Enbridge Pipelines (NW) Inc.
Line 21 Segment Replacement Project
Waste Management Plan

Version 1.2
<table>
<thead>
<tr>
<th>Version Number</th>
<th>Version Date</th>
<th>Approved By</th>
<th>Section Number and Title</th>
<th>Details of Version</th>
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<td></td>
<td></td>
<td>Initial plan creation</td>
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<td>1.1</td>
<td>Feb 14, 2018</td>
<td>Neil Reid</td>
<td>Section 3.3, 4.3 and 5.1</td>
<td>Section 3.3 added details to define drillings wastes Section 4.3 provided additional and updated details surrounded the management of mineral wastes Section 5.1 Sump management section was added to address comments from the MVLWB in the Land Use Permit conditions.</td>
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<td>Feb 21, 2018</td>
<td>Neil Reid</td>
<td>Sections 4.2.2, 4.3.1, 4.3.3, Appendix B</td>
<td>Updated sections to include reference to Local Indigenous Monitors and the Environmental Management Committee. Added Appendix B and attached The Village of Fort Simpson Authorization Letter to utilize municipal waste facilities for the project.</td>
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1.0 Introduction

1.1 Company Information
This Waste Management Plan (WMP) has been developed for Enbridge Pipelines (NW) Inc. (Enbridge).

The main project contact for the Line 21 Segment Replacement Project is:

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Enbridge Pipelines
10175 101 St NW
Edmonton, AB T5J 0H3
Phone: (780) 371-5040; Cell: (587) 930-9351
david.mcwatt@enbridge.com

1.2 Environmental Policy
Enbridge believes that minimizing the environmental footprint and impact associated with our activities delivers value to shareholder, Indigenous communities, stakeholders, customers and employees. Enbridge’s Environmental Management System, including its environmental protection program, has been established to protect and sustain the environment throughout the lifecycle of design, construct, operate, decommission and abandon, and to anticipate, prevent, manage and mitigate conditions that could adversely affect the environment.

This Environmental Policy supports Enbridge’s values of Integrity, Safety, and Respect by guiding our actions, policies, procedures and culture; providing the philosophy and approach for responsible environmental management.

Our goal is to foster a learning, just, and flexible organizational culture where environmental excellence is an integral element in the conduct of our business.

Enbridge will:
- Identify how we interact with and impact the environment.
- Minimize adverse environmental effects through effective planning and execution.
- Comply with government regulations and applicable industry standards.
- Effectively respond to unanticipated events.
- Provide appropriate training to ensure employees and contract workers understand their responsibility to protect the environment.
- Promote a culture where environmental excellence is everyone’s responsibility.
- Actively engage with the public and government regarding our environmental activities.
- Learn from our experiences in order to continually improve our competency and performance.
- Maintain a non-retaliatory culture that encourages reporting and investigation of environmental hazards, potential hazards, near-misses, incidents and non-compliances
1.3 Purpose and Scope of Plan

This WMP has been prepared in accordance with Mackenzie Valley Land and Water Board (MVLWB) Guidelines for Developing a Waste Management Plan, and aligns with Enbridge’s corporate Waste Management Plan for Canada. The WMP is intended to provide guidance regarding the handling, storage, and treatment or disposal of wastes generated in association with the Line 21 Segment Replacement Project (the Project). The WMP will manage wastes so as to reduce and recycle wastes as much as feasibly possible, reduce or eliminate potential negative social and environmental impacts from waste generation, and to comply with all applicable acts, regulations and authorizations.

Employees and contractors working on the Project will review the contents of this WMP, and a copy of this WMP will be available to personnel conducting activities for the project.

Further guidance, clarification, and assistance regarding waste handling and management can be obtained from the Environmental Inspector and Enbridge’s Environmental Analyst.

This Plan will be effective at the commencement of Construction activities described below.

2.0 Project Description

2.1 Construction

The Project will involve the installation of a new section of NPS 12 pipe beneath the Mackenzie River at the existing Line 21 Mackenzie River crossing, approximately 9 km east of Fort Simpson, NWT. The Project will involve the following activities:

- Right-of-way preparation, including mat and bridge installations;
- Construction of access roads to the North and South Work Sites, including a barge landing area on the north shore of the Mackenzie River;
- Relocation of the EFRD and associated equipment;
- Installation of the replacement segment of pipe (up to 2500 m of NPS 12 pipe) by horizontal directional drill;
- Stringing, welding, coating, hydrostatic testing (hydrotest) and inspection of the new pipeline segment to be installed;
- Decommissioning of the existing pipeline segment in place;
- Installation of a CP anode bed at the South Work Site;
- Cleanup and reclamation of work sites.

The construction period is expected to extend from February to November, 2018.

2.2 Support Infrastructure and Activities

During the course of the mobilization, construction and drilling activities a number of types of waste will be generated. In addition, support infrastructure will be required to accommodate the activities and to aid in the reduction of waste volumes. The following sections describe additional activities and infrastructure related to waste management required to complete the Project.
2.2.1 Camps
Camps will be used to house construction personnel throughout the duration of the Project. Two camps will be constructed, one at each the north and south sides of the Mackenzie River. The North Camp will house up to 40 people and the South Camp with house up to 80 people. The camps will generate domestic wastes, sewage and grey water, which will be stored onsite until it is hauled offsite for disposal. All camp wastes are expected to be hauled to municipal disposal or treatment facilities within the Village of Fort Simpson. Secondary treatment facilities (e.g. Hay River Facilities) will be considered if the Fort Simpson facilities cannot accept the wastes.

Water usage at the camps is estimated to be up to 200 L per person per day.

2.2.2 Fuel storage
Fuel storage areas will be required at the North and South Work Sites as well as the North and South Camps. Fuel containers and tanks will be positioned in locations at least 100 m away from the high-water mark of any surface water bodies or watercourses and will be double walled or have secondary containment. Any single walled fuel containers will be stored in secondary containment with a holding capacity of 110% of the container volume. Tertiary containment will be installed on doubled walled fuel containers where practical; however, all components on the double walled fuel tanks where secondary containment is not present and/or where leaks are common (i.e. fittings, hose connections and nozzles) will have additional containment installed (e.g. drip trays).

2.2.3 Drilling Waste Storage and Treatment
During the course of the drilling activities, drilling fluid and drill cuttings will be generated as wastes. Drilling fluids are defined as any liquid mixture of water, sediment, drilling muds, chemical additives or other wastes that are pumped downhole while drilling and are specifically related to drilling activity. Drill cuttings are the larger rock and soil materials picked up in the drilling fluids that are quickly and easily separated. The drilling fluid will be bentonite-based and will not contain any additives that may cause adverse effects to the environment. Drilling fluid tanks and other equipment (e.g. floc tanks, closed top tanks, and bins) will be used at the North and South Work Sites to temporarily store drilling fluids and cuttings prior to treatment and/or disposal. Treatment equipment may include centrifuges to help separate water from the solids in the drilling fluid and hardening reagents to harden the drilling fluids during disposal. Onsite sumps and Mix-Bury-Cover techniques, as described in the Alberta Energy Regulator Directive 50 (AER D50), will be used for the disposal of drilling waste and are further described in the sections below.

2.2.4 Water Storage and Potential Treatment
During the drilling and hydrostatic test activities, Enbridge will be required to temporarily store water onsite. It is anticipated that water tanks capable of storing up to 800m will be required to provide sufficient volume of water for contingency use during drilling activities. Water will also be stored for use during pipeline hydrotests.

Prior to any discharge of spent water to the environment, water shall be tested to meet Canadian Counsel of Ministers of the Environment Canadian Environmental Quality Guidelines (CCME Guidelines). If water quality parameters do not meet guidelines onsite water treatment options may be considered in order to
accommodate surface discharge.

3.0 Identification of Waste Types
The following section will identify the different types of wastes to be produced over the course of the project together. For the purpose of this WMP, the waste types have been categorized as the following:

- Hazardous Wastes;
- Non-Hazardous and Non-Mineral Wastes; and
- Mineral Wastes

The estimated quantities of each type of waste are provided in the Table below. The volumes are based on best available information and are subject to change depending on project stages and site conditions:

Table 1. Typical wastes to be generated during the Project and approximate rates of production

<table>
<thead>
<tr>
<th>WASTE TYPE</th>
<th>VOLUME (RATE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HAZARDOUS</strong></td>
<td></td>
</tr>
<tr>
<td>Used oils, fuel, lubricant, grease, coolants, filters etc</td>
<td>1 m$^3$/day</td>
</tr>
<tr>
<td>Contaminated soil or water*</td>
<td>Generated from incidents and malfunctions</td>
</tr>
<tr>
<td>Pipe blasting wastes and coating</td>
<td>2 m$^3$</td>
</tr>
<tr>
<td>Used water and residues from pipe cleaning</td>
<td>10 m$^3$</td>
</tr>
<tr>
<td><strong>NON-HAZARDOUS AND NON-MINERAL</strong></td>
<td></td>
</tr>
<tr>
<td>Domestic wastes (from camps and work sites)</td>
<td>4 m$^3$/day</td>
</tr>
<tr>
<td>Sanitary wastes from camp (sewage and greywater)</td>
<td>16,000 L/day</td>
</tr>
<tr>
<td>Construction materials</td>
<td>1 m$^3$</td>
</tr>
<tr>
<td>Vegetation (fire wood)</td>
<td>nil</td>
</tr>
<tr>
<td><strong>MINERAL WASTES</strong></td>
<td></td>
</tr>
<tr>
<td>Drilling fluid (bentonite based mud)</td>
<td>2500 m$^3$</td>
</tr>
<tr>
<td>Drill cuttings</td>
<td>500 m$^3$</td>
</tr>
<tr>
<td>Spent water (from drilling fluid or hydrotests)</td>
<td>800 m$^3$</td>
</tr>
<tr>
<td>Granular material (gravel and/or sand)</td>
<td>100 m$^3$</td>
</tr>
</tbody>
</table>

*Will be produced only in the case of an accident or malfunction

3.1 Hazardous Wastes
The predominant source for generating hazardous wastes on site during the construction activities will be from equipment operation and maintenance, which will generate waste oil, fuel, batteries, lubricants, oil filters, used hoses and solvents.

Decommissioning activities may involve the cleaning of the decommissioned segment of pipe using foam pigs and potentially cleaning agents. If applicable, the wastes generated may include crude oil, wax, sludge’s and spent cleaning agents.

Other potential hazardous wastes may result from accidents and malfunctions generating contaminated sorbent materials, tarps, soil, or water.
The potential environmental effects arising from unmanaged hazardous wastes include degradation of soil quality, degradation of water quality, and wildlife and fish habitat quality, and harm to on-site personnel.

3.2 Non-Hazardous and Non-Mineral Wastes
Non-hazardous and non-mineral wastes generated during the Project will include domestic and sanitary wastes, vegetation from clearing operations and construction materials. Domestic and sanitary waste will primarily be generated at the camps.

Sanitary wastes include greywater and sewage, which will be generated at the North and South Camps. Vegetation within the temporary work space, identified in Appendix A of the Environmental Protection Plan (EPP), will be cleared and brushed during site preparation to accommodate the Project activities. Vegetation removal will include tree and shrub slashing of approximately 27 acres for all work and camp areas.

Waste construction materials will also be generated throughout the duration of the Project. These wastes may include spent welding rods, liners, geotextiles, concrete, scrap wood, and metal.

The potential environmental effects arising from improperly managed non-hazardous, non-mineral wastes could include increased wildlife attractants, potential for spills, leaks, and safety incidents, a change in the aesthetics of the Project area, and degradation of water quality, and wildlife and fish habitat quality.

3.3 Mineral Wastes
Mineral wastes will be generated primarily through the drilling activities and will be limited to drilling fluids, and drill cuttings (together known as drilling waste), and spent water (from hydrotests). Gravel and Granular materials may also be brought to site during construction and removed as mineral wastes following the completion of The Project.

Drilling wastes are, defined as, all materials or chemicals, solid or liquid, associated with drilling, including drill cuttings and drilling fluids. For the purposes of the Project, drilling fluids will be made up of water and bentonite-based additives provided in Appendix C of the Spill Contingency Plan (SCP). Water for drilling will be withdrawn from the Mackenzie and Liard Rivers. Drilling fluids will be recycled in a closed loop system to limit the volumes of water required to complete the HDD by separating drill cuttings returned to the surface. Depending on the drilling conditions, some drilling fluids and cuttings may be disposed of during HDD activities to ensure the temporary on-site storage capacity is not exceeded. Upon completion of the HDD activities, the drilling fluids and drill cuttings will be prepared for onsite or offsite disposal.

Spent water will also be generated following hydrotest activities. Hydrotest water will be withdrawn from the Liard and Mackenzie Rivers. It is anticipated that two hydrotests will be completed (one test following the pipe assembly, and the second test following the pipe pullback). Following the initial test, water will be stored on the South Work Site and may be reused for the second hydrotest to limit the water volume required.

Any gravel material deposited on the surface of the north shore shoofly access or any other work area is anticipated to be collected and removed following the completion of the Project and managed as a mineral waste.
4.0 Management of Wastes

The following sections provide details on the management procedures for the specific waste types identified in Section 3.0. The management procedures will comply with Enbridge’s Liquid Pipelines (LP) Canada Waste Management Plan (2016) and will support the Project EPP.

Waste reduction and recycling have been integrated directly into the Project execution procedures to reduce waste generation for all components of the Project. Wastes produced or materials onsite will be reused or repurposed when and where feasible.

Some wastes will require transportation for offsite treatment or disposal. The type of transportation and tracking documents will depend on the nature of the waste and the location of the appropriate disposal or treatment facility. Minimum requirements for transportation and tracking requirements are outlined below.

Wastes that require off-site transportation from the North Work Site and North Camp will be transported across the Mackenzie River via barge. Appropriate containers and/or tanks will be used to store wastes on the barge to ensure there are no impacts to the watercourse. Mitigation measures for Ferry operations will be provided the Summer Construction EPP.

4.1 Hazardous Wastes

Hazardous materials will be handled, stored, transported and disposed of in accordance with the Enbridge LP Canada Waste Management Plan (2016) as well as all applicable Workplace Hazardous Material Information System (WHMIS) and Transportation of Dangerous Goods (TDG) legislation.

All hazardous wastes will be stored in designated storage areas in clearly marked containers at least 100 m away from the high-water mark of any waterbody, in accordance with the SCP. Any spills of hazardous wastes will be responded to and cleaned up in accordance with the SCP. Hazardous wastes stored onsite will be removed from the designated storage areas prior to demobilizing equipment from the work areas and disposed of at an approved facility.

Hazardous materials must be disposed of at a licensed hazardous waste/Class 1 receiving facility. In the event that hazardous waste is hauled to British Columbia, a special hauling license will be required. Enbridge’s waste generator number (NTG000026) must be included on documentation for every shipment of hazardous waste.

Each shipment of hazardous waste generated as a result of Project activities in the Northwest Territories must be accompanied by a completed, territorially-issued movement document / manifest. Contact the Environmental Inspector for assistance in obtaining the required movement documents.

The movement document / manifest must meet both the requirements of the local jurisdiction for tracking the movement of a hazardous waste, as well as the requirements for a shipping document as prescribed by the Federal TDG Regulations.

4.1.1 Used oils, lubricants, grease, coolants, filters or solvents

All used oils, fuels, lubricants, greases, coolants, filters, solvents or any other hazardous wastes produced
from routine equipment operation or maintenance will be captured in appropriate containers and labeled as hazardous waste and stored in designated areas. Reference the waste information sheets in Appendix A for the applicable WHIMIS and TDG classifications for each specific waste.

4.1.2 Contaminated soil or water
The inadvertent release of hazardous wastes can generate contaminated soil or water. In the case of a release of hazardous materials, follow the procedures outlined in the SCP to stop, contain and clean any spill. All contaminated material must be stored in an isolated containment structure, which can include the following:

- Tank,
- Bin, or
- Pit or sump with an impermeable liner and berms.

The containment structure must prevent leachate from escaping the containment area and coming in contact with a waterbody or the ground surface.

Follow procedures in the Project EPP to identify and contain potential contaminated materials. Contaminated materials will be disposed of offsite at an approved facility. Proper NWT waste manifests will be used when transporting and disposing of contaminated materials.

4.1.3 Pipe Coating and Sand-blasting Wastes
During assembly of the new segment of pipe, it may be required to strip coating for welding using sand-blasting methods and to recoat the pipe. During sand-blasting activities, the areas will be hoarded in to contain spent sand-blasting media and stripped coating and/or paint, preventing it from collecting directly on the ground surface or from being transported offsite through the air as much as possible. When sand-blasting activities are complete, the spent media will be collected and tested where applicable to determine the proper transportation requirements and disposal facility. The Environmental Inspector will aid in identifying appropriate disposal facilities and transportation requirements prior to moving wastes offsite.

4.1.4 Decommissioning Wastes
Wastes potentially generated from the decommissioning activities are anticipated to be water and hydrocarbon-based sludges. Cleaning agents may also be used to help purge and clean the pipe segment being replaced. Materials extracted from the pipe or agents/solvents used to clean the pipe will be collected and contained. All wastes removed from the decommissioned pipe will be considered hazardous and hauled off site for disposal. The wastes will be hauled in compliance with all applicable TDG Regulations and will be disposed of at an approved facility. The Environmental Inspector will aid in identifying appropriate disposal facilities and transportation requirements prior to moving wastes offsite.

4.2 Non-Hazardous, Non-Mineral Wastes
4.2.1 Domestic Wastes
Waste management practices will be implemented to minimize attractants to wildlife, including:
• Reduce and properly dispose of garbage, food wastes and other edible and aromatic substances;
• Store all food and garbage in either: airtight sealed containers, wildlife-proof containers or in an enclosed area not accessible to wildlife;
• Store all on-site grease, oils, fuels in wildlife-proof containers or enclosed bear-proof areas; and
• Store minimal amounts of wastes onsite and haul wastes off for disposal as often as practical.

Combustible and non-combustible domestic wastes (e.g., plastics, styrofoam and rubber) will be separated into two streams as recommended in the Northern Land Use Guidelines for Camp and Support Facilities (AANDC 2011). No incineration of wastes will be undertaken.

Work crews will inspect areas surrounding each camp and work site to collect and properly dispose of any waste material that has blown off site.

Domestic solid wastes will be temporarily stored at camps before being transported to municipal facilities for disposal. The preferred municipal facility used for disposal will be the Village of Fort Simpson Municipal Landfill; however, the Hay River Municipal Landfill may be used as an alternate if the wastes cannot be accepted in Fort Simpson.

4.2.2 Sanitary Wastes
All sewage and greywater will be temporarily stored in tanks at the camp sites. The project will seek to dispose of all sewage and greywater in Fort Simpson Waste Water Treatment Plant. Agreements are in place with the Village of Fort Simpson to haul sewage and greywater off site for disposal (Appendix B). In the unlikely event that offsite transportation is temporarily restricted, or pre-arranged disposal facilities are unable to accept wastes, sewage and greywater could reach onsite storage capacity. In these circumstances, mitigation options could include the construction of a pit. If required, such onsite disposal would proceed in accordance with best practices outlined in the Northern Land Use Guidelines for Camp and Support Facilities (AANDC 2011) and in consultation with the Government of Northwest Territories Lands and ENR (GNWT) Inspectors. The Line 21 Environmental Management Committee (EMC) will also be notified if onsite disposal of sanitary wastes if being pursued.

Porto Potty’s used onsite will be managed by the contractor. Sanitary wastes produced in the Porto Potty’s will be managed by hauling offsite for cleaning and disposal at the supplier’s facility or by removing the contents onsite using applicable mobile equipment and hauling to an appropriate waste treatment facility (e.g. Fort Simpson Waste Water Treatment Plant).

4.2.3 Construction Materials
Construction material wastes will be placed into containers in approved areas until they are removed from site and hauled away for disposal. Approval for disposal of construction waste must be received by the facility operator prior to disposal. The Construction Manager and Contractor will coordinate with waste facility operators to ensure the facility can accept the wastes types being hauled off site. Waybills or truck tickets will accompany any load of construction waste being hauled off site.

4.2.4 Vegetation and Clearing Wastes
Trees and brush will be cleared for each work and camp area. Due to the size and location of the work
areas, the brush piles should not cause any impact to wildlife movement as they should not extend longer than 100m.

Salvage trees suitable for firewood and stack as directed by the Construction Manager. Brush and trees not suitable for firewood may be mulched or spread back over the temporary work space following the completion of the project.

4.3 Mineral Wastes
Mineral wastes, for the purpose of this WMP, are generally considered to be soil and water materials that are produced as a result of the drilling and hydrotest activities. Rock based granular materials used at the site (e.g. gravel and sand) are also considered in this section, as the management procedures are similar. The preferred disposal option for mineral wastes is onsite treatment and disposal; however, contingency disposal plans are also provided in the case that the preferred option is not viable. The procedures and requirements for each mineral waste type are provided below.

4.3.1 Drilling Wastes
Drilling Wastes will be managed onsite to the extent possible. Drilling fluids will be recirculated during the drilling activities to minimize the volume of water required and waste generated through the drilling activities. Drilling wastes will be stored onsite in bins or tanks while awaiting disposal. All efforts will be made to prevent drilling fluids and untested drilling wastes to come in contact with the ground or from leaving the Project work sites, through the use of secondary containment, collection pits and drip trays, where required.

Sumps will be excavated within the temporary work space to mix the drilling wastes with native subsoil. Alberta Energy Regulator Directive 50: Drilling Waste Management guidelines (AER D50) for Mix-Bury-Cover (section 13) will be adhered to as best practice. Drilling wastes will also be analyzed for applicable parameters to ensure it meets criteria set out in AER D50 before being buried onsite. Sump locations and sizes will be determined in the field and in consultation with the local indigenous monitors and GNWT Inspector once the receiving soils can be assessed and confirmed to meet the AER D50 guidelines. Additional information on drilling waste disposal and sump management can be found in section 5.1.

If the receiving soils or the drilling wastes do not meet the AER D50 guidelines, or if onsite disposal is otherwise determined to not be feasible, the drilling wastes will be hauled offsite for disposal at an approved facility. The drilling wastes will be analyzed prior to hauling to ensure it meets the receiving facilities criteria for acceptance. All transports hauling drilling wastes offsite will have appropriate manifests, waybills or truck tickets, depending on the state of the waste.

The excess drilling fluids following the completion of the drilling operations may be used in the decommissioning activities to grout the decommissioned pipe.

All transports hauling drilling wastes offsite will have appropriate manifests, waybills or truck tickets, depending on the state of the waste.

4.3.3 Spent Water
Spent water will be generated from the hydrotests and drilling fluids. All spent water used onsite for
drilling or hydrotest will be stored onsite and sampled prior to discharge to determine if the water quality meets CCME guidelines for surface discharge. If the water meets appropriate criteria, it will be discharged to surface at a location identified by the Environmental Inspector in consultation with the local indigenous monitors and GNWT Land Use Inspector. Any discharge locations will meet the following requirements:

- Outside of the work area;
- Well vegetated;
- Outside of the high water mark or any watercourse; and
- At least 30 m from a surface water body.

The EMC will be notified of all proposed water discharge locations.

All water discharged to the surface will be passed through filter bags to control sediment deposits on the ground surface. Discharge locations will be periodically inspected by the Environmental Inspector.

If the water quality does not meet CCME guidelines, the water may be treated onsite and re-tested if feasible. If treatment is not feasible, the water will be stored and hauled offsite for disposal at an approved facility. Applicable sampling will be completed to ensure the disposal facility requirements and guidelines are met prior to hauling. All transports hauling water offsite will have appropriate manifests, waybills or truck tickets, depending on the state of the waste.

4.3.4 Granular Materials
Granular materials (sand and gravel) may be deposited at work sites during Project activities. All granular material brought to site will be collected, to the extent feasible, upon completion of the Project and transported offsite for reuse or disposal. The Environmental Inspector will be consulted prior to removing the material from site to determine the appropriate requirements for disposing the material or reusing it.

5.0 Infrastructure for Waste Management
The types of infrastructure required for proper management of Project waste materials are described below.

Disposal sump locations for the disposal of drilling wastes will be assessed once access to the work sites has been opened. AER Directive 50 guidelines will be followed when identifying sump locations and dimensions and determining the suitability of the receiving soils. GNWT Inspectors and the MVLWB will be notified of the proposed sump locations and dimensions once they are determined in the field.

Waste disposal facilities for all wastes types being hauled offsite will be identified prior to hauling any wastes. Disposal agreements will be in place and all guidelines and requirements will be met to ensure wastes can be accepted by the facility. Waste facilities will be lined up on an as needed basis depending on the waste types and needs. The following table provides a list of potential facilities able to accept the wastes to be generated by the Project.
### Table 2. Waste disposal facilities for the Line 21 Segment Replacement Project.

<table>
<thead>
<tr>
<th>WASTE TYPE</th>
<th>FACILITY</th>
<th>LOCATION</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARDOUS WASTES</td>
<td>KBL Environmental</td>
<td>Yellowknife and Hay River, NWT</td>
<td>867-873-5263</td>
</tr>
<tr>
<td></td>
<td>Tervita</td>
<td>Rainbow Lake, AB</td>
<td>780-956-5650</td>
</tr>
<tr>
<td></td>
<td>Newalta</td>
<td>Fort St. John, B.C.</td>
<td>250-827-6965</td>
</tr>
<tr>
<td>DOMESTIC WASTES</td>
<td>Fort Simpson Municipal Landfill</td>
<td>Fort Simpson, NWT</td>
<td>867-695-2253</td>
</tr>
<tr>
<td></td>
<td>Hay River Municipal Landfill</td>
<td>Hay River, NWT</td>
<td>867-874-2720</td>
</tr>
<tr>
<td>SANITARY WASTES</td>
<td>Fort Simpson Waste Water Treatment Plant</td>
<td>Fort Simpson, NWT</td>
<td>867-695-2710</td>
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<tr>
<td></td>
<td>Hay River Waste Water Treatment Plant</td>
<td>Hay River, NWT</td>
<td>867-875-7030</td>
</tr>
<tr>
<td>MINERAL WASTES</td>
<td>KBL Environmental</td>
<td>Yellowknife and Hay River, NWT</td>
<td>867-873-5263</td>
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<td></td>
<td>Tervita</td>
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</tbody>
</table>

Equipment for separating water or hardening drilling fluids may also be required and will be determined in the field. The equipment may include centrifuges, reagents, storage containers for collecting separated wastes or mixing in reagents and mixing equipment.

Water treatment equipment and facilities may be required based on the water quality conditions. Appropriate water treatment equipment required for the Project will be discussed with the Construction Manager, Environmental Inspector and Enbridge Project Environment Lead and determined in the field.

Barges will be used to transport all types of wastes from the North Work Site across the Mackenzie River for offsite disposal. All requirements for appropriate storage containers will apply to wastes while being transported on barges.

### 5.1 Sump Management

The following sections provide high level details of the sump management and operations for the Project. Further details for the sump construction and management procedures will be included in the Sump Construction and Management Plan to be finalized once the assessment for the sump locations (as outlined in AER D50) has been completed and the sump locations have been approved by the GNWT Inspector.

#### 5.1.2 Drilling Waste Sampling

Drilling wastes will be stored in above ground bins or tanks, located in designated areas, while awaiting approval for onsite disposal. No drilling wastes will be disposed of in sumps until the required sampling has been completed and the results have been reviewed by the Construction Manager, Environmental Inspector and Project Environmental Lead.

A composite drilling waste sample made up of at least five subsamples will be collected and analyzed. The subsamples will be collected a least 1 m from the edge of the storage container and at representative locations.
depths. The drilling waste sampling results will be considered accurate for up to 30 days, provided no additional materials have been added to the storage container following the collection of the samples.

The Environmental Inspector, in consultation with the Project Environmental Lead and Construction Manager will approve sump materials for disposal upon receipt and review of the analytical results. Drilling wastes which do not meet all applicable AER D50 criteria will be hauled offsite for disposal.

5.1.3 Disposal Procedures
The drilling waste will be mixed with the subsoil at a ratio of at least three parts subsoil to one part drilling waste. Enbridge will use predictive lab mixes to ensure the soil endpoint guidelines outlined in AER D50 are met. Enbridge will not proceed with the sump disposal option when the predictive lab or calculated mix ratios exceed seven parts soil to one part drilling waste.

5.1.4 Post Disposal Confirmatory Sampling
Enbridge will conduct post-disposal sampling of the drilling waste/soil (sump) mix prior to the backfill and reclamation of the sumps, and compare the results to the applicable soil endpoint criteria (AER D50). A composite sample will be collected for every 500 m³ of mixed soil/waste material held within the sump. The composite sample will be made up of at least 5 representative subsamples collected at various locations and depths within the sump. Should the mixed sump material not meet the AER D50 endpoint criteria the Project Environmental Lead will consult with the Construction Manager and GNWT Inspector on potential mitigation options which could include increasing the mixing ratio of the drilling wastes or removing the waste from the sump for offsite disposal.

5.1.5 Indigenous Engagement
Enbridge has entered into an Environmental Management Agreement with local Indigenous communities, which establishes a framework for engagement about the Project and Line 21 activities. Part of that agreement is the formation of the EMC, responsible for implementing the agreement. Enbridge will continue to consult through the EMC to notify local communities on the proposed and final locations of any disposal sumps. Any concerns or comments will be noted and every effort will be made to locate sumps in areas acceptable to both Enbridge and the Indigenous communities.

The EMC will be notified of all drilling waste and post disposal sampling results. Local Indigenous monitors will be provided with the drilling waste sampling results prior to disposal and following disposal.

5.1.6 Post Construction Monitoring
All sump locations will be monitored following the completion of the project as outlined in the Closure and Reclamation Plan. The monitoring visits will focus on the state of revegetation and identify any deficiencies in surface water drainage or ponding. Actions plans will be developed by Enbridge in consultation with the EMC to address deficiencies identified during the post construction monitoring visits.

6.0 Training Program
Project-specific EPP training shall be required by all individuals working on the Project. The EPP training will include a review of permits conditions, mitigation plans (including the WMP) and specific environmental mitigations for the Project. The level of EPP training will be dependent on the role and
responsibility of the individual. Managers and foremen/supervisors will receive a higher level of EPP training to ensure they understand all permit conditions, environmental policies and required environmental mitigations and can effectively direct employees. Field workers will receive a modified level of EPP training tailored to the execution of their scope of work.

7.0 References


Appendix A

Waste Information Sheets
# Chemicals - Laboratory
## Waste Information Sheet

### General Information

| Original Use: | Onsite quality control laboratories. Organic chemicals are carbon based materials, including solvents and other petroleum-derived products. Inorganic chemicals are non-carbon based materials, including many acids, bases, and mineral based compounds. |
| Physical State: | May be liquid, solid or gas; dependent on specific waste. |
| Components: | Dependent on specific waste. Organic chemicals, Inorganic chemicals - acids, alkalis, and inorganic reagents. |

### Potential Hazards

| Class (WHMIS): | B2; B3; B4; C; D; or E |
| MSDS: | Varies with waste chemical. |
| Hazard Symbols: | ![Symbols](image) |
| Protective Equipment: | ![Equipment](image) |

**Environmental:** Limited environmental hazard due to small volume. Possible volatile flammable and corrosive liquids. Potential fire hazards.

**Health:** Health hazard - extent is dependent on the specific chemical.

### Management Methods

**Waste Classification:**

- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste (148-C)
- Québec: Residual Hazardous Material

**Storage:** Collect in lined drums or original containers if recycling. Monitor volumes and chemicals entering containers. Segregate different waste chemicals. Store in a cool, well ventilated area.

**Treatment / Disposal:**

- Segregate and reuse chemicals on-site if possible.
- Return to supplier if possible.
- Send to a chemical recycling facility.
- Send to an appropriate (approved) waste management facility

**Comments:** Waste classification is subject to testing.

**Reportable Release Quantity:**

- NWT: 5 kg or litres
- Alberta: 5 kg or litres
- Saskatchewan: 5 kg or litres
- Manitoba: 5 kg or litres
- Ontario: Any quantity
- Québec: Any quantity

**TDG Information**

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>See TDG Comments Below</td>
<td>-</td>
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</tbody>
</table>

**Placards:** Dependent on specific waste chemical.

**Comments:** Dependent on specific waste chemical. If product was originally supplied as a dangerous good, then waste chemical is also a dangerous good. Use Shipping Name, Class, PIN, etc. of original shipment, unless original chemical properties have changed or contaminated with another dangerous good. If a mixture or solution of two or more dangerous goods, verify TDG Information with the Enbridge Environment Staff.

### Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information? Contact Enbridge Environment Staff in Edmonton.
Chemicals - Miscellaneous
Waste Information Sheet

General Information

Original Use: Various – dependent on specific chemical.
Physical State: Various – liquid or slurry. Synonyms: Cleaners, lubricants, epoxies, glues, solvents, etc.
Components: Various – dependent on specific chemical. Refer to supplier information.

Potential Hazards

Class (WHMIS): Dependent on specific chemical.  
MSDS: Refer to container label or supplier information.
Hazard Symbols: Refer to container label or supplier MSDS.  
Protective Equipment: Refer to container label or supplier MSDS.

Environmental: Possible soil and groundwater contamination from spills.
Health: Dependent on specific product. Refer to container label or supplier information.

Management Methods

Waste Classification:
NWT: Testing Required.
Alberta: Testing Required.
Saskatchewan: Testing Required.
Manitoba: Testing Required.
Ontario: Testing Required.
Québec: Testing Required.
All provinces & NWT: Dependent on specific chemical. Testing may be required.

Storage: Dependent on specific chemical.
Treatment / Disposal:
• Return to supplier, reuse or recycle (dependent on chemical type).
• Send to chemical reclaimer / recycler if applicable.
• Send to appropriate (approved) waste management facility.
• Recycle through Waste Material Exchange (if possible, appropriate).
Comments:
• Avoid over-supply. Order in bulk.
• Investigate the use of low toxicity, safer chemicals. Inquire with supplier.
Reportable Release Quantity:
NWT: 5 kg or litres
Alberta: 5 kg or litres
Saskatchewan: 5 kg or litres
Manitoba: 5 kg or litres
Ontario: Any quantity
Québec: Any quantity
TDG (includes loading / unloading): Dependent on specific waste chemical.

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>See TDG Comments Below</td>
<td>-</td>
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</tr>
</tbody>
</table>

Placards: Dependent on specific chemical.
Comments: Testing required. Dependent on specific waste chemical. If product was originally supplied as a dangerous good, then waste chemical is also a dangerous good. Use Shipping Name, Class, PIN, etc., of original shipment unless original chemical properties have changed or contaminated with another Dangerous Good. If a mixture or solution of two or more dangerous goods, verify TDG Information with the Enbridge Environment Staff.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information? Contact Enbridge Environment Staff in Edmonton.

Chemicals - Miscellaneous
Waste Information Sheet
September 2016
General Information

**Original Use:** Demolition or new construction projects.

**Physical State:** Various solids.

**Components:** Clean material (wood, metal, drywall, etc.) which is not contaminated with fiberglass insulation, asbestos, and sulphur. See also Metal - Scrap, Insulation (Asbestos), Insulation (Non-asbestos), and Contaminated Debris and Soil waste information sheets.

Potential Hazards

**Class (WHMIS):** Not a controlled product.

**MSDS:** Not applicable.

**Hazard Symbols:** Not applicable.

**Protective Equipment:** Follow occupational health / safety and manufacturer requirements for all equipment operations. Use caution with dust.

**Environmental:** Possible toxic fumes if incinerated.

**Health:** Not a hazard.

Management Methods

**Waste Classification:**
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

**Storage:** Ensure wastes are stored in an orderly manner that does not pose a safety risk. Segregate potentially hazardous substances such as asbestos.

**Treatment / Disposal:** Send to an approved landfill. Notify landfill before shipment if significant quantities.

**Comments:**
- Reuse materials when possible.
- Recycle plastics, rubber, wood, paper, metal, drywall where practical.
- Ontario requires that construction or demolition projects of more than one building or greater than 2000 square metres must implement a source separation program for brick and Portland cement concrete, corrugated cardboard, drywall, steel, and wood which is not treated, painted or laminated. Materials can be sent to a site operating under an Environmental Compliance Approval or to users of the material for recycling.

Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Manitoba: N/A
- Ontario: N/A
- Québec: N/A

TDG Information

<table>
<thead>
<tr>
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<th>Packing Group</th>
<th>Special Provisions</th>
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</thead>
<tbody>
<tr>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Placards:** N/A

**Comments:** If the waste is contaminated with dangerous goods, TDG Regulations may apply.

Documentation

**Transportation Documents:** Truck Ticket or Waybill or Provincial Manifest as appropriate

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.
**General Information**

Original Use: Spray cans for contact cleaners, lubricants, paints.

Physical State: Metal cans (usually <1 litre) under pressure.

Components: Various, dependent on original contents. Aerosol component may contain nitrous oxide, organic solvents, ketone, acetone or chlorofluorocarbons.

---

**Potential Hazards**

<table>
<thead>
<tr>
<th>Class (WHMIS)</th>
<th>MSDS:</th>
<th>Hazard Symbols:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Various</td>
<td>Various</td>
<td>Protective Equipment:</td>
</tr>
</tbody>
</table>

**Environmental:** Chlorofluorocarbons (CFCs) suspected of damage to ozone layer. Few aerosols still contain CFCs. Containers under pressure - can explode with incineration or compaction.

**Health:** Various health effects due to the fine mist and inhalation. Includes possible carcinogenesis and nervous system disorders.

---

**Management Methods**

**Waste Classification:**
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

**Storage:** Store in cool, well ventilated area.

**Treatment / Disposal:**
- Empty – Metal cans can be recycled through appropriate recycler
- Non-hazardous – Landfill (small quantity - verify with landfill operator)
- Hazardous – Hazardous Waste Disposal Facility (depending on original content)

**Comments:** If small quantity, take advantage of provincial toxic container collection programs which are available in Alberta, Manitoba and Ontario. Do not puncture or incinerate.

**Reportable Release Quantity:**
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Manitoba: N/A
- Ontario: N/A
- Québec: N/A

**TDG Information**

<table>
<thead>
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</table>

**Placards:** N/A

**Comments:** If available in a consumer commodity, then not regulated. Where TDG regulated, TDG classification subject to original supplier shipment’s TDG classification. May also be TDG exempt by minimum quantity. When a container is emptied, but not cleaned or purged of dangerous goods, the words "Empty – Last Contained" must be written on the shipping document.

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**Documentation**

**Transportation Documents:** Dependent on waste classification.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

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Need further information?
Contact Enbridge Environment Staff in Edmonton.
General Information

Original Use: Transport and storage of liquid products.
Physical State: Metal and plastic. Some are returnable. May be empty, rinsed or not rinsed.
Components: Used drums should be treated as hazardous (dangerous oilfield/waste dangerous good) and/or toxic until proven otherwise. Refer to drum labels and shipping information for contents (chemicals, lube oil, solvents, and alcohol).

Potential Hazards

Class (WHMIS): Dependent upon contents of original drum.
MSDS: Dependent on contents of original drum. See drum label.
Hazard Symbols: Dependent on contents of original drum. See drum label.
Protective Equipment: Dependent on contents of original drum. See drum label.
Environmental: Depends on original contents. Containers may have to be rinsed according to pre-treatment comments. Rinse liquid disposal is a concern if drum contents are hazardous.
Health: Dependent on contents of original drum. Regardless, wear protective clothing.

Management Methods

Waste Classification: NWT: Non-Hazardous Waste
Alberta: Non-Hazardous Waste/Non-DOW
Saskatchewan: Non-Hazardous Waste
Manitoba: Non-Hazardous Waste
Ontario: Non-Hazardous Waste
Québec: Residual Material
NOTE: Above classification unless not completely empty and containing a hazardous waste. “Empty Container” is generally defined as a container that contains less than 2.5 cm of residue at the bottom of the container or less than 3% of the original contents, whichever is the lesser amount.

Storage: Store drums / barrels on their sides with all bungs securely in place at field facility. Use sorbents and / or provide leak containment. Do not give or sell to others. Do not store barrels which contain unknown materials – confirm material and use or properly dispose.

Treatment / Disposal:
• Return barrels / drums to original supplier.
• Triple rinse barrels / drums and send to scrap metal dealer / barrel reconditioner.
• Triple rinse and send to an approved landfill. (Contact Enbridge Environment Staff for appropriate rinsing material)

Comments: Purchase chemicals in bulk whenever possible to avoid the handling and disposal of barrels.

Reportable Release Quantity:
NWT: N/A
Alberta: N/A
Saskatchewan: N/A
Manitoba: N/A
Ontario: N/A
Québec: N/A
Ontario: N/A

TDG Information

Shipping Name
Class
PIN
Packing Group
Special Provisions
See TDG Comments Below

Placards: Dependent on waste classification.
Comments: If the container contains residues of dangerous goods, the shipping name, TDG classification, and waste classification is dependent on the nature of the dangerous goods. If the container is empty but not cleaned, write “Residue – last contained” on the shipping document – in addition to Shipping Name, etc.
The following exemption permits may apply to this waste: 95 2060 (in Alberta), SU 2801 (for Federal).

Documentation

Transportation Documents: Dependent on waste classification.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
## General Information

**Original Use:** Various containers from cleaners, lubricants, epoxies, glues, solvents, etc.

**Physical State:** Plastic, metal pails, buckets, tubs, tubes, cups, etc.

**Components:** Various

## Potential Hazards

<table>
<thead>
<tr>
<th>Class (WHMIS):</th>
<th>Various - refer to container label or supplier information.</th>
<th>MSDS:</th>
<th>Various - refer to container label or supplier information.</th>
</tr>
</thead>
</table>

**Environmental:** Possible groundwater and soil contamination from leaching of container’s product.

**Health:** Dependent on specific product. Refer to container label or supplier information.

## Management Methods

### Waste Classification:

- **NWT:** Testing Required
- **Alberta:** Testing Required
- **Saskatchewan:** Testing Required
- **Manitoba:** Testing Required
- **Ontario:** Testing Required
- **Québec:** Testing Required

### Storage:

Store in an organized protected area away from heat sources. Prevent moisture from entering containers.

### Treatment / Disposal:

- Hazardous - Hazardous Waste Disposal Facility
- Non-hazardous - Landfill via waste contractor
- Some jurisdictions restrict the recycle/reuse of metal drums.

### Comments:

- In Alberta, containers are regulated under the Alberta Waste Control Regulation. If they contained a substance listed in Table 4B of the Alberta Users Guide for Waste Managers then the container must be triple rinsed.
- In Saskatchewan, Manitoba and the N.W.T., an empty container that contained dangerous goods is considered as hazardous waste unless it has been cleaned or purged.
- Within Ontario’s Regulation 347, there are exemptions for empty containers that previously contained a product; however, these exemptions are based on the product’s specific ingredients as identified on the MSDS. If the container is not exempt it shall be considered as hazardous waste.

### Reportable Release Quantity:

- **NWT:** Any quantity if hazardous chemical
- **Alberta:** Any quantity if hazardous chemical
- **Saskatchewan:** Any quantity if hazardous chemical
- **Manitoba:** Any quantity if hazardous chemical
- **Ontario:** Any quantity if a hazardous chemical
- **Québec:** Any quantity if a hazardous chemical
- TDG (includes loading / unloading): Any quantity if hazardous chemical

## TDG Information

<table>
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<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
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<tbody>
<tr>
<td>See TDG Comments Below</td>
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</tbody>
</table>

### Placards:

Dependent on waste classification.

### Comments:

If product was originally supplied as a dangerous good, then waste container is a dangerous good, unless the container was cleaned or purged. If the container contains residues of dangerous goods, then the applicability of TDG requirements are dependent on the nature of the dangerous goods. Use shipping name, etc., of original shipment. When a container is emptied but not cleaned or purged of dangerous goods, the words "Empty – Last Contained" must be written on the shipping document.

## Documentation

### Transportation Documents:

Dependent on waste classification.

### Company Records:

Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Contaminated Debris and Soil - Mercury
Waste Information Sheet

General Information

Original Use: Generated from the spillage of mercury from instrument manometers.
Physical State: Solid (mercury contaminated soils).
Components: Mercury, soil, water, sorbent and other spill debris.

Potential Hazards

Class (WHMIS): D1A; D2A
MSDS: Mercury
Hazard Symbols: 
Protective Equipment: 

Environmental: Spilled mercury will contaminate pond and drainage ditch sludge and can accumulate in drains/gutters within process buildings. Leachate may contain soluble mercury salts.
Health: Toxic vapors. Eye irritation. If absorbed by skin, may cause dermatitis. Long or repeated exposure may create emotional disorder and damage to the nervous system, kidneys or liver.

Management Methods

Waste Classification:
- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste
- Québec: Residual Hazardous Material

Storage:
- If large quantity of mercury is spilled, the metal may be collected and cleaned for reuse.
- On-site solidification, Hazardous Waste Disposal Facility if mercury levels are above regulated landfill regulations.

Comments: Contact Enbridge Environment Staff on a case specific basis. Testing may be required.

Reportable Release Quantity:
- NWT: 5 kg or litres
- Alberta: 5 kg or litres
- Saskatchewan: 100 g
- Manitoba: 5 kg or litres
- Ontario: Any quantity
- Québec: Any quantity

TDG Information

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<th>Shipping Name</th>
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<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORROSIVE SOLID, N.O.S. (“Technical Name”)</td>
<td>8</td>
<td>UN1759</td>
<td>I, II or III</td>
<td>16</td>
</tr>
</tbody>
</table>

Placards: Class 8
Comments: After shipping name put: “(soil/debris contaminated with mercury)”. TDG regulation is dependent on whether or not contaminant levels are above regulated landfill regulation. Testing may be required.
For sufficient quantities of mercury, see “Mercury” Waste Information Sheet.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
### General Information

**Original Use:** Generated by the accidental spillage of crude oil or condensate. Includes contaminated soils, vegetation, and absorbent materials.

**Physical State:** Solid (oil / condensate and contaminated solids).

**Components:** Oil, condensate, BTEX, heavy metals (As, Cd, Cr, Pb, Hg, Ni, TI or Se), salts, soils, boron, barium, other spill debris and absorbent materials.

### Potential Hazards

**Class (WHMIS):** B4  
**MSDS:** Crude Oil.

**Hazard Symbols:**  
[Image of hazard symbols]

**Protective Equipment:**  
[Image of protective equipment]

**Environmental:** Potential groundwater contamination from hydrocarbons if disposed in landfill. Migration of hydrocarbons also possible with land treatment. Light ends may be extremely mobile (water soluble).

**Health:** Typically not an inhalation hazard if < 38°C. High vapor concentrations may irritate nose, throat, and lungs. May irritate eyes and skin on contact. Personnel protection required. Level of protection will vary with the waste.

### Management Methods

**Waste Classification:**  
- NWT: Non-Hazardous Waste  
- Alberta: Non-Hazardous Waste/Non-DOW  
- Saskatchewan: Non-Hazardous Waste  
- Manitoba: Non-Hazardous Waste  
- Ontario: Non-Hazardous Waste  
- Québec: Residual Material.

**Note:** Classified as Hazardous Waste/WDG/DOW if BTEX, flash point and hydrocarbon exceed criteria.

**Storage:** If saturated - store in steel drums. Temporary storage on drying pads or lined areas.

**Treatment / Disposal:** Recover free liquids, contain contaminated soil within a bermed and lined storage cell, contact Enbridge Environment Staff for treatment and disposal options.

**Comments:** Minimize contamination potential through the use of spill containment measures such as dikes and drip pans. Various jurisdictions have specific rules around the management of hydrocarbon contaminated materials. Contact the Enbridge Environment Staff to provide assistance.

**Reportable Release Quantity:**  
- NWT: 25 kg  
- Alberta: 25 kg  
- Saskatchewan: Any quantity  
- Ontario: Any quantity  
- Québec: Any quantity  
- TDG (includes loading / unloading): 25 kg or litres

### TDG Information

<table>
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<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. (soil / debris contaminated with Petroleum Crude Oil).</td>
<td>4.1</td>
<td>UN 3175</td>
<td>II</td>
<td>16, 56</td>
</tr>
</tbody>
</table>

**Placards:** Class 4.1 (in bulk or over 500 kg).

**Comments:** May not be TDG regulated. **Classified as Hazardous Waste/WDG/DOW if BTEX, flash point and hydrocarbon exceed regulated criteria.**

### Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?  
Contact Enbridge Environment Staff in Edmonton.
## General Information

**Original Use:**
This waste is generated by the removal of groundwater and/or material classified as a sludge/slurry (i.e., a loose combination of soil and water).

**Physical State:**
Liquid or semi-solid.

**Components:**
Road salt, pesticides and herbicides, accidental spills of hazardous and non-hazardous materials.

## Potential Hazards

**Class (WHMIS):** N/A  
**MSDS:** None

**Hazard Symbols:** None  
**Protective Equipment:**
- Gloves
- Boots
- Lab coat
- Respiratory protection

**Environmental:**
Waste characterization required to identify pollution concerns.

**Health:**
No hazards.

## Management Methods

**Waste Classification:**
- NWT: Testing Required  
- Alberta: Testing Required  
- Saskatchewan: Testing Required  
- Manitoba: Testing Required  
- Ontario: Testing Required  
- Québec: Testing Required

**Storage:**
Large volumes may be temporarily stored in lined pits. For lesser volumes store in tanks or barrels.

**Treatment / Disposal:**
- Recover free liquids, contain contaminated sludge/slurry within a bermed and lined storage cell, contact Enbridge Environment Staff for treatment and disposal options.
- Non-hazardous.

**Comments:**
Minimize contamination potential through the use of spill containment measures. Various jurisdictions have specific rules around the management of materials that pose a contamination risk. Contact the Enbridge Environment Staff to provide assistance.

**Reportable Release Quantity:**
- NWT: N/A  
- Alberta: N/A  
- Saskatchewan: N/A  
- Manitoba: N/A  
- Ontario: N/A  
- Québec: N/A  
- TDG (includes loading / unloading): N/A

## TDG Information

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<tr>
<th>Shipping Name</th>
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<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Placards:** N/A

**Comments:** If the material is contaminated with dangerous goods, TDG Regulations may apply.

## Documentation

**Transportation Documents:**
Truck Ticket or Waybill or Provincial Manifest as appropriate

**Company Records:**
Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?  
Contact Enbridge Environment Staff in Edmonton.
General Information

Original Use: Filters are non-regenerable air filters from air intake on compressors, electric motors and air conditioners.
Physical State: Sock cartridge, canister units, fibre sheets and/or plates.
Components: Particulates. No other data available.

Potential Hazards

Class (WHMIS): Not a controlled product.  MSDS: Not applicable.
Hazard Symbols:
Protective Equipment:

Environmental: Illegal incineration may produce toxic fumes. Possible spontaneous combustion.
Health: Not an inhalation hazard below 38°C. High vapor concentrations may irritate nose. Slight skin irritations.

Management Methods

Waste Classification:
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

Storage:
- Store with other dry garbage. Well ventilated storage areas.

Treatment / Disposal:
- Prior to disposal, segregate from other types of filters (e.g., lube oil) and landfill.

Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Manitoba: N/A

Ontario: N/A

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Placards: N/A
Comments: If the waste is contaminated with dangerous goods, TDG Regulations may apply.

Documentation

Transportation Documents: Truck Ticket or Waybill or Provincial Manifest as appropriate
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Filters - Lubricating Oil
Waste Information Sheet

General Information

Original Use: Filters from engines, rotating equipment and lubricating oil clean-up systems. Used for the removal of corrosion products, degradation sludges and other impurities.

Physical State: Cloth or paper cartridges of various sizes, metal cartridges.

Components: Hydrocarbons, lead, zinc, additives, and other trace heavy metals, N-hexane, naptha. May also contain triphenyl phosphates, anti-rust and anti-oxidant additives. Fibre, water, ash, sand.

Potential Hazards

Class (WHMIS): D2B

Hazard Symbols: 

MSDS: Lubricating Oil.

Protective Equipment: 

Environmental: Potential groundwater contamination (metals leaching) if disposed in a landfill. Heavy metals may release under acidic conditions. Hydrocarbons are toxic in soil and water. Incineration may produce toxic fumes.

Health: Not an inhalation hazard if < 38°C. High vapor concentrations may irritate nose and throat. Slight skin irritations.

Management Methods

Waste Classification:
NWT: Hazardous Waste
Alberta: Hazardous Waste/DOW
Saskatchewan: Waste Dangerous Good
Canada: Hazardous Waste

Note: Alberta – Waste Type 201 – spent / undrained lube oil filters from internal combustion engines. Testing may be required for classification. Dependent on application.

Storage: Store temporarily in drain barrels to allow for the drainage of any free liquids. Transfer to designated filter bin / bag. Keep in well ventilated storage area.

Treatment / Disposal:
- Scheduled pick up by waste contractor for recycling/recovery of used oil.
- Drained liquids should be recycled.

Comments: Install reusable filter systems on compressors.

Reportable Release Quantity:
NWT: 25 kg
Alberta: 25 kg or litres
Saskatchewan: 100 kg (50 kg off-site)
Ontario: Any quantity
Québec: Any quantity

TDG Information

See TDG Comments below

Placards: 

Comments: Lubricating oil filters are not TDG regulated. If there is any indication that the lube oil may have any contaminants, then further TDG testing may be required for flammability and leachates. Other possible classes are Flammable Solids N.O.S. (lube oil filters); Class 4.1, UN 3175, PG II.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
General Information

Original Use: Vehicle fuel.
Physical State: Flammable liquid.
Components: Mixture of hydrocarbons. May contain benzene, naphthalene, sulphur.

Potential Hazards

Class (WHMIS): B3, D2B
MSDS: Low Sulphur Diesel
Hazard Symbols: 
Protective Equipment:

Environmental: Possible groundwater or surface water contamination if spilled or leaked. Can be toxic to aquatic life.
Health: Causes severe skin irritation. Aspiration hazard if swallowed. Use with adequate ventilation. Avoid contact or inhalation of fumes.

Management Methods

Waste Classification:
- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Ontario: Hazardous Waste (221-I)
- Québec: Residual Hazardous Material

Storage: Store in tightly closed approved containers at a field facility. Keep closed. Store in a cool, dry, well-ventilated place away from heat, direct sunlight, and all sources of ignition.

Treatment / Disposal: Hazardous Waste Management Facility

Comments:
NWT: 100 litres
Alberta: 200 litres
Saskatchewan: 100 litres (100 litres off-site)
Manitoba: 100 litres
Ontario: Any quantity
Québec: Any quantity
TDG (includes loading / unloading): 200 litres

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIESEL FUEL</td>
<td>3</td>
<td>UN1202</td>
<td>III</td>
<td>82,88</td>
</tr>
</tbody>
</table>

Placards: Class 3 (in bulk or over 500 kg).
Comments:

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Fuel – Diesel
Waste Information Sheet
September 2016
# General Information

**Original Use:** Vehicle fuel.

**Physical State:** Flammable liquid.

**Components:** Mixture of hydrocarbons. May contain ethanol, benzene, toluene, xylene.

---

# Potential Hazards

**Class (WHMIS):** B3, D2B

**MSDS:** Gasoline

**Hazard Symbols:**  

**Protective Equipment:**

**Environmental:** Possible groundwater or surface water contamination if spilled or leaked. Can be toxic to aquatic life.

**Health:** May cause skin irritation, headaches, nausea or dizziness with prolonged exposure. Use with adequate ventilation. Avoid contact or inhalation of fumes.

---

# Management Methods

**Waste Classification:**

- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste (221-I)
- Québec: Residual Hazardous Material

**Storage:** Store in tightly closed approved containers at a field facility. Keep closed. Store in a cool, dry, well-ventilated place away from heat, direct sunlight, and all sources of ignition.

**Treatment / Disposal:** Hazardous Waste Management Facility

**Reportable Release Quantity:**

- NWT: 100 litres
- Alberta: 200 litres
- Saskatchewan: 100 litres (100 litres off-site)
- Manitoba: 100 litres
- Ontario: Any quantity
- Québec: Any quantity
- TDG (includes loading / unloading): 200 litres

---

# TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>GASOLINE</td>
<td>3</td>
<td>UN1203</td>
<td>II</td>
<td>17, 82, 88</td>
</tr>
</tbody>
</table>

**Placards:** Class 3 (in bulk or over 500 kg).

**Comments:**

---

# Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

---

Need further information?
Contact Enbridge Environment Staff in Edmonton.
## General Information

<table>
<thead>
<tr>
<th>Original Use:</th>
<th>Includes waste from offices, miscellaneous warehouse packaging and construction camps. Does not include sanitary sewage. See also Metal-scrap and Containers waste information sheets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components:</td>
<td>Paper, metal, glass, organic, wood, cloth.</td>
</tr>
</tbody>
</table>

## Potential Hazards

<table>
<thead>
<tr>
<th>Class (WHMIS):</th>
<th>Not a controlled product.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSDS:</td>
<td>Not Applicable.</td>
</tr>
<tr>
<td>Hazard Symbols:</td>
<td></td>
</tr>
<tr>
<td>Protective Equipment:</td>
<td></td>
</tr>
</tbody>
</table>

### Environmental:
Accumulated garbage may attract wildlife. Illegal burning may produce toxic fumes. Landfills may cause gas venting and leachate problems. Possible spontaneous combustion. Possible hazardous containers if not properly segregated.

### Health:
Not expected to be a hazard.

## Management Methods

### Waste Classification:
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

### Storage:
Store in bins or in areas of low traffic volumes on-site. Segregate waste types to facilitate recycling. Maintain waste volumes in a neat and orderly manner. Protect from wind.

### Treatment / Disposal:
- • Send / transfer to an approved landfill.
- • Segregate and recycle paper, cardboard, glass, metal, and plastic.

### Comments:
Ontario requires that office buildings greater than 10,000 square metres have a source separation program.

### Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Manitoba: N/A
- Ontario: N/A
- Québec: N/A
- TDG (includes loading / unloading): N/A

## TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Placards:
N/A

### Comments:
If the waste is contaminated with dangerous goods, TDG Regulations may apply. Cover all open loads during transport.

## Documentation

### Transportation Documents:
Truck Ticket or Waybill or Provincial Manifest as appropriate

### Company Records:
Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
### General Information

**Original Use:**
Methanol is used as a hydrotest fluid for pipelines and for dehydration in gas processing. Also used for hydrate removal.

**Physical State:**
Low viscosity clear liquid, alcohol-like odor.

**Components:**
Methanol.

### Potential Hazards

**Class (WHMIS):**
B2, D1B, D2A, D2B.

**MSDS:**
Use MSDS of specific components (e.g.; Methanol, Methyl Hydrate).

**Hazard Symbols:**

**Protective Equipment:**

**Environmental:**
Potential groundwater contamination if spilled. Very toxic to aquatic life.

**Health:**
Vapors may irritate nose, throat, lungs, and cause eye irritation. Methanol is readily absorbed by the skin and may produce nervous system effects.

### Management Methods

**Waste Classification:**
- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste
- Québec: Residual Hazardous Material

**Storage:**
Store in steel drums or tanks at field facility. Keep in a well ventilated area away from heat sources.

**Treatment / Disposal:**
- Reuse fluids for subsequent hydro-testing operations.
- Send to waste contractor for recovery of product or incineration.
- Deep well disposal well.

**Comments:**
If large hydrostatic test requires methanol, consideration should be given to renting methanol water mixture from supplier and returning mixture to supplier when test is completed.

**Reportable Release Quantity:**
- NWT: 100 litres
- Alberta: 200 kg or litres
- Saskatchewan: 500 litres (100 off-site)
- Manitoba: 100 litres
- Ontario: Any quantity
- Québec: Any quantity
- TDG (includes loading / unloading): 200 kg or L

### TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHANOL</td>
<td>3 (6.1)</td>
<td>UN 1230</td>
<td>II</td>
<td>43</td>
</tr>
<tr>
<td>FLAMMABLE LIQUIDS, N.O.S. (&quot;Technical Name&quot;)</td>
<td>3</td>
<td>UN1993</td>
<td>I, II or III</td>
<td>16</td>
</tr>
</tbody>
</table>

**Placards:**
Class 3 (in bulk or over 500 kg).

**Comments:**
First TDGR classification for pure methanol. If contaminated with inert substances or a mixture of two or more dangerous goods, then the second shipping name may apply.

### Documentation

**Transportation Documents:**
TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:**
Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

---

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Hydrotest Fluids - Water
Waste Information Sheet

General Information

Original Use: Surface water or municipal source water used as a hydrotest fluid for pipelines.
Physical State: Condition of source water. Impurities from testing may discolour water.
Components: Possible components include iron, nickel, lead, suspended solids and oil.

Potential Hazards

Class (WHMIS): Not a controlled product.
MSDS: Not applicable.
Hazard Symbols: Protective Equipment:

Environmental: Potential erosion and surface water sedimentation when released following hydrotest operation.
Health: No significant health issues.

Management Methods

Waste Classification:
NWT: Non-Hazardous Waste
Alberta: Non-Hazardous Waste/Non-DOW
Saskatchewan: Non-Hazardous Waste
Manitoba: Non-Hazardous Waste
Ontario: Non-Hazardous Waste
Québec: Residual Material

Storage: Surface storage in pits and depressions must be in accordance with construction permit and municipal authority. Consultation may also be required with the provincial environment authority.

Treatment / Disposal:
• Reuse fluids for subsequent hydro-testing operations.
• Surface land release following testing and approval from municipality, provincial environment authority or NEB (See comments below).
• Deep well disposal.

Comments: Hydrotest water must always be analyzed prior to watershed release. Must not raise or lower receiving body of water by ±2°C. If saline water was used, do not discharge onto arable land. Tank water should also be analyzed prior to release onto tank farm area. Provincial environment department approval is required for water use and / or disposal. A significant advance notification time may be required. Refer to ENBRIDGE procedures. While used hydrostatic test water is not usually a hazardous waste, water may require pre-treatment prior to release – if water becomes contaminated during testing (from sediments and pipeline impurities). Possible treatment methods include filtering and activated carbon treatment.

Reportable Release Quantity:
NWT: N/A
Alberta: N/A
Saskatchewan: N/A
Manitoba: N/A
Ontario: N/A
Québec: N/A
TDG (includes loading / unloading): N/A

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Placards: N/A
Comments: If the waste is contaminated with dangerous goods, TDG Regulations may apply. Secure all valves and fittings prior to transport.

Documentation

Transportation Documents: Truck Ticket or Waybill or Provincial Manifest as appropriate
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Hydrotest Fluids – Water
Waste Information Sheet
September 2016
# Insulation (Non-Asbestos)

## General Information

**Original Use:** Fireproofing and thermal insulation in buildings, pipes, and vessels.

**Physical State:** Battls of material or rolls.

**Components:** Fiberglass, calcium silicate, rockwool, foam material.

## Potential Hazards

**Class (WHMIS):** D2A  
**MSDS:** None.

**Hazard Symbols:**  
**Protective Equipment:**

**Environmental:** Low hazard. Wildlife may ingest.  
**Health:** May cause severe skin, eye and respiratory irritation. Insulation installation or removal will produce an irritating fibre dust.

## Management Methods

|----------------------|--------------------------|-------------------------------------|----------------------------------|-------------------------------|-----------------------------|--------------------------|

**Storage:** Contain in plastic bags or other sealable container at field facility.  

**Treatment / Disposal:** Send / transfer to an approved landfill.

**Comments:**  
• Repair exposed / damaged piping and building insulation.  
• If possible, reuse insulation from demolition projects for new facility construction.

<table>
<thead>
<tr>
<th>Reportable Release Quantity</th>
<th>NWT: N/A</th>
<th>Alberta: N/A</th>
<th>Saskatchewan: N/A</th>
<th>Manitoba: N/A</th>
<th>Ontario: N/A</th>
<th>Québec: N/A</th>
<th>TDG (includes loading / unloading): N/A</th>
</tr>
</thead>
</table>

## TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
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<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Placards:** N/A  
**Comments:** If the waste is contaminated with dangerous goods, TDG Regulations may apply. Seal before transporting.

## Documentation

**Transportation Documents:** Truck Ticket or Waybill or Provincial Manifest as appropriate  
**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?  
Contact Enbridge Environment Staff in Edmonton.

---

```
Insulation (Non-Asbestos)
Waste Information Sheet
September 2016
```
Lead Compounds
Waste Information Sheet

General Information

Original Use: Lubricants or other products in which the base is a soluble lead.
Physical State: Semi-solid
Components: Lead chloride, lead fluoborate.

Potential Hazards

Class (WHMIS): MSDS:
Hazard Symbols: Protective Equipment:

Environmental: Lead chloride and lead fluoborate are soluble and can therefore cause potential surface and groundwater contamination.
Health: Skin irritant. Toxic in certain concentrations.

Management Methods

Waste Classification:
NWT: Hazardous Waste Alberta: Hazardous Waste/DOW
Manitoba: Hazardous Waste
Saskatchewan: Waste Dangerous Good Ontario: Hazardous Waste
Québec: Residual Hazardous Material

Storage: Store off ground in impermeable, sealed containers.
Treatment / Disposal:
• Hazardous - Hazardous Waste Management Facility
• Non-hazardous - If leachate test okay, landfill which is licensed to accept this type of waste.

Comments:
NWT: 5 kg or litres Alberta: 5 kg or litres
Saskatchewan: 2 kg Manitoba: 5 kg or litres
Ontario: Any quantity Québec: Any quantity

TDG Information

Shipping Name | Class | PIN | Packing Group | Special Provisions
LEAD COMPOUND, SOLUBLE, N.O.S. | 6.1 (9) | UN2291 | III | 24

Placards: Class 6.1 (9) (In bulk or over 500 kg)
Comments: The above is one example. OTHER TDG Shipping Names MAY APPLY. Dependent on specific waste chemical.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Lead Compounds
Waste Information Sheet
September 2016
General Information

**Original Use:** Lubrication of oilfield machinery, engines, compressors, and vehicles.

**Physical State:** Hydrocarbon liquids and grease.

**Components:** Chlorinated solvents, naphthalene, benzene, toluene, xylenes, lead, trace metals (i.e. Ba, Cr, V), triphenyl phosphate, butylated triphenyl phosphate, anti-rust and anti-oxidant additives.

Potential Hazards

**Class (WHMIS):** Not a controlled product.

**Hazard Symbols:*** Protective Equipment:

**Environmental:** Potential groundwater and surface water contamination (hydrocarbons and metals) if applied to roads or other ground surfaces.

**Health:** Not an inhalation hazard if < 38°C. May cause some skin and tissue irritation.

Management Methods

**Waste Classification:**
- NWT: Non-Hazardous
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Non-Hazardous
- Ontario: Non-Hazardous (252-L)
- Québec: Residual Material

**Storage:** Store in sealed drums at field facility. Larger quantities should be stored in storage tanks equipped with spill containment measures. Used lubricating oil must be segregated from other produced / waste liquids.

**Treatment / Disposal:**
- Send to a lube oil recycling facility. Verify that recycler is licensed to receive and process lube oil.
- Return to supplier for recycling.

**Comments:** Lube oil must be segregated from other waste fluids. Various jurisdictions have specific management requirements for spent lube oil.

**Reportable Release Quantity:**
- NWT: 100 litres
- Alberta: 5 kg or litres
- Saskatchewan: 100 litres (50 litres off-site)
- Manitoba: 100 litres
- Ontario: Any quantity
- Québec: Any quantity

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TDG (includes loading / unloading):</strong></td>
<td>5 kg or L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notes:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Placards:**

**Comments:** Unused (clean) lubricating oils are not regulated under TDG; however, waste lubricating oils, as a result of use in older engines with lead bearings, can contain quantities of metals such as lead, barium or vanadium. Testing may be required. TDG classification and shipping names will depend on specific waste contaminants.

Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Metal - Scrap
Waste Information Sheet

General Information

Original Use: Refers to clean material (pipe, pumps, tanks etc.) which is not contaminated with insulation, asbestos, oil or sulphur. See also Waste Information Sheets on Construction and Demolition Material, Insulation (Asbestos) and Insulation (Non-asbestos).

Physical State: Solids.

Components: Metal (iron, steel, aluminum), traces of organic and inorganic lead, fluorides and other process chemicals.

Potential Hazards

Class (WHMIS): D1A; D2A

MSDS: None.

Hazard Symbols: Protective Equipment:

Environmental: Not considered a hazard. Possible ground or air contamination if not cleaned of hydrocarbon residue.

Health: Trace chemicals may cause skin and throat irritation. Particles may cause eye damage and irritation. Possible toxic fumes generated within enclosed vessels, units, spaces.

Management Methods

Waste Classification:
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

Storage: Store in a low traffic area of field facility. Keep storage area orderly and segregate metals by type for recycling.

Treatment / Disposal: Send to a scrap metal recycler. Ensure no liquid or oil residue prior to sending off site. Drain all liquids from equipment. Wipe liquid from surface where possible. All attempts to recycle must be made. Landfill is last resort.

Comments: Ensure waste is not contaminated with chemicals, oil, asbestos, etc.

Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Ontario: N/A
- Québec: N/A

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Placards: N/A

Comments: If the waste is contaminated with dangerous goods (e.g. equipment has not been cleaned or equipment contains sufficient quantity of liquid hydrocarbons to still classify it as a dangerous good), TDG Regulations may apply. If the cavities within the equipment still contain liquid then the equipment should be classified according to the classification of the liquid and transported as a dangerous good. Seal equipment's orifices prior to transport.

Documentation

Transportation Documents: Truck Ticket or Waybill or Provincial Manifest as appropriate

Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Metal Scrap
Waste Information Sheet
September 2016
# Methanol Waste Information Sheet

## General Information

**Original Use:** Methanol is used for drying pipelines (after hydrotreating) or for winter testing of pipelines to prevent from freezing. See Disposal Comments below for information on Hydrotest Water.

**Physical State:** Low viscosity clear colorless liquid, alcohol-like odour.

**Components:** Methanol – usually < 0.5%.

## Potential Hazards

<table>
<thead>
<tr>
<th>Class (WHMIS):</th>
<th>B2, D1B, D2A, D2B.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MSDS:</strong></td>
<td>Use MSDS of specific components (e.g.; Methanol, Methyl Hydrate).</td>
</tr>
</tbody>
</table>

**Hazard Symbols:**

**Environmental:** Potential groundwater contamination if spilled. Very toxic to aquatic life.

**Health:** Vapours may irritate nose, throat, lungs and cause eye irritation. Methanol is readily absorbed by the skin and may produce nervous system effects.

## Management Methods

**Waste Classification:**

- **NWT:** Hazardous Waste
- **Alberta:** Hazardous Waste/DOW
- **Saskatchewan:** Waste Dangerous Good
- **Manitoba:** Hazardous Waste
- **Ontario:** Hazardous Waste
- **Québec:** Residual Hazardous Material

**Storage:** Store in steel drums or tanks in a well ventilated area away from heat sources.

**Treatment / Disposal:**
- Return to supplier for recycling/recovery.
- Hazardous – Hazardous Waste Management Facility

**Comments:**
If large hydrostatic test requires methanol, consideration should be given to renting methanol water mixture from supplier and returning mixture to supplier when test is completed.

**Reportable Release Quantity:**

- **NWT:** 100 litres
- **Alberta:** 200 kg or litres
- **Saskatchewan:** 500 litres (100 off-site)
- **Manitoba:** 100 litres

**TDG Information**

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHANOL</td>
<td>3 (6.1)</td>
<td>UN1230</td>
<td>II</td>
<td>43</td>
</tr>
</tbody>
</table>

**Placards:** Class 3 (in bulk or over 500 kg)

**Comments:**
- Above TDG classification for pure methanol. If contaminated with non-dangerous goods or mixed with other dangerous goods but methanol in the primary constituent, alternate Shipping Name may apply: FLAMMABLE LIQUIDS, N.O.S. (methanol); Class: 3; PIN: UN1993; Packing Group: II.

## Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

---

**Need further information?**
Contact Enbridge Environment Staff in Edmonton.
### General Information

**Original Use:** Used in drilling operations to stabilize water sensitive formations, improve borehole stability, alleviate mud rings, reduce drill pipe torque and pumping pressure.

**Physical State:** May be oil based or gel chemical viscous liquid.

**Components:** Mixture of hydrocarbons and may contain corrosives.

### Potential Hazards

<table>
<thead>
<tr>
<th>Class (WHMIS):</th>
<th>MSDS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use MSDS of specific drilling mud type.</td>
<td></td>
</tr>
</tbody>
</table>

**Hazard Symbols:**

**Environmental:** Dependent on specific drilling mud type. May be toxic to aquatic species.

**Health:** High vapour concentrations may irritate eyes, skin and breathing, and may result in dizziness and headaches.

**Protective Equipment:**

### Management Methods

**Waste Classification:**

- NWT: Testing Required
- Alberta: Testing Required
- Saskatchewan: Testing Required
- Manitoba: Testing Required
- Ontario: Testing Required
- Québec: Testing Required

**Storage:** Store in a corrosion resistant (plastic or lined) container at field facility. Keep closed. Store in a cool, well ventilated place away from potential sources of ignition or sparks and from high pH materials.

**Treatment / Disposal:** Recycle where possible

**Comments:** Approved Hazardous Waste Management Facility

**Reportable Release Quantity:**

- NWT: Dependent on mud type.
- Alberta: Dependent on mud type.
- Saskatchewan: Dependent on mud type.
- Manitoba: Dependent on mud type.
- Ontario: Dependent on mud type.
- Québec: Dependent on mud type.
- TDG (includes loading / unloading): Dependent on mud type.

### TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
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<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
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<tbody>
<tr>
<td>See TDG Comments Below</td>
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</table>

**Placards:** Dependent on specific drilling mud waste type.

**Comments:** Drilling mud may be water-based, oil-based, gel, or of other non-aqueous based types. Classification and shipping requirements dependent on specific drilling mud waste type. Testing required.

### Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
General Information

Original Use: Maintenance and spill clean-up operations.

Physical State: Oily and dirty cloths.

Components: High concentrations of hydrocarbons, solvents and heavy metals, glycols.

Potential Hazards

Class (WHMIS): B4

MSDS: Use MSDS of specific components (e.g. Crude oil).

Hazard Symbols: Protective Equipment:

Environmental: Flammable - possible ignition of other landfill wastes. Potential groundwater contamination (from hydrocarbons) if disposed to landfill or directly on ground surface. Incineration without flue gas scrubber may produce toxic fumes.

Health: Skin irritation.

Management Methods

Waste Classification:
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Québec: Residual Hazardous Material

NOTE: Above classification unless low flash point, BTEX component or hydrocarbon content.

Storage: Store in drums or containers with loose-fitting lids at field facility (may be provided by cleaning service). Keep in a well ventilated area away from heat sources. Do not mix with other rags used for chemicals.

Treatment / Disposal:
- Send or scheduled pick-up to oily rag cleaning service.
- If rags cannot be recycled, deposit in waste filter bins for removal by waste contractor. May be landfilled with knowledge of waste contractor and landfill operator.

Comments:
- In provinces where oily rags are considered to be non-hazardous, they can be recycled through a cleaning or drycleaning service. However the cleaning effluent may pose a worse environmental contamination. Question the cleaner’s operations on how its effluent is being disposed.

Reportable Release Quantity:
- NWT: 25 kg
- Alberta: 25 kg or litres
- Saskatchewan: 100 kg (50 kg off-site)
- Manitoba: 1 kg
- Ontario: Any quantity
- Québec: Any quantity

TDG Information

Shipping Name
SOLIDS CONTAINING FLAMMABLE LIQUID N.O.S.
(“Technical Name”)

Class: 4.1

PIN: UN 3175

Packing Group: II

Special Provisions: 16,56

Placards: Class 4.1 as appropriate (in bulk or over 500 kg).

Comments: If the rags are heavily oiled, they should be considered as a solid containing a flammable liquid. If dripping, they may be a FLAMMABLE LIQUID, N.O.S. Rags which are contaminated with other substances (e.g. chemicals) may also be TDG regulated. Depending on the level and type of contamination, oily rags may be considered spontaneously combustible, Class 4.2. Testing may be required.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

Company Records: Maintain a copy of all waste information (i.e., manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
### General Information

**Original Use:** Crude oil production, pipeline transmission, and heavy oil production. Generated from pipeline cleaning operations that have pig receiving facilities and from cleaning and emptying pipeline strainer baskets

**Physical State:** Liquid or wax.

**Components:** Hydrocarbon paraffin, demulsifiers.

### Potential Hazards

**Class (WHMIS):** B2; B3; or B4  
**MSDS:** Hydrocarbon related MSDSs.

**Hazard Symbols:**

**Protective Equipment:**

#### Environmental

Potential groundwater contamination if liquids are improperly contained in unlined ponds and pits. Hazardous air emissions if non-approved burn disposal. Potential groundwater and/or surface water contamination, vegetation damage if wax residuals applied to ground or roads.

#### Health

Not an inhalation hazard if < 38°C. High vapor concentration may irritate nose. Slight skin irritations.

### Management Methods

#### Waste Classification:

- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste (251-I)
- Québec: Residual Hazardous Material

#### Storage:

Contain in drums or other steel containers at field facility. Keep away from ignition and heat sources.

#### Treatment / Disposal:

- Send to a licensed oilfield reclaimer for product recovery.
- Recycle: Liquids - 100% of waste from crude oil pipelines may be recycled to crude oil slop tanks. Oil reclamation, with recycle to pipeline, followed by disposal of solids.
- Waxes - 100% of waste from crude oil pipelines may be recycled to refinery cooker units, diluted with hot oils and mixed with crude stream.

#### Reportable Release Quantity:

- NWT: 100 litres
- Alberta: 200 litres
- Saskatchewan: 100 litres
- Manitoba: 100 litres
- Ontario: Any quantity
- Québec: Any quantity
- TDG (includes loading / unloading): 200 litres

### TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>See TDG Comments below.</td>
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</tr>
</tbody>
</table>

**Placards:**

- If wax only with flash point >60°C, then not regulated if leachate test is OK.
- If ≤ 60°C, use FLAMMABLE LIQUIDS, N.O.S. (petroleum crude oil), Class 3, UN 1993, Packing Group II or III (establish packing group from flash point and boiling point tests).
- A representative wax sample should have tests performed to determine the possible leachates it may generate or its flammability. If wax test results meet TDG criteria, the wax could be classed as flammable or leachate toxic.

### Documentation

- **Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
- **Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?  
Contact Enbridge Environment Staff in Edmonton.
## General Information

**Original Use:** Coating applied to underground pipes, pipe joints, fittings, couplings, etc. to protect the metal surfaces from corrosion.

**Physical State:** Pliable, coated fabric or other pliable material in a wound roll, resembling a roll of tape. May also be in the form of a viscous liquid or sludge.

**Components:** Various substances; may include epoxies, phenols, polyaromatic hydrocarbons, asbestos and/or PCBs.

## Potential Hazards

### Class (WHMIS):
Dependent on specific coating type.

### MSDS:
Use MSDS of specific coal tar wrap type.

### Hazard Symbols:

### Protective Equipment:

#### Environmental:
Coal tar is a known carcinogen to human and animal life.

#### Health:
Various exposure limits dependent on the type of coal tar coating. May cause minor skin and eye irritation. Under fire conditions, may emit irritating/toxic fumes.

## Management Methods

### Waste Classification:
- NWT: Hazardous Waste
- Alberta: Dangerous Oilfield Waste
- Saskatchewan: Hazardous Waste
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste
- Québec: Residual Hazardous Material

**Testing required.** Dependent on specific waste chemical.

### Storage:
Store in a dry environment, away from continuous direct sunlight. Keep in original manufacturers packaging until ready to use.

### Treatment / Disposal:
- Send to an appropriate waste management facility.
- Following appropriate disposal procedures if asbestos containing.

### Comments:
Avoid over supply.

### Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Manitoba: N/A
- Ontario: N/A
- Québec: N/A

TDG (includes loading / unloading): N/A

Dependent on specific waste chemical. If product was originally supplied as a dangerous good, then waste chemical is also a dangerous good. Use Shipping Name, Class, PIN, etc. of original shipment, unless original chemical properties have changed or contaminated with another dangerous good. If a mixture or solution of two or more dangerous goods, verify TDG Information with the Enbridge Environment Staff.

## Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Sewage
Waste Information Sheet

General Information

Original Use: Human and waste water sewage generated at camp and office facilities.
Synonyms: Biological wastes, black water.
Physical State: Liquid to sludge.
Components: Biological wastes, chlorine, sodium, and heavy metals.

Potential Hazards

Class (WHMIS): Not Available
MSDS: Not Available
Hazard Symbols: Protective Equipment:

Environmental: Heavy metals can severely contaminate soils, surface water and groundwater. Generated gases can be flammable.
Health: Untreated sewage effluent can provide a medium for epidemic causing bacteria.

Management Methods

Waste Classification:
NWT: Non-Hazardous Waste
Alberta: Non-Hazardous Waste/Non-DOW
Saskatchewan: Non-Hazardous Waste
Manitoba: Non-Hazardous Waste
Ontario: Non-Hazardous Waste
Québec: Residual Material

Storage: Contain in tanks or separate lined ponds.

Treatment / Disposal:
• Water conservation (usage and leak surveys). Effluent irrigation is viable but requires capital investment and engineering design (and applicable approvals/permits).
• Primary, secondary and tertiary treatment for water recovery, however larger capital investment required.
• Septic tanks and transport (if required) to local sewage treatment facility, if available, by commercial carrier. Sewage is usually regulated by the provincial public health act and/or clean water legislation.

Reportable Release Quantity:
The following release quantities apply if there was not an approval in place to discharge sewage.
NWT: Any quantity
Alberta: Any quantity
Saskatchewan: Any quantity
Manitoba: Any quantity
Ontario: Any quantity
Québec: Any quantity

TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not TDG Regulated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Placards: N/A
Comments: If the waste is contaminated with dangerous goods, TDG Regulations may apply. Be aware of specific legislation applying in each province/territory to the disposal of sewage. Sewage is usually regulated by the provincial public health act and/or clean water legislation.

Documentation

Transportation Documents: Truck Ticket or Waybill or Provincial Manifest as appropriate
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
# Sludge - Chemical

## General Information

**Original Use:** Laboratory sump. Has various synonyms.

**Physical State:** Liquid sludge

**Components:** Various - dependent on specific analysis.

## Potential Hazards

<table>
<thead>
<tr>
<th>Class (WHMIS):</th>
<th>MSDS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2; B3; B4; C; D; or E - dependent on specific analysis</td>
<td>Various - dependent on specific analysis.</td>
</tr>
</tbody>
</table>

**Hazard Symbols:**

![Hazard Symbols]

**Protective Equipment:**

- **Environmental:** Potential soil, surface water and groundwater contamination.
- **Health:** Treat as a possible severe health hazard. May cause skin, eye and respiratory irritation.

## Management Methods

### Waste Classification:

- **NWT:** Hazardous Waste
- **Alberta:** Hazardous Waste/DOW
- **Saskatchewan:** Waste Dangerous Good
- **Manitoba:** Hazardous Waste
- **Ontario:** Hazardous Waste
- **Québec:** Residual Hazardous Material

**Storage:** Leave in-situ or store in lined ponds or in tanks/barrels. Segregate from other waste sludges.

**Treatment / Disposal:**


**Comments:** Treatment and disposal depends on specific analysis. Avoid long term collection of sludge - non-hazardous

## TDG Information

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWT: Hazardous Waste</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alberta: Hazardous Waste/DOW</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Saskatchewan: Waste Dangerous Good</td>
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<td>-</td>
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<tr>
<td>Manitoba: Hazardous Waste</td>
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<tr>
<td>Ontario: Hazardous Waste</td>
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<td>-</td>
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<tr>
<td>Québec: Residual Hazardous Material</td>
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</tbody>
</table>

**Placards:** Dependent on TDG Classification

**Comments:** Dependent on specific sludge analysis. Contact Enbridge Environment Staff.

## Documentation

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

---

Need further information? Contact Enbridge Environment Staff in Edmonton.
**General Information**

**Original Use:** Oil production, transportation and storage operations. Waste sludge from the bottom of crude oil storage tanks, separators, inlet separators, slop tanks, flare knockouts, etc.

**Physical State:** Black viscous liquid sludge (semi-solid). Strong hydrocarbon odor.

**Components:** Hydrocarbons, asphaltenes, corrosion inhibitors, iron oxides, iron sulphides, sand, silt.

**Potential Hazards**

**Class (WHMIS):** B4

**MSDS:** Use MSDS of specific components (e.g.; Crude oil, iron sulphide).

**Hazard Symbols:**

**Protective Equipment:**

**Environmental:** Waste characterization required to identify pollution concerns. Potential surface, groundwater, and soil contamination. Toxic leachate from possible high lead levels.

**Health:** Not an inhalation hazard if < 38°C. May cause skin, eye, and respiratory irritation.

**Management Methods**

**Waste Classification:**
- NWT: Hazardous Waste
- Alberta: Hazardous Waste/DOW
- Saskatchewan: Waste Dangerous Good
- Manitoba: Hazardous Waste
- Ontario: Hazardous Waste (251-I)
- Québec: Residual Hazardous Material

**Storage:**
- Large volumes may be temporarily stored in lined pits. For lesser volumes store in tanks or barrels.

**Treatment / Disposal:**
- Send to a licensed reclaimer for product recovery and disposal.
- Send to a waste contractor for potential treatment and disposal.
- Spread and treat waste on-site. Contact Enbridge Environment Staff.

**Comments:**

**Reportable Release Quantity:**
- NWT: 100 litres (liquid); 25 kg (solid)
- Alberta: 2 m³ (or any amount off-site)
- Saskatchewan: 1.6 m³ (or any amount off-site)
- Manitoba: 100 litres (liquid); 1 kg (solid)
- Ontario: Any quantity
- Québec: Any quantity
- TDG (includes loading / unloading): 25 kg

**TDG Information**

<table>
<thead>
<tr>
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<td>See TDG Comments Below</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
</tbody>
</table>

**Placards:** Dependent on specific contaminant.

**Comments:** Classifications for this waste may vary depending on the specific contaminant. This waste is subject to a wide variability in its flammability, corrosiveness and specific chemical components. This waste has to be tested to determine if it meets any of the TDG classification criteria and, if required, a leachate test. Potential classes are 3, 4.1, 4.2.

**Documentation**

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Spent Abrasives -
Containing Paint Coating (Lead or Chromium)
Waste Information Sheet

General Information

Original Use: Paint coating on tanks and equipment.
Physical State: Solids
Components: Silica sand or metal shot containing abraded paint coating. Coating may contain lead or chromium. When used on pipes covered with coal tar and/or asbestos, refer to the corresponding WIS Pipe Coating (Coal Tar Wraps) and/or Asbestos.

Potential Hazards

Class (WHMIS): MSDS:
Hazard Symbols: Protective Equipment:
Environmental: May contaminate soil, surface water and groundwater.
Health: Breathing of particulate may cause respiratory complications. Skin and eye irritants.

Management Methods

Waste Classification:
NWT: Testing Required
Alberta: Testing Required
Saskatchewan: Testing Required
Manitoba: Testing Required
Ontario: Testing Required
Québec: Testing Required

Storage: Store abrasive in original container prior to use. Store spent abrasive in container or tank lot prior to disposal.

Treatment / Disposal: Hazardous Waste Management Facility - possible landfill that will receive hazardous wastes - confirm with waste contractor and landfill operator.

Comments: Spent abrasive should be analyzed for leachate (TCLP) content prior to disposal (lead, chromium, total hydrocarbon). Leachate criteria varies in different provinces. If required, consult Enbridge Environment Staff for appropriate leachate criteria.

Reportable Release Quantity:
NWT: 5 kg or litres
Alberta: 5 kg or litres
Saskatchewan: 2 kg
Manitoba: 5 kg or litres
Ontario: Any quantity
Québec: Any quantity
TDG (includes loading / unloading): 5 kg or litres

TDG Information

Shipping Name | Class | PIN | Packing Group | Special Provisions
---|---|---|---|---
See TDG Comments Below | - | - | - | -

Placards: Dependent on specific contaminant.
Comments: Testing required. Classifications for this waste may vary depending on the specific contaminant.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Spent Abrasives -
Containing Paint Coating (Lead or Chromium)
Waste Information Sheet
September 2016
Tape - Denso
Waste Information Sheet

General Information

Original Use:
- Tape: Pipeline water-proofing and protection against corrosion.
- Paste: Priming metal prior to the application of anti-corrosion (Denso) tape.
- Synonyms: Denso Paste.

Physical State:
- Brown paste or brown paste impregnated tape.

Components:
- Tape: Hydrocarbon was (petrolatum), china clay and polyester fibre fabric.
- Paste: China clay and petrolatum (petroleum jelly).

Potential Hazards

Class (WHMIS): Not a controlled product.

MSDS: Denso paste and Denso tape.

Hazard Symbols: Protective Equipment:

Environmental: Combustion will produce carbon monoxide and carbon dioxide.

Health: Prolonged and repeated contact may irritate skin.

Management Methods

Waste Classification:
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

Storage: Store in original supplier packaging/containers. Store in cool conditions. Avoid heat and flame.

Treatment / Disposal:
Non-hazardous: Landfill - for large waste quantities contact landfill operator in advance.

Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Manitoba: N/A
- Ontario: N/A
- Québec: N/A

TDG Information

Shipping Name: Not TDG Regulated

Class: N/A

PIN: N/A

Packing Group: N/A

Special Provisions: N/A

Placards: N/A

Comments: If the waste is contaminated with dangerous goods, TDG Regulations may apply.

TDG Information

Transportation Documents: Truck Ticket or Waybill or Provincial Manifest as appropriate

Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.
Tires
Waste Information Sheet

General Information

Original Use: Automobile and truck tires. Used tires for pipe supports in pipeline construction. Synonyms: Rubber.
Physical State: Solid
Components: Rubber, Steel belt, additives.

Potential Hazards

Class (WHMIS): Not a controlled product.
MSDS: Not applicable.
Hazard Symbols: 
Protective Equipment: 

Environmental: Non-biodegradable or crushable.
Health: No hazards.

Management Methods

Waste Classification:
- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste
- Québec: Residual Material

Storage: Store in neat short stacks with space between rows - not in a haphazard pile. Do not store for extensive time periods. Avoid rainwater collection.

Treatment / Disposal: Most provinces have a tire recycling program in place. Perform vehicle maintenance at service stations with a tire recycling program in place.
Comments: Ensure that tires are segregated at landfill. Possible spontaneous combustion in landfills due to air cavities - non-biodegradable or crushable.

Reportable Release Quantity:
- NWT: N/A
- Alberta: N/A
- Saskatchewan: N/A
- Ontario: N/A
- Québec: N/A
- Manitoba: N/A

TDG Information

Shipping Name: Not TDG Regulated
Class: N/A
PIN: N/A
Packing Group: N/A
Special Provisions: N/A
Placards: N/A
Comments: If the waste is contaminated with dangerous goods, TDG Regulations may apply.

Documentation

Transportation Documents: Truck Ticket or Waybill or Provincial Manifest as appropriate
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Tires
Waste Information Sheet
September 2016
Wash Fluids - Solvents
Waste Information Sheet

General Information

Original Use: Waste includes solvents from equipment cleaning operations.
Components: Tetra and trichloroethylene, xylene, acetone, ethyl acetate, methyl isobutyl ketone, n-butyl alcohol, cyclohexane, methanol, cresols, creisyl acid, toluene, carbon disulphide, isobutane, pyridine, ammonia based substances and hydrocarbon bases (kerosene).

Potential Hazards

Class (WHMIS): D2A, B2
MSDS: Use MSDS of specific wash components.
Hazard Symbols:
Protective Equipment:

Environmental: A highly mobile waste stream. Potential for groundwater and soil contamination. Possible toxic vapors and fire hazard with on-site recycling operations.
Health: May cause skin, eye and respiratory irritation. Most solvents are toxic.

Management Methods

Waste Classification:
NWT: Hazardous Waste
Alberta: Hazardous Waste/DOW
Saskatchewan: Waste Dangerous Good
Manitoba: Hazardous Waste
Ontario: Hazardous Waste
Québec: Residual Hazardous Material

Storage: Store in closed tanks or sealed drums at field facility. Keep containers closed and away from sources of heat and ignition. Store unused fluids in original containers inside of sealed drums with sorbents.

Treatment / Disposal:
• Hydrocarbon / solvent / crude oil mixtures may be recycled.
• Send to a licensed solvent recycler.
• Send to a Hazardous Waste Management Facility

Comments:
• Use non-hydrocarbon based wash fluids when possible. Do not use chlorinated hydrocarbons (e.g. methylene) as cleaning solvents.
• Halogenated organic solvents must be segregated from all other waste streams.

Reportable Release Quantity:
(if Class 3)
NWT: 100 litres
Alberta: 200 litres
Saskatchewan: 25 litres (5 litres off-site)
Manitoba: 100 litres
Ontario: Any quantity
Québec: Any quantity
TDG (includes loading / unloading): 200 litres

Reportable Release Quantity:
(if Class 6)
NWT: 5 kg or litres
Alberta: 5 kgs or litres
Saskatchewan: 25 litres (5 litres off-site)
Manitoba: 50 litres (10 litres off-site)
Ontario: Any quantity
Québec: Any quantity
TDG (includes loading / unloading): 5 kgs or litres

TDG Information

Shipping Name  Class  PIN  Packing Group  Special Provisions
See TDG Comments below. - - - -

Placards: Class 3, 6, 8 or 9 as appropriate (in bulk or over 500 kg.).
Comments: Solvents can be classified as Flammable Liquids (Class 3), Poisonous (Class 6), and Corrosive (Class 8). Refer to supplier information for TDG classification.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.
Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Wash Fluids – Solvents
Waste Information Sheet
September 2016
**General Information**

**Original Use:** Waste includes water used for equipment, buildings and process area water / steam cleaning and maintenance, drains, and runoff water.

**Physical State:** Liquid.

**Components:** Water, iron oxides, calcium carbonate, sand / silt, trace hydrocarbons, crude oil, lube oil, salts, metals (lead, chromium, thallium).

**Potential Hazards**

<table>
<thead>
<tr>
<th>Class (WHMIS):</th>
<th>D2A</th>
<th>MSDS:</th>
<th>Use MSDS of specific wash components.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Symbols:</td>
<td>![Symbol]</td>
<td>Protective Equipment:</td>
<td>![Symbol]</td>
</tr>
</tbody>
</table>

**Environmental:** Potential groundwater contamination (from hydrocarbon and metal leaching) if improperly stored in an unlined pond. Potential surface water and soil contamination.

**Health:** Not an inhalation hazard if < 38°C. High vapor concentrate may irritate nose and throat. Slight skin irritations.

**Management Methods**

**Waste Classification:**
- NWT: Testing Required
- Alberta: Testing Required
- Saskatchewan: Testing Required
- Ontario: Testing Required
- Québec: Testing Required

**Storage:** Process wash waters are usually handled in a closed system (sumps). For open systems contain in drums or, if necessary, in lined ponds (if no possibility of mixing with other water).

**Treatment / Disposal:**
- Dispose to slop system.
- If significant quantities, send to third party disposal well.
- Contact Enbridge Environment Staff for assistance

**Comments:** Recover hydrocarbons before disposal. Minimize the generation of mists or vapours.

Waste waters with more than 3% oils may allow for the recovery of hydrocarbons at approved reclaimers or via on-site separation equipment.

<table>
<thead>
<tr>
<th>Reportable Release Quantity:</th>
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</thead>
<tbody>
<tr>
<td>NWT: 5 kgs or litres</td>
</tr>
<tr>
<td>Alberta: 5 kgs or litres</td>
</tr>
<tr>
<td>Saskatchewan: 5 kgs or litres</td>
</tr>
<tr>
<td>Manitoba: 5 kgs or litres</td>
</tr>
<tr>
<td>Ontario: Any quantity</td>
</tr>
<tr>
<td>Québec: Any quantity</td>
</tr>
</tbody>
</table>

**TDG Information**

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>Class</th>
<th>PIN</th>
<th>Packing Group</th>
<th>Special Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>See TDG Comments Below</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Placards:** Dependent on specific contaminant.

**Comments:** Classifications for this waste may vary depending on the specific contaminant and is dependent on the nature of cleaners and surfaces cleaned. If waste is commingled with other produced waters then use the classification for produced water. If separated (not commingled), the TDG classification is dependent on the nature of the cleaners used and other contaminants (hydrocarbons).

**Documentation**

**Transportation Documents:** TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

**Company Records:** Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information?
Contact Enbridge Environment Staff in Edmonton.

Wash Fluids – Water
Waste Information Sheet
September 2016
General Information

Original Use: Wash waters, cooling waters, buildings, drains, steam cleaning operations and may include run-off water. Collected in sumps. Synonyms: Waste water, waste water pond water, run-off holding pond water, roof run-off water, steam cleaning water.

Physical State: Liquid

Components: Water, iron oxides, calcium carbonate, sand/silt, oil and grease, trace metals (lead, chromium, thallium), BTEX.

Potential Hazards

Class (WHMIS): B4

MSDS: Crude Oil.

Hazard Symbols: Protective Equipment:

Environmental: Waste may contain polyaromatic hydrocarbons and volatile which will generate toxic fumes during decomposition of the waste. May also contain trace metals and sulfides. Potential groundwater contamination (metals, hydrocarbons) if stored in an unlined pond.

Health: Not an inhalation hazard below 38°C. High vapour concentrate may irritate nose. Slight skin irritations.

Management Methods

Waste Classification:

- NWT: Non-Hazardous Waste
- Alberta: Non-Hazardous Waste/Non-DOW
- Saskatchewan: Non-Hazardous Waste
- Manitoba: Non-Hazardous Waste
- Ontario: Non-Hazardous Waste (251-L)
- Québec: Residual Material

NOTE: Above classification unless low flash point, BTEX or hydrocarbon content.

Storage:

Oil water should usually be handled in a closed system. Store in tanks. If necessary, impervious earthen/lined ponds if there is no possibility of mixing with other waters.

Treatment / Disposal:

- Waste waters containing more than 3% oils may allow for the recovery of hydrocarbons at approved reclaimers.
- Deep Well Disposal. Possible watershed release after treatment and approval from government environment department. Contact Enbridge Environment Staff for assistance.

Comments:

The construction and operation of any facilities designed for the treatment of waste waters will require approval by the provincial environmental agency.

Reportable Release Quantity:

- NWT: 100 litres
- Alberta: 200 litres
- Saskatchewan: Any quantity
- Manitoba: 100 litres
- Ontario: Any quantity
- Québec: Any quantity
- TDG (includes loading / unloading): 200 litres

TDG Information

Shipping Name: See TDG Comments Below

Class: -

PIN: -

Packing Group: -

Special Provisions: -

Placards: Dependent on specific contaminant.

Comments: Generally not TDG regulated. However, the TDG classification is dependent on the hydrocarbon content (flammable) and leachate test. If hydrocarbon contents are high the waste may be Classed as; FLAMMABLE LIQUIDS, N.O.S. ("Technical Name"), Class 3, UN 1993.

Documentation

Transportation Documents: TDG Shipping Document or provincial Manifest / Movement Document, as appropriate.

Company Records: Maintain a copy of all waste information (i.e. manifests, shipping documents, disposal agreements) at the ENBRIDGE Field or Region office.

Need further information? Contact Enbridge Environment Staff in Edmonton.
Appendix B

Village of Fort Simpson Authorization Letter
February 15, 2018

Owen Rowe
Chief Operating Officer
Village of Fort Simpson
Fort Simpson, NT X0E 0N0

MICHELS CANADA – CAMP AND ENBRIDGE LINE 21 SECTION REPLACEMENT

This will confirm our earlier conversation that you may bring household garbage from the camp to our landfill and you are allowed to dispose of trucked sewage at the WWTP. The Village as well acknowledges that you are able to access bulk water from the water treatment plant.

William C. Bennett
Senior Administrative Officer
Village of Fort Simpson