

APPENDIX J

Petroleum-Contaminated Soil Management Plan

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**Enbridge Energy, Limited Partnership
Enbridge Pipelines (Southern Lights) L.L.C.**

**Petroleum-Contaminated Soil
Management Plan**

**Alberta Clipper
and
Southern Lights Diluent
Pipeline Projects**

March 20, 2009

Enbridge Energy, Limited Partnership
Enbridge Pipelines (Southern Lights) L.L.C.
Petroleum-Contaminated Soil Management Plan

TABLE OF CONTENTS

Introduction.....	1
Spills.....	1
Identification of Petroleum-Contaminated Soil	1
Containment.....	1
Documentation.....	2
Reporting.....	2
Backfilling.....	3
Site Investigation and Disposal of Petroleum-Contaminated Soil.....	3
Release Site Summary 1996-2008	3

Figures

- Figure 1. Action and Notification Procedures
- Figure 2. Contaminated Soil Field Data Form

Attachments

- North Dakota Environmental Incident Report Form (web page)
- Minnesota Pollution Control Agency – Reporting Spills and Leaks
- Wisconsin BMP Field Manual; Chapter 4—Fuels, Lubricants, Waste and Spills

Introduction

While unlikely, there is the potential for encountering petroleum-contaminated soil during pipeline construction projects. Several petroleum releases have occurred along the pipeline route and petroleum-contaminated soil may remain in place from these historic releases. A listing of the historic releases along the route is presented in below, along with the location and other pertinent information for each release. In addition to the historic release sites listed below, it is possible, but unlikely, that petroleum-contaminated soil may be encountered as a result of unreported or unknown Enbridge releases or releases/spills by other parties.

This Petroleum-Contaminated Soil Management Plan describes the procedures which the environmental inspector must follow upon encountering contaminated soil during pipeline construction.

Spills

New spills shall be managed in accordance with the project-specific Spill Prevention, Containment, and Control Plan and Enbridge's Environmental Mitigation Plan.

Identification of Petroleum-Contaminated Soil

Petroleum-contaminated soil can be identified by the presence of free oil, oil staining, a petroleum odor, or any combination of these. Free oil is liquid oil in its natural state, which could potentially be drained or otherwise extracted from the soil.

The appearance of oil staining is not always consistent, but varies depending on the nature of the oil, the soil type, and the age of the release. Staining associated with old petroleum contamination often has a greenish hue, but may also be brown or black.

The olfactory sense is the most sensitive instrument for identifying petroleum contamination in the field. Therefore, a petroleum odor may be noted although there is no visible sign of oil or staining. In some instances, decaying organic matter can produce an odor similar to petroleum, but this is rare.

The flowchart presented in Figure 1 identifies the actions and notifications required when petroleum-contaminated soil is encountered. If there is any doubt as to whether soil is petroleum-contaminated, Enbridge Environmental Department staff should be contacted to determine the appropriate action.

Containment

Petroleum-contaminated soil encountered during topsoil stripping or trenching must be contained so contamination is not spread to other soils or to water through infiltration, runoff, or runoff. Enbridge's Environmental Department contact should be consulted to assist in the identification of the suitable location for containment of petroleum-contaminated soils where it will not interfere with pipeline construction, but will be easily accessible for sampling and disposal. In general, petroleum-contaminated soil should be contained on the working side of the trench.

Containment shall be accomplished through the construction of a containment cell consisting of an earthen berm with a plastic liner. Petroleum-contaminated soil shall be placed in the containment

cell and covered with plastic extending outside the bermed area and anchored with clean soil or other material.

The primary purpose of the berm and plastic liner is to prevent any oil or other soil contaminants from escaping. However, it also prevents surface water runoff from contacting the petroleum-contaminated soil and carrying contaminants off site. The plastic cover prevents precipitation from contacting the petroleum-contaminated soil and carrying contaminants off the site. It is important that the plastic cover extend outside the berm so precipitation does not collect within the berm.

Documentation

Information regarding the location and characteristics of any petroleum-contaminated soil must be documented so that further investigation can be completed and the proper reports can be filed with the appropriate state and federal agencies. The initial data collected in the field shall be documented on the Petroleum-Contaminated Soil Field Data Form depicted in Figure 2. An example form is also included in Figure 2.

The key considerations in documenting the occurrence of petroleum-contaminated soil include:

- location (approximate milepost and exact stationing)
- extent of contamination (horizontally and vertically – prepare a sketch including dimensions)
- relative degree of contamination (i.e. free oil with strong odor vs. slight staining)
- impacts to groundwater or surface water (i.e. sheen or free oil on water surface)
- visual documentation (take photographs and complete photo log)

Reporting

Following completion of the Petroleum-Contaminated Soil Field Data Form, the environmental inspector shall contact the appropriate Enbridge Environment Department staff to relay pertinent information. The completed form should then be transmitted to the contact person via facsimile.

Enbridge personnel will notify and/or reports to tribal, state, and federal regulatory agencies as required by applicable laws. Following the initial documentation and reporting, Enbridge Environmental Department staff will mobilize to the site to conduct further investigation and manage the petroleum-contaminated soil.

Contact information for reporting petroleum releases in North Dakota, Minnesota, and Wisconsin is presented in the Webpage downloads that are included as attachments to this document, and is also summarized as follows:

- North Dakota:
 - Department of Health, Environmental Health Section, 701.328.5210 or 5166,
 - Department of Emergency Services, 701.328.8100, or
 - State Radio 24-Hour Hotline, 800.472.2121;
- Minnesota, Duty Officer, 651.649.5451, or 800.422.0798; and
- Wisconsin, 24-Hour Emergency Hotline, 800.943.0003.

Backfilling

Petroleum-contaminated soil shall not be used for backfill without written Enbridge approval. Backfilling in an area containing petroleum-contaminated soil may be completed using clean soil following collection of the appropriate information and documenting that information on the Petroleum-Contaminated Soil Field Data Form. The information collected on the form will allow Enbridge's Environmental Department staff to locate the site and complete further investigation following pipeline construction.

Site Investigation and Disposal of Petroleum-Contaminated Soil

Following the initial documentation and reporting of the presence of petroleum-contaminated soil, Enbridge Environmental Department staff will mobilize to the site to investigate the cause and extent of the contamination and evaluate the environmental risk. Further investigation or excavation may be deemed necessary depending on site conditions, environmental risk, and applicable laws. Typically, further excavation will not take place until pipeline construction has been completed.

Stockpiled petroleum-contaminated soil will either be treated at an off site facility or transported for disposal at a landfill.

Release Site Summary 1996-2008

The purpose of this section is to heighten awareness of the possible presence of petroleum-contaminated soil or groundwater in the path of the Enbridge Alberta Clipper and Southern Lights Diluent Pipeline Projects construction, and set forth a strategy on how to proceed should such an occurrence be realized. Petroleum residuals may be present as remnants of historic releases along the main line or in terminal/station yards. Additionally, impacts may be encountered which are associated with undetected releases, or with releases or spills by other parties.

A listing of the historic releases along the route is presented in Table 1, along with their location and other pertinent information. There were no releases in North Dakota between 1996 and 2008.

Discrete releases along the mainline are dealt with on an individual basis, and those at the terminals are dealt with on a site-wide basis. The following information is provided for each release:

- A release summary table detailing the specifics of the incident (date, volume released, volume recovered);
- Property ownership information;
- Any available figures showing release location; and
- The location shown on the Alberta Clipper and Southern Lights Diluent route sheets.

If petroleum-contaminated soil or water is encountered along the Enbridge right-of-way, Paul Meneghini (715-398-4573) with Enbridge's Environmental Department should be notified immediately. All disposal and regulatory interaction must be coordinated through the Environmental Department in Superior.

Table 1
Mainline Pipeline Incidents – Enbridge (Lakehead) System ^{a/}

Date	City	County	State	Milepost	Product Spilled ^{b/}	Volume Spilled (barrels)	Volume Recovered (barrels) ^{c/}	Primary Cause	Additional Detail/Notes
4/15/96		St. Louis	MN	1044.49	Crude	15.0	12.0	Failed Pipe	
9/16/98			MN	878.10	Crude	5,700	5,415	Outside Force Damage	Damage by Others
10/19/98			MN	878.10	NGL	950	0	Outside Force Damage	Damage by Others
1/16/99	Superior	Douglas	WI	1097.60	NGL	130	30	Corrosion	External
2/22/99			MN	834.50	Crude	400	385	Other	Loose Flange Bolts
11/2/99			MI	1286.00	NGL	5,300	2,750	Outside Force Damage	Natural Forces
11/15/99		Taylor	WI	116.03	Crude	15	14	Other	Original Construction
2/7/00		Clearwater	MN	920.60	Crude	25	10	Failed Weld	
2/23/00		Cass	MN	957.10	Crude	10	5	Other	Pinhole Leak
5/9/00			MN	913.05	Crude	25	20	Other	Failed Repair Sleeve Side Seam Weld
7/22/00		Clearwater	MN	914.10	Crude	50	10	Other	Failed Repair Sleeve Side Seam Weld
1/25/01		Clearwater	MN	918.70	Crude	25	10	Other	Failed Sleeve
3/4/01		Cass	MN	955.05	Crude	25	15	Failed Weld	
7/4/02	Cohasset	Itasca	MN	1002.70	Crude	6,000	2,574	Material / Weld Failure	Pipe Seam Weld
1/24/03	Superior	Douglas	WI	1096.95	Crude	4,500	4,450	Material / Weld Failure	Terminal Leak ^{d/} Pinhole Leak
4/14/03	Trail	Polk	MN	892.95	Crude	125	75	Girth Weld	Earth Movement
2/19/04	Grand Rapids	Itasca	MN	1007.33	Crude	1,003	9	Natural Forces	
12/29/04	Juniata	Tuscola	MI	1677.50	HVL	1	1	Natural Forces	
1/14/05	Rio	Columbia	WI	268.82	Crude	3	3		
4/1/05	Carpentersville	McHenry	IL	379.16	Crude	5	5	Material / Weld Failure	Body of Pipe
12/22/05	Arpin	Wood	WI	182.30	Crude	0.1	0.1	Material / Weld Failure	
1/1/07	Owen	Clark	WI	149.17	Crude	1,500	1,450	Material / Weld Failure	Pipe Seam Weld
2/2/07	Exeland	Rusk	WI	84.9	Crude	3,000	2,534	Operator Excavation Damage	(not 3 rd party)
11/13/07		Clearwater	MN	-914	Crude	2	Unk.	Pinhole Leak in Weld	
11/28/07		Clearwater	MN	-914	Crude	325	Unk.	Under Investigation	
4/8/08	Gonvick	Clearwater	MN	904.89	Crude	6	4.1	Equipment Malfunction	

^{a/} Pipeline system leaks reportable to U.S. DOT, PHMSA 1996-2008. Reporting criteria for leaks changed in 2002 from 50 barrels to 5 gallons.
^{b/} NGL = Natural gas liquids.
^{c/} Initial volume recovered is the free oil and drain-up from pipe with special vacuum equipment and typically returned to the pipeline system. Remaining product in soil recovered by removing soils or other approved methods.
^{d/} Occurred within station/terminal but recorded as off-site release. All other such releases not included (but reported).

Figure 1. Action and Notification Procedures

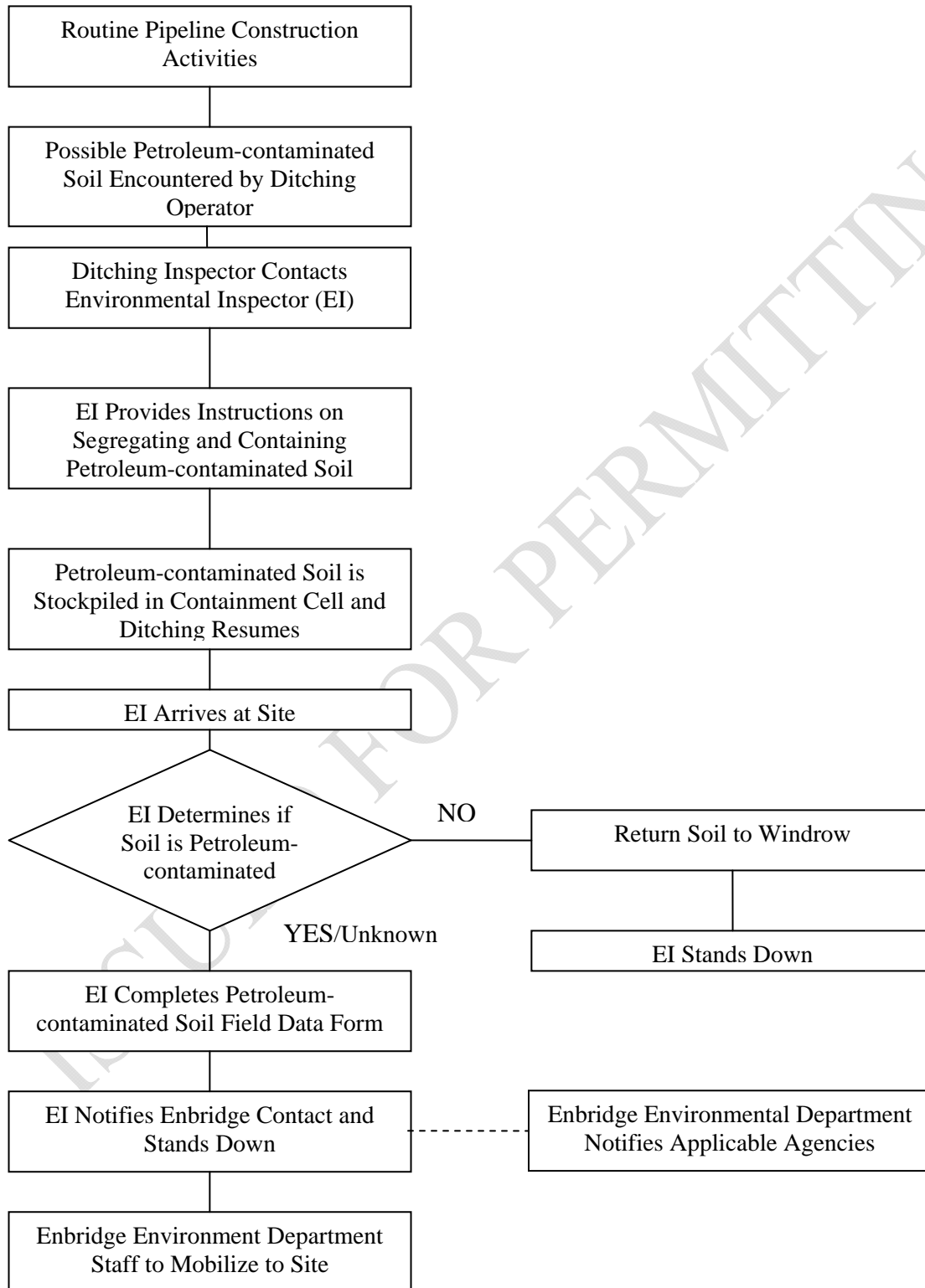


Figure 2. Contaminated Soil Field Data Form

ENBRIDGE ENERGY

Contaminated Soil Field Data Form

Name	Date	Time
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General Site Information

Milepost	Stationing	
Listed Release Site? Yes / No If yes, date of initial release.		
Site Topography: Flat Rolling Hills Mountains Other		
Surrounding Land Use: Forest Agriculture Pasture Residential Urban Other		
Nearest Community or Residence		
Name	Distance	Direction

Soil Information

Soil Type: Gravel Sand Silt Clay Other
Has bermed and lined containment cell been constructed? Yes / No Size
Quantity of Contaminated Soil Excavated and Stockpiled (cubic yards)
Estimated Extent of Contaminated Soil (ft) (horizontal and vertical)
Is impacted soil limited to Right-of-Way? Yes No Unknown
Describe Extent and Location of Contaminated Soil (staining, odor, saturated, etc.).

Groundwater and Surface Water Information

Has groundwater or surface water been impacted? Groundwater Surface Water None		
Is trench water? Groundwater Rain Runoff Unknown No water		
Describe water impacts. (sheen, floating oil, etc.).		
Nearest Surface Water Body		
Name	Distance	Direction

EXAMPLE

ENBRIDGE ENERGY

Contaminated Soil Field Data Form

Name JOE INSPECTOR	Date 4-12-63	Time 1523
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General Site Information

Milepost 182.37	Stationing 6742+25
Listed Release Site? Yes/No <input checked="" type="radio"/> No If yes, date of initial release.	
Site Topography: Flat <input checked="" type="radio"/> Rolling Hills Mountains Other	
Surrounding Land Use: Forest Agriculture <input checked="" type="radio"/> Pasture Residential Urban Other	
Nearest Community or Residence	
Name WATERTOWN Distance 3/8 MILE Direction NW	

Soil Information

Soil Type: Gravel Sand Silt Clay <input checked="" type="radio"/> Other SANDY CLAY
Has bermed and lined containment cell been constructed? <input checked="" type="radio"/> Yes <input type="radio"/> No Size 10' x 15'
Quantity of Contaminated Soil Excavated and Stockpiled (cubic yards) 20 YDS
Estimated Extent of Contaminated Soil (ft) (horizontal and vertical) 35' (ALONG ROW) x 20' x 4' (VERTICAL)
Is impacted soil limited to Right-of-Way? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Describe Extent and Location of Contaminated Soil (staining, odor, saturated, etc.). STAINING VISIBLE IN SURGRADE WHERE TOPSOIL WAS STRIPPED. FREE OIL VISIBLE IN SIDEWALL OF TRENCH AT ~ 2 FT BELOW GRADE SEEPING OUT INTO TRENCH ON SOUTH SIDE. AREA OF FREE OIL IS ABOUT 4" THICK + 3 FT WIDE.

Groundwater and Surface Water Information

Has groundwater or surface water been impacted? Groundwater <input checked="" type="radio"/> Surface Water <input type="radio"/> None
Is trench water? Groundwater <input checked="" type="radio"/> Rain Runoff <input type="radio"/> Unknown <input type="radio"/> No water
Describe water impacts. (sheen, floating oil, etc.). OIL SEEPING OUT SOUTH WALL OF TRENCH INTO SMALL POOL (1' x 2') ON WATER IN TRENCH FROM PREVIOUS DAYS RAIN. SHEEN EXTENDS ~ 20' IN EACH DIRECTION IN TRENCH.
Nearest Surface Water Body
Name WHITE RIVER Distance 1 1/2 MILES Direction SOUTH

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