Enbridge Line 6B MP 608
Marshall, Michigan Pipeline Release
Waste Treatment, Transportation and Disposal Plan

August 2, 2010
(Revised August 8, 2010
per U.S. EPA August 7, 2010, Notice of Approval With Modifications)

SECTION 1 INTRODUCTION

This Waste Treatment, Transportation, and Disposal Plan (Plan) has been prepared for Enbridge Energy, Limited Partnership (Company) for the crude oil release site in Marshall, Michigan **(Figures 1 and 2)**.

1.1 OBJECTIVES

The Plan's objectives are to comply with Federal, State and County waste regulations, prevent or minimize human health and environmental risks associated with managing petroleum contaminated media, and to provide a beneficial reuse of the material where feasible.

1.2 TYPE AND QUANTITY OF WASTE

The released petroleum product is a crude oil. The Material Safety Data Sheet (MSDS) for the product is attached. Released crude oil has impacted soil, surface water, vegetation and potentially sediment. At this time, quantities of impacted media have not been determined.

1.3 EPA IDENTIFICATION NUMBER

The site's EPA Identification Number is MIK752366161, which is assigned to Enbridge Energy Partners, L.P. The Company will follow all waste manifesting and reporting requirements.

OIL RECLAMATION

Recovered crude oil will be transported to the Company's Hartsdale Terminal in Griffith, Indiana, where the quality of the oil will be evaluated. If the oil quality is acceptable, the recovered product will be shipped by pipeline to a refinery for processing. If the oil quality is not acceptable, other options for oil processing and recycling will be evaluated. Currently a profile is being prepared with Dynecol, Detroit for processing/recycling of Recoverable Petroleum Product (RPP).

SECTION 2 WASTE MANAGEMENT

Impacted media requiring treatment and disposal will likely include water, soil, sediment, vegetation and industrial waste generated as a result of recovery efforts. The Company has contracted with a number of waste disposal companies for this response with the capabilities to treat, transport, and dispose of many types of impacted media. Identified disposal companies are listed in **Table 1**, below. The Company may identify additional disposal facilities not currently listed. Any waste vendor used by the Company must first be approved by United States Environmental Protection Agency (U.S. EPA) to be in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Off-Site Rule. The Company will coordinate the compliance check process (40CFR122.3) with Mr. Will Damico, U.S. EPA Region 5 (312-353-8207; Damico.Will@epa.gov). If Mr. Damico (or designate) agrees, written confirmation will be requested by the Company to document U.S. EPA approval.

Following is a summary of potential waste management practices for each impacted media currently expected to be generated at the site.

2.1 WATER TREATMENT AND DISPOSAL

The Company has identified numerous options for the treatment and disposal of wastewater from the site. Other disposal facilities and treatment technologies may be employed as identified by the Company and approved by the U.S. EPA. Results of initial water samples from frac tanks indicate that the concentration of benzene in water exceeds 0.5 milligrams per liter, which under Resource Conservation and Recovery Act (RCRA) regulations would be considered a characteristic hazardous waste.

Currently, mixed oil/water from the release source area, Talmadge Creek and the Kalamazoo River is being recovered and transported to frac tanks staged primarily adjacent to the release site (Division A). Other wastewater streams generated during the project include decontamination water, both at the recovery sites and at the wildlife recovery facility. Initially, the Company proposes to dispose of hazardous water at Dynecol in Detroit, Michigan. According to information provided by Dynecol, its total maximum daily capacity is 144,000 gallons per day, of which 100,000 to 144,000 is generally available to the Company on a day to day basis depending on disposal volumes from other generators. Initial disposal of water as hazardous waste early in the recovery phase facilitates ongoing recovery of oil and impacted water from the source area and can accelerate the recovery phase. The Company proposes to dispose of hazardous water at a RCRA hazardous waste facility until such time as an on-site treatment system is in place and approved by U.S. EPA.

If necessary, the Company is planning for potential deployment of an on-site water treatment system to reduce contaminant concentrations in the wastewater. The system could be used to reduce concentrations to below hazardous levels prior to disposal and may reduce contaminant concentrations to acceptable levels for discharge directly to Talmadge Creek if approved by U.S. EPA. The proposed on-site treatment system will likely consist of a first phase of natural gravity separation of mixed oil and water in the frac tanks, and subsequent treatment of only the water portion with carbon filtration. Once filtered, the treated water will be placed in dedicated frac tanks for filtered water only, characterized and disposed of at an off-site facility or on-site if levels are

acceptable. If suspended solids foul the carbon filtration system, additional components will be added to the treatment system as necessary to abate the particulate concentrations.

The Company has identified a number of potential waste disposal facilities for the water, including several publicly owned treatment works (POTWs) and industrial waste facilities (**Table 1**). Receiving POTW facilities will be approved by U.S. EPA and permits will be completed in accordance with POTW requirements. Treated water will be analyzed as required by the receiving POTW. If acceptable to U.S. EPA, the Company shall pursue on-site discharge of wastewater and attempt to meet Michigan National Pollutant Discharge Elimination System (NPDES) guidelines (40CFR122.3).

The Company also continues to investigate other disposal options through its consultants. Any alternatives will be presented to U.S. EPA for review.

2.2 SOIL TREATMENT AND DISPOSAL

The Company has identified several options for the treatment and disposal of impacted soil from the site. Other disposal facilities and treatment technologies may be employed as identified by the Company and approved by U.S. EPA. Results of initial soil samples are still pending. Impacted soil will be generated from source area excavation and likely from downstream bank and adjacent area cleanup activities.

For impacted soil removed from the source area, solidification of soils will be completed prior to transport through the addition of solidification enhancing material such as sawdust, sand, clay, corn cobs, lime, fluidized bed ash, etc. The impacted soil will be temporarily staged on containment pads located on-site. Currently, three containment pads (cells) are located at the source area and construction of a fourth cell is proposed. Soil solidification cells are constructed with a plastic liner and berms, and soils are appropriately sloped in accordance with best management practices (BMPs). Currently soils are being solidified with sawdust and sand. Any free fluids not contained through the mixing and solidification process are being absorbed directly with sawdust. If this current method proves to not be effective, other suitable sorbent materials and/or BMPs will be utilized as necessary to solidify soils and manage free fluids. Quality control will be performed to ensure that no free flowing fluids are placed into trucks or roll-off boxes. Weekly inspections of the cells will be conducted in accordance with BMPs.

The proposed plan for soil management at the source area relies on transportation of solidified soils in lined roll-off boxes from the source area to a temporary staging area, where the soils will be sampled and characterized for appropriate off-site disposal. This overall strategy facilitates continuous solidification, characterization, and disposal of impacted soils without adversely affecting ongoing operations within the source area. The Company has identified several potential temporary staging areas within the designated EPA Site ID for roll-off boxes and is currently planning for access to a suitable property. As conditions change at the source area, this proposed management strategy is subject to modification with U.S. EPA approval.

If removal of impacted soils is necessary along stream banks in downstream areas, treatment and transportation procedures will depend largely on the configuration of the impacted area. Due to limited space for staging along the stream banks, impacted soil

within the downstream areas will primarily be directly loaded to trucks for disposal. In-situ soils in the downstream area will be sampled, analyzed and characterized prior to loading and disposal at an appropriate facility approved by U.S. EPA. If space is available and soil staging is necessary in downstream impact areas, soils will be staged in accordance with BMPs including lining, sloping, berming, tarping, and collection of free fluids.

Any soils that are determined to be hazardous will be stabilized as necessary, based on the results of analytical sampling. Disposal options available for impacted soil include the following:

Landfilling of non-hazardous soils

Fuel blending, solidification and incineration for hazardous soils

Potential waste vendors identified by the Company for the disposal of hazardous and non-hazardous soil are listed in **Table 1**. Disposal facilities will be approved by U.S. EPA prior to use.

2.3 SEDIMENT TREATMENT AND DISPOSAL

If sediment is removed from the Talmadge Creek and/or Kalamazoo River, it will be disposed of based on analytical results and physical characteristics. If dewatering of sediment is necessary, stabilization may be conducted on-site. A proposed management strategy includes construction of a lined pad for staging and dewatering of sediment. Best management practices will be employed, including appropriate sloping of material and construction of containment berms and a water collection sump. Collected water will be managed in accordance with the wastewater treatment and disposal procedures presented above. If on-site treatment and/or dewatering of sediment are required, a Storm Water and Sediment Management Plan will be developed by the Company and approved by U.S. EPA prior to sediment removal.

2.4 VEGETATION TREATMENT AND DISPOSAL

Vegetative waste generated in the release area and downstream impact areas will likely consist of wetland and shoreline grasses, brush and trees. Depending on moisture content, cut grasses will be directly bagged and placed into roll-off boxes or staged on a pad for dewatering similar to the treatment of sediment discussed above. Disposal of vegetation will depend on analytical sampling results. Options for disposal include landfilling or possible incineration as approved by U.S. EPA.

2.5 INDUSTRIAL WASTE

Industrial waste being generated at the site includes booms, sorbent pads, rags, tools, and personal protective equipment (PPE). Industrial waste is being placed into double-lined dumpsters and staged near the release site. As of July 31, 2010, approximately twenty seven 20-cubic yard dumpsters were staged on-site containing industrial waste. Several waste vendors, pending U.S. EPA approval, have been identified for disposal of industrial waste. Options for disposal include landfilling or possible incineration.

Representative composite samples of industrial waste materials will be collected and analyzed in accordance with the project Sampling and Analysis Plan prior to

transportation and disposal. Analytical results will be used to characterize clean-up materials for appropriate disposal as either hazardous or non-hazardous industrial waste. Analytical results of initial samples from dumpsters are pending.

2.6 TRANSPORTATION

Trucks hauling waste materials from the Division A source area will be routed away from the Marshall population center via southbound Highway 227 and westbound F Drive S (227) to Interstate 69 (I-69). From I-69, trucks have access to eastbound and westbound I-94. The local truck route from the source area to I-69 is depicted in **Figure 3**.

Trucks used for the transportation of impacted soils will be lined, covered, and placarded in accordance with U.S. Department of Transportation (U.S. DOT) requirements and all other applicable State or County requirements. All transporters will satisfy the U.S. DOT requirements for transporting hazardous materials under 49 CFR 172 by carrying a hazardous materials license.

The Company will manage the distribution of all transportation paperwork. A uniform hazardous waste manifest will be used for transportation of all hazardous wastes. Michigan Department of Natural Resources and the Environment (MDNRE) requires use of uniform hazardous waste manifests for industrial liquid waste, including non-hazardous waste. This rule applies to wastewaters processed through treatment systems, such as the proposed carbon filtration system. At this time, it is anticipated that bill of ladings will be used for all other non-hazardous waste streams. Copies of transportation and disposal forms will be distributed to the appropriate agencies within the required timeframes. In addition, copies of all analytical results, bill of ladings, manifest and landban forms will be supplied to U.S. EPA.

2.7 CONTINGENCY PLANNING

As of August 3, 2010, there are approximately ninety 20,000-gallon frac tanks staged at the Frac Tank Farm established off Division Drive near the source area (Division A). Currently individual tanks and collections of tanks have sorbent booms around them. The Company is planning to construct a more comprehensive secondary containment system. A Secondary Containment Plan for the Frac Tank Farm will be developed by August 6, 2010 and submitted to U.S. EPA for review and approval.

If the Company wishes to propose an action, revision or change that is not identified in this Plan, the Company shall request approval of the action, revision or change from the Incident Commander. To initiate the process, a written request will be submitted by the Company to the Incident Commander outlining the proposed action, revision or change to be utilized and the benefits to be derived from its execution. The Incident Commander shall then approve or disapprove in writing or discuss potential alternatives.

2.8 TRACKING AND REPORTING (Added August 8, 2010)

The company will submit on a weekly basis, beginning August 9, 2010, a written report to EPA providing the cumulative amount of oil attributable to Enbridge's pipeline spill in Michigan that

has been sent to Enbridge's Griffith, Indiana location or to any other off-site location. For purposes of this report, the volume of crude oil will be after the Company has separated it from any water. This will be done by gauging the volume of crude oil on the oil/water mixture in each truck that is shipped to the Griffith facility (or any other facility) and then metering the flow of the oil and water into the facility process. The Company shall provide EPA with access to confirm, with independent gauging devices, readings obtained at the Griffith facility. All gauging measurements and petroleum product estimates prior to the establishment of this procedure will be provided as a separate document.

In addition, the above mentioned weekly report will include a summary of crude oil-contaminated soils and contaminated debris waste streams, which have been shipped for off-site disposal. This report will include detail regarding waste profile and supporting data for each waste stream. Such supporting data will include total petroleum hydrocarbon content. Methods for calculating the total petroleum hydrocarbon content will be included with the first report.

Table 1. WASTE MANAGEMENT VENDORS

Wastestream	Disposal Company	EPA ID Number	Treatment Option	Transporter
Waste Water (Hazardous)	Dynecol	MID 074 259 565	Wastewater Treatment	PVS Transportation HM Environmental
Waste Water (Hazardous)	EQ Detroit, Inc	MID 000 724 831 MID 980 991 566	Stabilization, Fuel Blending, Incineration	EQ
Waste Water (Non-Hazardous)	Dynecol , Inc.	MID 074 259 565	Wastewater Treatment	PVS Transportation HM Environmental
Waste Water (Non-Hazardous)	EQ Detroit, Inc.	MID 980 991 566	Recycle/Reclaim	EQ
Waste Water (Non-Hazardous)	Liquid Industrial Waste Services	MID 006 546 121	Wastewater Treatment	LIWS
Waste Water (Non-Hazardous)	Marshall POTW Muskegon POTW Kalamazoo POTW Battle Creek POTW		Waste Water Treatment POTW	LIWS, Clean Harbors, EQ
Hazardous Solids (Dumpsters and Soils)	Envirosafe Services of OH	OHD045243706	Landfill	Safety Kleen
Hazardous Solids (Dumpsters and Soils)	EQ Michigan Disposal	MID 048 090 633	Landfill	EQ
Non-Hazardous Waste Solid	Republic Services C&C Landfill	MID 985 618 420	Landfill	Republic Waste of West Michigan

Figures

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2.7 CONTINGENCY PLANNING

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Waste Water (Hazardous)	EQ Detroit, Inc	MID 000 724 831 MID 980 991 566	Stabilization, Fuel Blending, Incineration	EQ
Waste Water (Non-Hazardous)	Dynecol , Inc.	MID 074 259 565	Wastewater Treatment	PVS Transportation HM Environmental
Waste Water (Non-Hazardous)	EQ Detroit, Inc.	MID 980 991 566	Recycle/Reclaim	EQ
Waste Water (Non-Hazardous)	Liquid Industrial Waste Services	MID 006 546 121	Wastewater Treatment	LIWS
Waste Water (Non-Hazardous)	Marshall POTW Muskegon POTW Kalamazoo POTW Battle Creek POTW		Waste Water Treatment POTW	LIWS, Clean Harbors, EQ
Hazardous Solids (Dumpsters and Soils)	Envirosafe Services of OH	OHD045243706	Landfill	Safety Kleen
Hazardous Solids (Dumpsters and Soils)	EQ Michigan Disposal	MID 048 090 633	Landfill	EQ
Non-Hazardous Waste Solid	Republic Services C&C Landfill	MID 985 618 420	Landfill	Republic Waste of West Michigan

Figures

N

= Calhoun County

= Kalamazoo County

= Enbridge Pipeline

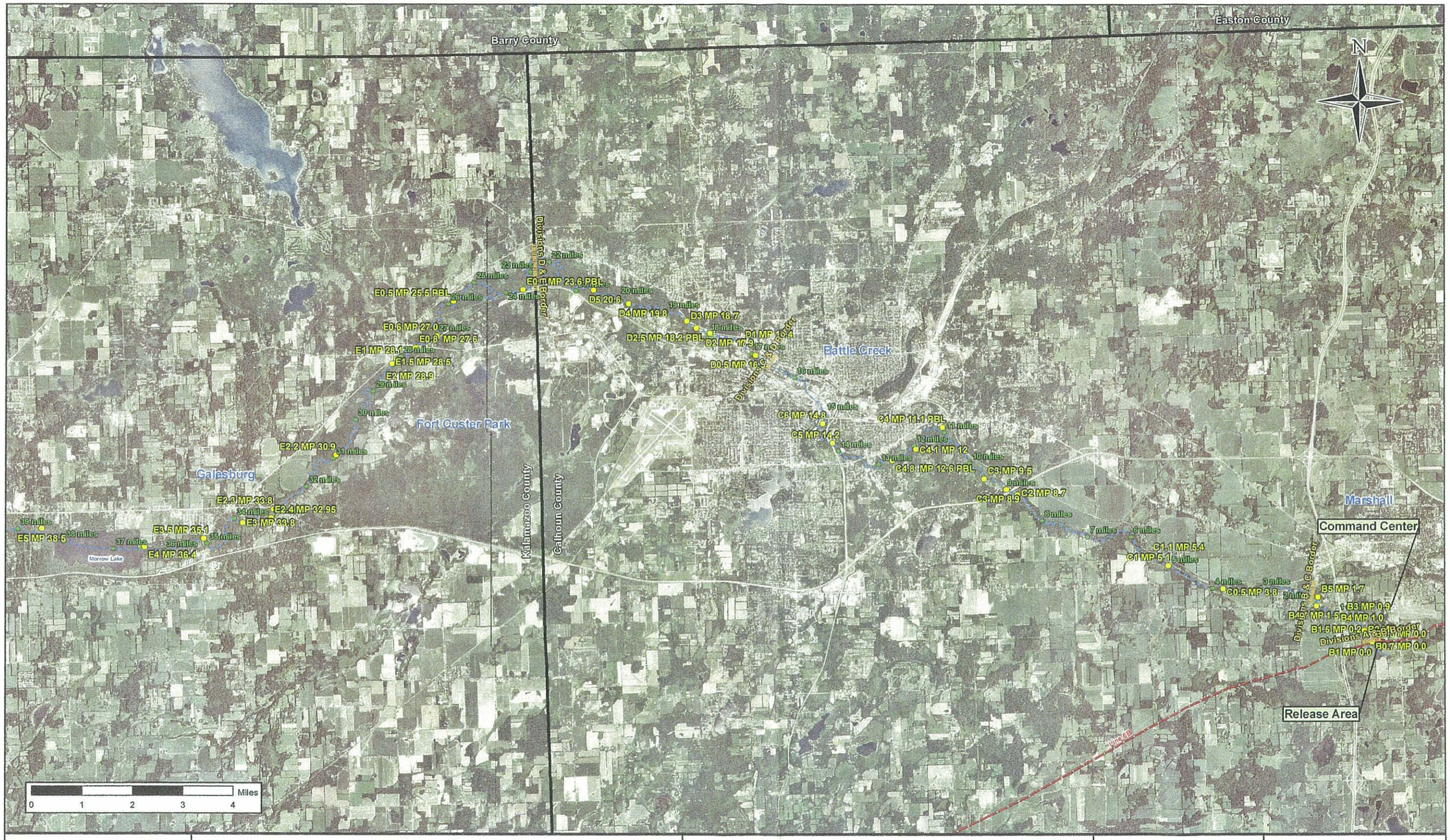
= Leak Site

ENBRIDGE™

0 50 100 150 200 Miles

Enbridge Energy, Limited Partnership
Line 6B MP 608 - Marshall, MI
EPA Report Figures
Figure 1: Site Location

DATE ISSUED: Aug 1, 2010
DATE REVISED:
SCALE: 1:1,500,000
DRAWN BY: NMS/JPM
SERIES: 1 of 3



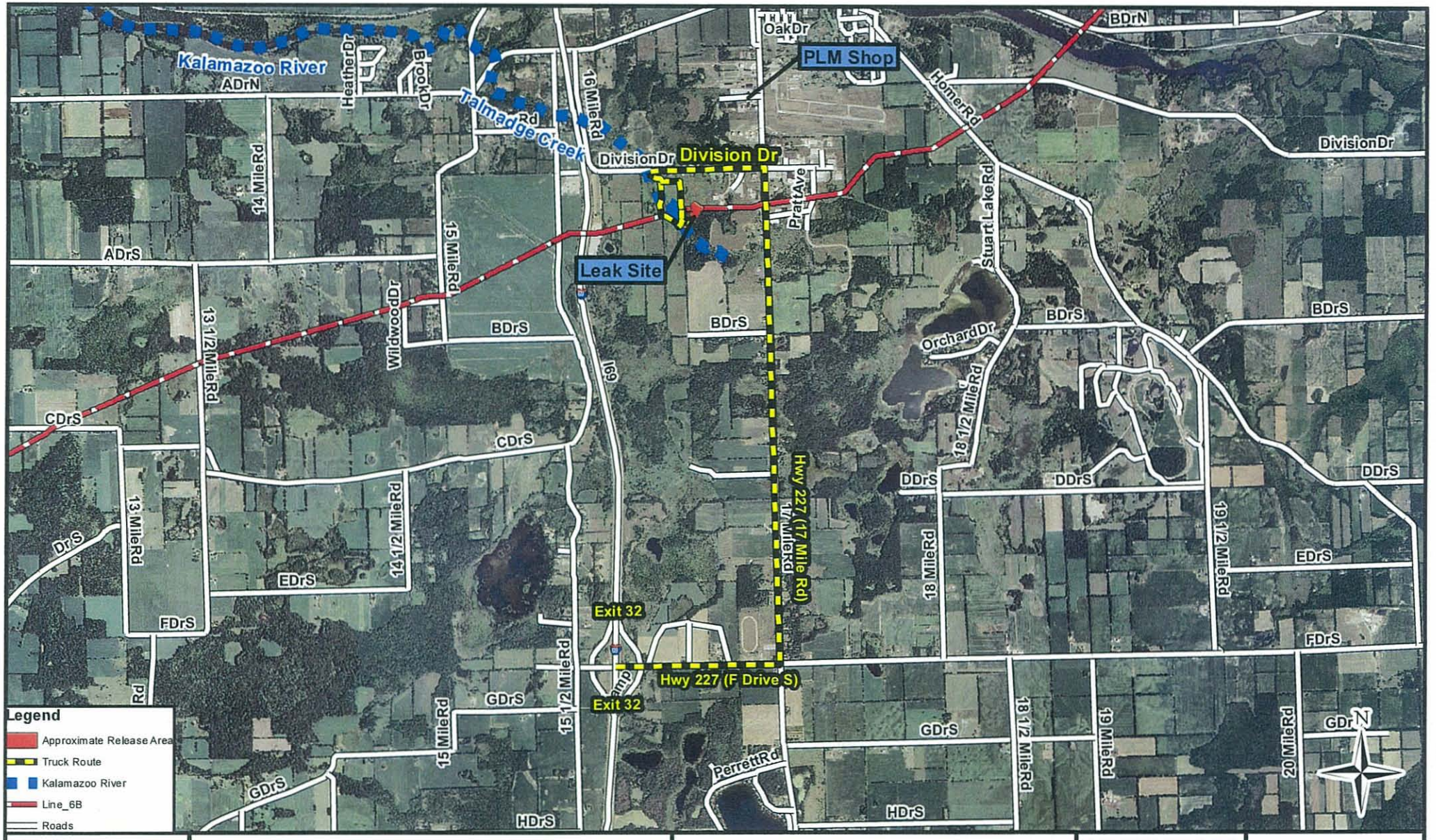
Legend

- Enbridge Pipeline
- River Centerline
- Major Road
- Division Boundary
- ☆ Release Location
- Downstream Milepost
- ○ Containment Site

ENBRIDGE

Enbridge Energy, Limited Partnership
Line 6B MP 608 - Marshall, MI
EPA Report Figures
Figure 2: Site Designation Map

DATE ISSUED:	Aug 1, 2010
DATE REVISED:	
SCALE:	1:60,000
DRAWN BY:	NMS/JPM
SERIES:	2 of 3



ENBRIDGE

Enbridge Energy, Limited Partnership
MP 608 - Marshall, MI
Figure 3: Trucking Route Map
Connecting Leak Site to I-69

DATE ISSUED:	August 1, 2010
DATE REVISED:	
SCALE:	1:52,000
DRAWN BY:	NMS/JPM/JDK
SERIES:	

Attachments

MSDS for Crude Oil

EnCana Corporation Material Safety Data Sheet

Heavy Crude Oil/Diluent Mix - Christina Lake/Foster Creek Page I of 2

SECTION 1 - MATERIAL IDENTIFICATION AND USE

Material Name: HEAVY CRUDE OIL/DILUENT MIX (CHRISTINA LAKE/FOSTER CREEK) Use: Process stream, fuels and lubricants production

WHMIS Classification: Class B, Div. 2, Class D, Div. 2, Sub-Div. A and B NFPA: Fire: 2 Reactivity: 0 Health: 3 TDG Shipping Name: Petroleum Crude Oil TDG Class: 3 UN: 1267

TDG Packing Group: II (boiling point 35 deg. C or above, and Hash point less than 23 deg. C)

Manufacturer/Supplier: ENCANA CORPORATION

//1800, 855 - 2nd Street S.W., P.O. BOX 2850,

CALGARY, ALBERTA, T2P 2S5

Emergency Telephone: 403-645-3333

Chemical Family: Crude oil/condensate mix

SECTION 2 - HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Approximate C.A.S. LD50/LC50 Exposure Ingredients Concentrations (%) Nos. Specify Species Limits & Route

Crude oil 50 - 70 8002-05-9 LD5(),rat, skin>2 g/kg 5 mg/m3 (OF.L.TLV) Hydrocarbon Diluent 30 - 50 N.Av. N.Av. 900 mg/m3 (OKL)* Benzene 0.03 - 0.3 71-43-2 LD50,rat,oral,930 mg/kg I ppm (OEL), LC50,ral,4 hr, 13200 ppm 0.5 ppm (TLV)

I Iydrogcn Sulphide <0.5 7783-06-04 LC50, rat, 4 hrs, 444 ppm 10 ppm (OEL.TLV)

OEL = 8 hr. Alberta Occupational Exposure Limit; TLV = Threshold Limit Value (8 hrs) *OHL for gasoline

SECTION 3 - PHYSICAL DATA FOR MATERIAL

Physical State: Liquid Vapour Pressure (kPa): 2.5 - 36.5 @ 20C

Specific Gravity: 0.65 - 0.75 Odour Threshold (ppm): N.Av.

Vapour Density (air=l): 2.5 -5.0 Evaporation Rate: N.Av.

Percent Volatiles, by volume: 20 - 30 (estimated) Boiling Pt. (deg.C): 40 - 180

pH: N.Av. Freezing Pt. (deg.C): <0

Coefficient of Water/Oil Distribution: O.I

Odour & Appearance: Brown/black liquid, hydrocarbon odour

(N.Av. = not available N.App. = not applicable)

SECTION 4 - FIRE AND EXPLOSION

Flainmability: Yes Conditions: Material will ignite at normal temperatures.

Means of Extinction: Foam, C02, dry chemical. Explosive accumulations can build up in areas of poor ventilation. Special Procedures: Use water spray to cool fire-exposed containers, and to disperse vapors if spill has not ignited. Cut off fuel and allow flame to bum out. Flash Point (deg.C) & Method: <-35 (PMCC)

Upper Explosive Limit (% by vol.): 8 (estimated) Sensitivity to Impact: No

Lower Explosive Limit (% by vol.): 0.8 (estimated) Sensitivity to Static Discharge: Yes, at normal temperatures Auto-Ignition Temp. (deg.C): 250 (estimated) TDG Flammability Classification: 3 Hazardous Combustion Products: Carbon monoxide, carbon dioxide, sulphur oxides

SECTION 5 - REACTIVITY DATA

Chemical Stability: Stable Conditions. Heat

Incompatibility: Yes Substances: Oxidizing agents (e.g. chlorine)

Reactivity: Yes Conditions: Heat, strong sunlight

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, sulphur oxides

SECTION 6 - TOXICOLOGICAL PROPERTIES OF PRODUCT

Routes of Entry:

Skin Absorption : Yes Skin Contact: Yes Eye Contact: Yes Inhalation: Acute: Yes Chronic: Yes Ingestion: Yes

Effects of Acute Exposure: Vapour may cause irritation of eyes, nose and throat, dizziness and drowsiness. Contact with

skin may cause irritation and possibly dermatitis. Contact of liquid with eyes may cause severe irritation/burns. Effects of Chronic Exposure: Due to presence of benzene, long term exposure may increase the risk of anemia and

leukemia. Repeated skin contact may increase the risk of skin cancer. Sensitization to Product: No.

Exposure Limits of Product: I ppm (Alberta 8 hr OEI. for benzene) Irritancy: Yes

Synergistic Materials: None reported

Carcinogenicity: Yes Reproductive Effects: Possibly Teratogenicity: Possibly Mutagenicity: Possibly

SECTION 7 - PREVENTIVE MEASURES

Personal Protective Equipment: Use positive pressure self-contained breathing apparatus, supplied air breathing apparatus or cartridge air purifying respirator approved for organic vapours where concentrations may exceed exposure

limits (note: cartridge respirator not suitable for hydrogen sulphide, oxygen deficiency or IDLH situations) - sec also

Storage below).

Cloves: Viton (nitrile adequate for short exposure to liquid)

Eye: Chemical splash goggles. Footwear: As per safety policy Clothing: As per fire protection policy Engineering Controls: Use only in well ventilated areas. Mechanical ventilation required in confined areas. Equipment

must be explosion proof.

Leaks & Spills: Stop leak if safe to do so. Use personal protective equipment. Use water spray to cool containers. Remove all ignition sources. Provide explosion-proof clearing ventilation, if possible. Prevent from entering confined

spaces. Dyke and pump into containers for recycling or disposal. Notify appropriate regulatory authorities. Waste Disposal: Contact appropriate regulatory authorities for disposal requirements.

Handling Procedures & Equipment: Avoid contact with liquid. Avoid inhalation. Bond and ground all transfers. Avoid sparking conditions.

Storage Requirements: Store in a cool, dry, well ventilated area away from heat, strong sunlight, and ignition sources.

Caution: hydrogen sulphide may accumulate in headspaces of tanks and other equipment, even when concentrations in the

liquid product are low. Overexposure to hydrogen sulphide may cause dizziness, headache, nausea and possibly knockdown

and death. Factors increasing this risk include heating, agitation and contact of the liquid with acids or acid salts. Assess the exposure risk by gas monitoring. Wear air supplying breathing apparatus if necessary. Special Shipping Provisions: N.App.

SECTION 8 - FIRST AID MEASURES

Skin: Flush skin with water, removing contaminated clothing. Get medical attention if irritation persists or large area of contact. Decontaminate clothing before re-use.

Eye: Immediately flush with large amounts of luke warm water for 15 minutes, lifting upper and lower lids at intervals. Seek medical attention if irritation persists.

Inhalation: Ensure own safety. Remove victim to fresh air. Give oxygen, artificial respiration, or CPR if needed. Seek medical attention immediately.

Ingestion: Give 2-3 glasses of milk or water to drink. DO NOT INDUCE VOMITING. Keep warm and at rest. Get immediate medical attention.

SECTION 9 - PREPARATION DATE OF MSDS

Prepared By: EnCana Environment, Health and Safety (EHS)

Phone Number: (403) 645-2000 Preparation Date: October 15, 2008 Expiry Date: October 15, 2011