpose

Containment structures (e.g., berms, retention ponds) are designed to contain product and to minimize impacts offsite in the event of a release at a facility. This standard includes the requirements for managing and discharging stormwater accumulated in containment structures in a manner that does not adversely affect the environment by releasing pollutants or by causing erosion to receiving lands.

Definitions

stormwater—includes rainwater, snow melt, and surface runoff and drainage.

Responsibilities

Regions are responsible for managing stormwater, including: inspecting, discharging, sampling (if required), and maintaining records.

NOTE: If stormwater is contaminated, contact Safety & Environment for assistance with sampling, testing, and analyzing test results.

Requirements

Prevention

To minimize the risk of surface water contamination:

- keep the site clean and orderly
- store hazardous materials in accordance with the Waste Management Plan
- clean up spills immediately and store wastes in appropriate containers in accordance with the Waste Management Plan

Discharging

Discharge stormwater accumulated in containment structures after significant rainfalls or as often as practical to maximize containment capacity in the event of a release at the facility.

Permits

Where facilities have existing permits that regulate discharging stormwater offsite, follow all conditions in the permit.

Visual Inspection

Before discharging accumulated stormwater within a containment structure, visually inspect for (a) an oily sheen, or (b) suspended solids and/or foam.

If visual inspection indicates no evidence of contaminated stormwater (i.e., only precipitation is present), (a) follow the conditions specified in the permit/license, where required, to discharge stormwater offsite; otherwise, (b) open the valves to discharge stormwater offsite, ensuring:

- discharge is conducted in a controlled manner using a slow flow rate to prevent soil erosion and damage to streambanks and streambeds of waterbodies
- the discharge valve is closed after the discharge is complete

For containment structures that automatically discharge stormwater, visually inspect the accumulated stormwater weekly.

Sampling

If visual inspection indicates that stormwater may be contaminated, contact Safety & Environment for sampling requirements, including: laboratory contacts, sample bottles, custody transfer forms, and sampling procedures.

Records

Canada

For stormwater discharged offsite, record the date, time, estimated amount of water discharged, and confirmation of water quality in a logbook and retain at the facility for five years.

If laboratory analysis is required before discharging stormwater, record the sample date and laboratory test results in a logbook and retain at the facility for five years.

For contaminated stormwater, record the date, remediation techniques, and observations in a logbook and retain at the facility for five years.