Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Court Case No.: 15-1411-CE

White Paper:
Evaluation of Line 6B Crude Oil
NAPL Risk based on a Weight of Evidence Approach

Prepared for Michigan Department of Environmental Quality

Enbridge Energy, Limited Partnership

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LIST OF ACRONYMS AND DEFINITIONS

ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
CL	Cold Lake
compositional risk	Risks derived from dissolution of soil gas or dissolved phase groundwater plumes from a NAPL source
Criteria (Criterion)	Part 201 Residential Generic Cleanup Criteria (Criterion)
CSM-January 2015	*Conceptual Site Model – January 2015*, submitted to the MDEQ on January 23, 2015.
cSt	centistoke
CWA	Clean Water Act
DCC	Part 201 Generic Residential Direct Contact Criteria
de minimis	an insignificant impact that poses no risk or cause for concern to human health or the environment that is supported by professional judgement and multiple lines of evidence
DWC	Part 201 Generic Residential Drinking Water Criteria
DWPC	Part 201 Generic Residential Soil Drinking Water Protection Criteria
Enbridge	Enbridge Energy, Limited Partnership
ft	feet
ft^2/day	square feet per day
g/cm^3	grams per cubic centimeter
GSIC	Part 201 Generic Residential Groundwater Surface Water Interface Criteria
GSIPC	Part 201 Generic Residential Groundwater Surface Water Interface Protection Criteria (for soils)
ITRC	Interstate Technology & Regulatory Council
LDB	Left Descending Bank
LIF	laser induced fluorescence
LNAPL	light non-aqueous phase liquid
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department of Environmental Quality
MDEQ Consent Judgment	*Consent Judgment so agreed by the Michigan Department of Environmental Quality, Michigan Department of Attorney General , and Enbridge Energy Partners, L.P.; Enbridge Energy, Limited Partnership; Enbridge Pipelines (Lakehead) LLC; Enbridge Energy Management LLC; Enbridge Energy Company, Inc.; and Enbridge Employee Services, Inc. ordered, adjudged, and decreed pursuant to MCL 324.1701, MCL 324.3109, MCL 324.30112, MCL 324.30316, and MCL 324.20137*, signed May 13, 2015
MDEQ Order	*Administrative Consent Order and Partial Settlement Agreement entered In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq;* signed November 1, 2010
MP	Mile Post
NAPL	non-aqueous phase liquid
NAPL White Paper	*White Paper: Evaluation of Line 6B Crude Oil NAPL Risk Based on a Weight of Evidence Approach*

NSZD	natural source zone depletion
Part 201	Part 201 of Michigan's Act 451 of 1994, as amended
PNAs	Polynuclear Aromatic Hydrocarbons
PTS	PTS Laboratory of Santa Fe, California
RDB	Right Descending Bank
Response Actions	Remedial efforts undertaken to control and collect Line 6B crude oil including: boom, vacuum surface pumping, vegetation removal, raking, surface scraping, and excavation under the direction and supervision of the U.S. EPA and the MDEQ.
RI	Remedial Investigation
Source Area	A subset of the Spill Area that encompasses the pipeline breach and approximately 5 acres of land where the Line 6B crude oil release emerged onto the ground surface.
Spill Area	A Facility created by the July 2010 release of oil from the Enbridge Line 6B pipeline located at or near 16000 Division Drive in Marshall, Michigan, and also areas, places, or property that have been disturbed, destroyed, or otherwise altered as a result of the oil spill or response activities taken to address the oil spill, including but not limited to habitat, vegetation, surface waters, soils, sediments, groundwater, wetlands, floodplains, and overbank areas.
saturated	Soil moisture above atmospheric pressure, i.e. below the water table. For comparison to Part 201 soil Criteria soil, if any portion of a sample is above the saturation level, the sample is considered unsaturated.
saturational risk	Risks derived from a migrating NAPL source
SPLP	Synthetic Precipitation Leaching Procedure
TarGOST®	Tar-Specific Green Optical Screening Tool®
ug/l	micrograms per Liter
U.S. EPA	United States Environmental Protection Agency
UV	ultraviolet
VOCs	Volatile Organic Compounds
WCS	Western Canadian Select
weathering	the collective physical, chemical, and biological processes that degrade the NAPL and render it inert

1.0 Introduction

This *White Paper: Evaluation of Line 6B Crude Oil NAPL Risk Based on a Weight of Evidence Approach* (NAPL White Paper) summarizes the Non-Aqueous Phase Liquid (NAPL) that remains within the Talmadge Creek and the Kalamazoo River watersheds as a result of the release of crude oil from the Enbridge Energy, Limited Partnership (Enbridge) Line 6B pipeline break in July 2010. This NAPL White Paper presents an evaluation of Line 6B crude oil occurrence and corresponding risk, based on a weight of evidence approach. The evaluation is framed in accordance with recent Michigan Department of Environmental Quality (MDEQ) policy and procedure guidance on NAPL included in *Non-Aqueous Phase Liquid (NAPL) Characterization, Remediation, and Management for Petroleum Releases* (MDEQ, 2014) and shows that the remaining NAPL is *de minimis* in scale, isolated, and immobile in overbank soils. The term *de minimis* is not defined by statute or rule. The Merriam-Webster dictionary defines "*de minimis"* as lacking significance or importance: so minor as to merit disregard (Merriam Webster, 2015). Enbridge understands *de minimis* to indicate an insignificant impact that poses no risk to human health or the environment and is supported by professional judgement and multiple lines of evidence.

Following the release, Enbridge performed extensive response activities under the direction of the United States Environmental Protection Agency (U.S. EPA) and the MDEQ to remove oil from the environment and respond to the release. These efforts resulted in the containment, capture, and disposal of the majority of the Line 6B crude oil release-related NAPL.

As part of the response, Enbridge also developed and executed numerous work plans for the affected portions of Talmadge Creek and the Kalamazoo River to characterize the nature and extent of the impact remaining from the Line 6B crude oil release. This includes evaluation of saturational (related to NAPL mobility) and compositional (related to NAPL chemistry) risks of remaining in-place NAPL, consistent with MDEQ policy. Multiple lines of evidence from these investigations indicate that any remaining NAPL in the soil or sediment is *de minimis* in scale, isolated, and immobile. The lines of evidence include the following:

- The lack of dissolved phase crude oil constituents in groundwater (with the exception of minor isolated detections of benzene at the release point in the Source Area),
- Minimal detection of Line 6B crude oil constituents in soil samples at concentrations above MDEQ Part 201 of Michigan's Act 451 of 1994, as amended (Part 201) Criteria,
- Empirical testing of NAPL mobility using industry practices,

- The absence of measurable NAPL in monitoring wells, and
- Lack of observed layering or apparent bedded concentrations of NAPL or NAPL saturated sediment in soil cores.

While these observations characterize Enbridge's current understanding of remaining NAPL from the Line 6B crude oil release, the MDEQ has expressed concern that mobile NAPL may remain in the environment, and further, that it could migrate to sensitive receptors and/or act as a potential source for on-going groundwater and soil impact. To understand and in some cases reconcile these differing perspectives Enbridge has developed this NAPL White Paper which addresses NAPL, its definition, its characteristics (including mobility), chemical composition and relation to Part 201 criteria exceedances, and site specific observations using guidance as published by MDEQ, American Society for Testing and Materials (ASTM), and Interstate Technology & Regulatory Council (ITRC).

This NAPL White Paper focuses on NAPL as it relates to the overbank portion of the Spill Area. It does not address aesthetics (i.e., potential odors or visually undesirable conditions). Aesthetics will be addressed within the NFA specific to each affected Reach within the Spill Area. Furthermore, this report focuses mainly on NAPL derived from the Line 6B crude oil release. Other potential NAPL sources derived from over 100 years of industrialization along the Kalamazoo River, impacting soil or groundwater within the Spill Area are only briefly discussed as part of the analysis presented in this NAPL White Paper.

1.1 Objectives

There are four primary objectives of this NAPL White Paper.

- To define and evaluate NAPL remaining in the Spill Area using the recently issued MDEQ guidance and related documents,
- To document the current physical and chemical characteristics of remaining NAPL in the overbank portion of the Spill Area,
- To evaluate the potential risk remaining NAPL poses to human health and the environment, and
- To put forth a scientifically sound assessment of the nature and risks associated with the remaining NAPL that Enbridge will utilize as part of remedial investigation (RI) and no further action reporting.

1.2 Crude Oil Release Overview

On July 26, 2010, Enbridge identified a release of crude oil from the Line 6B pipeline at Mile Post (MP) 608 in the vicinity of a pump station located in Marshall, Michigan. Approximately 843,000 gallons of Line 6B crude oil was released below grade via a failure in the Line 6B pipeline at MP 608 (U.S. EPA, 2015). The crude oil was forced from the Line 6B pipeline, under pressure, into the surrounding soils and subsequently emerged onto the ground surface where it flowed as NAPL over land through the forested scrub-shrub area, following the natural topography into Talmadge Creek. The location of the Line 6B pipeline break and approximately 5 acres where the crude oil impacted subsurface soil, emerged onto the ground surface, and flowed into Talmadge Creek is referred to as the "Source Area".

The crude oil was carried down Talmadge Creek to the confluence with the Kalamazoo River, and then into the Kalamazoo River to the Morrow Lake Reservoir. At the time of the release, both Talmadge Creek and the Kalamazoo River were at a flood stage and had overflowed their banks (approximately the 25-year flood recurrence interval). This inundated portion of the floodplain is referred to as overbank, for the purposes of this NAPL White Paper.

As water levels receded, Line 6B crude oil was carried by the floodwater, back into the main channel of Talmadge Creek and the Kalamazoo River. However, some of the Line 6B crude oil became stranded and isolated in topographic depressions as well as shallow cavities, burrows, and other traps within the flooded areas. In overbank areas, NAPL has typically been encountered within shallow soil/sediments from the ground surface to 2 feet (ft) to 3 ft below ground surface (bgs). Additionally, some Line 6B crude oil was baffled by and adhered to vegetation, including emergent herbaceous wetlands and woody plants associated with scrub-shrub wetlands and swamps as stated in the *Conceptual Site Model – January 2015*, submitted to the MDEQ on January 23, 2015 (CSM-January 2015) (Enbridge, 2015).

Following the release, Enbridge performed extensive response actions in both the river system and overbank area using boom, vacuum surface pumping, vegetation removal, raking, surface scraping, and excavation under the direction and supervision of the U.S. EPA and the MDEQ. By April 2011 the U.S. EPA estimated 766,000 gallons of crude oil (over 90%) had been recovered (U.S. EPA, 2011).

The response activities were coupled with assessment efforts that were structured to:

- Evaluate the success of response activities,
- Identify areas where additional response actions were needed, and
- Evaluate impacts remaining in the environment.

By 2012, the extensive response and assessment activities had recovered the vast majority of the Line 6B crude oil. However, isolated areas of impact, including NAPL, remained.

1.3 Overbank Setting Overview

The overbank along Talmadge Creek and the Kalamazoo River is low lying, level, flood plain. Vegetation generally consists of emergent herbaceous wetlands, swamp, and scrub-shrub wetlands. This area is generally bounded by wooded uplands further from the river. Soils supporting vegetation typically consist of silty to sandy alluvium and organic rich peat. Sands, loamy sands, silt loams, and loams make up the majority of the soil in the upper and middle portion of the Kalamazoo River watershed (Wesley, 2005). Within the shallow soils in the overbank area numerous root structures (rhizospheric biomass) are present.

Underlying the surficial soils is an assortment of glacial deposits including outwash, end-moraine deposits, clayey till, and lake plain sediments. These glacial deposits are underlain by bedrock, consisting of Marshall Sandstone throughout the Kalamazoo River basin in Calhoun County, and Coldwater Shale in portions of Kalamazoo County (Dorr and Eschman, 1970; WMU, 1981). The depth to bedrock ranges from the ground surface to approximately 200 ft bgs.

2.0 NAPL Definition and Guidance

The MDEQ, ASTM, and ITRC define NAPL as a liquid, such as gasoline, diesel, or other petroleum-based fuel, waste oil, and crude oil that contains one or more organic compounds that are relatively insoluble in water. In the environment, NAPL exists as a separate phase that is immiscible with water. Line 6B crude oil meets this definition of NAPL.

Recently, the MDEQ issued a Policy and Procedure document, *Non-aqueous Phase Liquid (NAPL) Characterization, Remediation, and Management for Petroleum Releases* (MDEQ, 2014). Much of the material presented by the MDEQ was adapted from the following documents: *Evaluating LNAPL Remedial Technologies for Achieving Project Goals* (ITRC, 2009) and the *Standard Guide for Development of Conceptual Site Models and Remediation Strategies for Light Non-aqueous-Phase Liquids Released to the Subsurface* (ASTM, 2007). The MDEQ issued this document to provide information regarding the characterization, remediation, and management of NAPL related to petroleum releases in order to "promote a consistent and informed approach for the MDEQ staff". The guidance provides a framework for evaluating and characterizing NAPL, developing a conceptual site model, conducting a risk assessment, addressing NAPL recovery, and achieving site closure. Enbridge has adopted this guidance.

2.1 Observation/Logging Methods

During the investigation activities associated with response actions, the description of logged soil cores incorporated the distribution, thickness, and approximate amount of ultraviolet (UV) fluorescence (in percent coverage of the exposed surface area within the logged interval of the core) as well as the physical appearance of any remaining Line 6B crude oil (i.e., sheen, globules, tar patties, or visible oil) under visible light. Based on these observations, Enbridge developed metrics to help standardize the definition of NAPL observations observed in soil borings. These metrics included visual oil and oil globules, ranging in size from pinhead to 0.5 millimeters. This NAPL White Paper classifies these as direct observations of NAPL. The metrics also included levels of UV fluorescence, which (when greater than trace fluorescence (5% or greater coverage area within the specified core interval)), is classified as an indirect observation of NAPL. Sheen, in the Code of Federal Regulations, means an iridescent appearance on the surface of water (CLSA, 2015), and is not considered NAPL, but is considered an indicator of the potential presence of NAPL. Sheen is considered an aesthetic issue (TCEQ, 2013) and is not addressed in this NAPL White Paper.

2.2 Regulating Agencies

Spill response actions were conducted in accordance with the Administrative Orders issued to Enbridge by U.S. EPA and the MDEQ.

The U.S. EPA orders include: the U.S. EPA *Removal Administrative Order Under Section 311(c) of the Clean Water Act (CWA)*, issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001, and the *Supplement to Order for Compliance Under Section 311(c) of the CWA*, issued by U.S. EPA Region 5 on September 23, 2010 to Enbridge Energy Partners, L.P. et al., Respondents, Docket No: CWA 1321-5-10-001 (U.S. EPA, 2010).

The MDEQ order consists of the *Administrative Consent Order and Partial Settlement Agreement entered In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq*; signed November 1, 2010 (MDEQ Order) (MDEQ, 2010). Within the MDEQ Order, the Spill Area refers to "areas, places, and property that have been impacted by the oil spill or response activities addressing the oil spill, including but not limited to habitat, vegetation, soils, surface waters, sediments, groundwater, wetlands, floodplains, and overbank areas". In practice, this encompasses much of the Kalamazoo River (within the limits of modeled inundation) and Talmadge Creek floodplain from the Source Area to the confluence with Talmadge Creek to the Morrow Lake impoundment.

Section 324.20101 of Michigan's Natural Resources and Environmental Protection Act 451 of 1994 (on-line render April 23. 2015, effective December 14, 2010) defines a facility as a location where hazardous substances in excess of cleanup criteria exist. However, for this project, the MDEQ classified the entire Spill Area as a facility in the *Consent Judgment so agreed by the Michigan Department of Environmental Quality, Michigan Department of Attorney General, and Enbridge Energy Partners, L.P.; Enbridge Energy, Limited Partnership; Enbridge Pipelines (Lakehead) LLC; Enbridge Energy Management LLC; Enbridge Energy Company, Inc.; and Enbridge Employee Services, Inc. ordered, adjudged, and decreed pursuant to MCL 324.1701, MCL 324.3109, MCL 324.30112, MCL 324.30316, and MCL 324.20137*, signed May 13, 2015 (MDEQ Consent Judgment) (MDEQ, 2015).

Overbank soils impacted with residual NAPL are regulated under the MDEQ Consent Judgment.

2.3 State, Federal, Industry NAPL Regulations and Guidance

Recently issued MDEQ guidance, federal regulations, and ASTM/ITRC guidance are relevant for the evaluation of the NAPL in the Spill Area and are each summarized below.

2.3.1 MDEQ Guidance

The MDEQ guidance on NAPL (MDEQ, 2014) provides information regarding NAPL characterization, remediation, and management. The guidance provides the following categories for NAPL management:

- NAPL Management Concepts,
- NAPL Characterization,
- Conceptual Site Model,
- Risk Assessment,
- Recovery and Recoverability, and
- Site Closure.

The remainder of this section briefly addresses each of these categories and summarizes how Enbridge has largely adopted the procedures and approaches for this project outlined in this document.

2.3.1.1 NAPL Management Concepts

Three basic NAPL concepts, described below, were adapted by the MDEQ from training and publications prepared by the ITRC (ITRC, 2009) and the ASTM (ASTM, 2007).

The first NAPL concept is that the presence of NAPL should be assumed when one or more of the following conditions are met:

- There is a known release of a NAPL,
- Sustained subsurface petroleum contamination has been detected, and/or
- NAPL has been observed.

One or more of these conditions have been met at locations within the Spill Area; however sustained subsurface petroleum contamination has only been detected in the Source Area.

The second NAPL concept related to saturational risk is that there are two general stages of NAPL after its release.

- The first stage is the initial or expansion stage, when the NAPL is actively migrating under a sufficient NAPL gradient. This stage is typically relatively short in duration once the release has stopped. For NAPL associated with the Line 6B crude oil release, this included both subsurface spreading in soil adjacent to the pipeline break immediately following the release, as well as Line 6B crude oil carried by flowing surface water in Talmadge Creek and the Kalamazoo River.
- The second stage is a longer, stable stage, when NAPL migration is non-existent, or limited to a very small scale (such as NAPL entrained within soil pores). This occurs after the hydraulic forces driving active NAPL migration have been reduced or eliminated, as a result of counteractive mechanisms (i.e., buoyancy, capillary forces, NAPL relative permeability, and declining NAPL gradient as the NAPL mass distributes).

The third NAPL concept is that the remaining, immobile NAPL may act as a source of chemicals of concern in soil, groundwater, and vapor that could potentially create an unacceptable risk to human health or the environment. Both MDEQ and ITRC refer to this concept as evaluation of compositional risks. Over time, as compounds within the NAPL biodegrade, dissolve, volatilize, and/or adsorb to soil, the NAPL becomes depleted of these compounds. This process is referred to as natural source zone depletion (NSZD). As NSZD occurs, compositional risks decrease.

The process of NSZD has occurred on the NAPL associated with the Line 6B crude oil release as is reflected in the very infrequent detection of volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PNAs) associated with the Line 6B crude oil in soil and groundwater samples. This includes locations where NAPL may be present as reflected by direct indicators (visible oil or oil globules), or indirect indicators (sheen or UV fluorescence).

2.3.1.2 NAPL Characterization

Enbridge has conducted extensive characterization of impacts from the Line 6B crude oil release, including NAPL. This includes collection of over 13,000 data points where both conventional/contemporary methods (i.e., laboratory analysis and UV fluorescence) as well as advanced methods (i.e., laser induced fluorescence (LIF) and petrophysical testing of soil cores with remaining NAPL) have been employed. *Section 4* and *Section 5* document the characteristics of the remaining NAPL from the Line 6B crude oil release. Enbridge has followed MDEQ, ASTM, and ITRC protocols for characterizing impacts and evaluating risk.

2.3.1.3 NAPL Conceptual Site Model

The CSM-January 2015 includes the following components which are relevant to NAPL understanding:

- A description of nature and extent of contamination and resource impacts from released crude oil and response activities,
- A description of contaminant fate and transport, potential receptors, all applicable human and ecological exposure pathways, uncertainties, and restoration and risk reduction strategies,
- A detailed description of Line 6B crude oil composition,
- A discussion of background conditions and legacy contamination within the Source Area that is not related to the Line 6B crude oil release, and
- A summary of NAPL assessment and characterization efforts within the Spill Area.

2.3.1.4 NAPL Risk Assessment

A NAPL risk assessment addresses potential and realized risks from both the saturational (mobility) side and compositional (analytical) side. Saturational risks related to the Line 6B crude oil release are addressed in *Section 4*. Compositional risks potentially derived from chemicals partitioning from NAPL into vapor or dissolved-phase compounds are addressed in *Section 5.*

2.3.1.5 NAPL Recovery and Recoverability

MDEQ guidance notes "The most cost effective and efficient way to address new releases is to immediately recover as much NAPL as technically feasible when it is discovered." This is the approach employed by Enbridge, under the direction of the U.S. EPA and MDEQ, to address the Line 6B crude oil release. Enbridge response efforts resulted in recovery of more than 90% of the released Line 6B crude oil by April 2011 according to U.S. EPA estimates.

The guidance also outlines the need for recoverability analysis as part of the overall site and risk assessment. The MDEQ NAPL guidance (MDEQ, 2014) states that a NAPL transmissivity greater than 0.5 square feet per day (ft^2/day) is an indication of conditions where NAPL can be recovered in a cost-effective and efficient manner unless a demonstration is made to show otherwise. *Section 3*, *Section 4,* and *Section 5* effectively address recoverability of NAPL.

2.3.1.6 NAPL No Further Action or Closure

The MDEQ guidance states that closure of sites with residual NAPL is achievable provided risk and non-risk factors are abated and/or managed.

Three metrics must be met to demonstrate that the potential risks are abated or managed:

- NAPL has been recovered to the “maximum extent practicable”;
- All unacceptable risks have been abated; and
- Proper institutional controls, if necessary.

2.3.2 Federal Guidance on NAPL Recoverability

Under federal law (40 CFR 280.64), NAPL recovery is performed to the “maximum extent practicable”, as determined by the implementing agency to minimize migration. Historically this has included removing all measurable NAPL.

2.3.3 ASTM/ITRC Guidance

ASTM and ITRC guidance offer a “tiered” approach, with increasing tiers corresponding to increasing site complexity. The ITRC guidance document (ITRC, 2009) also introduces the concept of NAPL composition and NAPL saturation.

NAPL composition includes the following concerns:

- Explosive hazard,
- Dissolved phase concentration,
- Vapor phase concentration, and
- Direct contact or ingestion.

NAPL pore volume saturation influences NAPL mobility. NAPL saturation can either be mobile saturation or residual saturation. Total NAPL saturation is measured as a fraction of the total porosity, which includes one or more of three states: mobile and migrating, mobile but not migrating, and/or residual NAPL. NAPL migrates when the vertical and/or horizontal extent of the NAPL is expanding.

Mobile NAPL occurs on a much smaller scale, typically on the scale of pore spaces within the soil matrix. On this scale, when NAPL occupies enough of the pore space to be hydraulically connected it has reached residual saturation and can “flow”. Residual saturation is typically defined as a percentage (NAPL volume/total void volume). Below the residual saturation, NAPL is discontinuous and immobilized by capillary forces under ambient groundwater flow conditions. At the residual saturation, the NAPL capillary pressure equals the pore entry pressure. As a result, migrating NAPL is mobile, but not all mobile NAPL is migrating. An example of mobile NAPL that is not migrating occurs when NAPL is observed in a well due to a change of water levels.

The well acts as a large pore for the NAPL to flow into and hence the NAPL is mobile. However, in many instances where this is observed, the NAPL is not expanding and is no longer migrating.

The final NAPL state is residual NAPL. This is the point at which NAPL cannot flow and becomes trapped within the pores. The residual saturation of residual NAPL is equal to the NAPL saturation below which the NAPL capillary pressure equals the pore entry pressure. The ITRC has indicated that the minimum, practical NAPL transmissivity achievable with hydraulic or pneumatic recovery systems is between 0.1 ft^2/day and 0.8 ft^2/day (ITRC, 2009).

3.0 Origin, Transport, and Chemical/Physical Characteristics of Line 6B Crude Oil

This section presents a discussion of the origin of Line 6B crude oil, its release and transport into overbank portions of the Spill Area, and chemical and physical characteristics of Line 6B crude oil during weathering as a NAPL in the environment in the context of the regulatory framework.

3.1 Origin of Line 6B Crude Oil

Line 6B crude oil is classified as western Canadian heavy crude. At the time of the release, the crude oil within the pipeline was transitioning from Western Canadian Select (WCS) blend to Cold Lake (CL) blend. As a result, the crude oil released at the Source Area was a mixture of these two oils with an estimated composition of 22.5% WCS and 77.5% CL. WCS is a blend of Canadian heavy conventional and bitumen crude oils combined with diluents (added to improve flow characteristics). CL is a heavy crude blend of bitumen and diluents. Diluents are blended with the bitumen to reduce viscosity and improve flow characteristics.

3.2 Release, Transport, and Emplacement

Following the Line 6B crude oil release as described in *Section 1.2* the movement of NAPL in the subsurface was governed by the physical properties of the soil (specifically soil porosity and total organic carbon content) and the physical and chemical properties of the Line 6B crude oil (e.g., viscosity, density, etc.).

For NAPL to be mobile in the subsurface it must saturate soil pores (primary porosity) and possess pressure above the pore entry pressure head to displace air and/or water from the soil pores. Entry pressure head for a given fluid and soil is a function primarily of fluid interfacial tensions, fluid densities, fluid viscosity, and pore geometry. Of these, pore geometry remains constant. Fluid properties however, particularly in the case of NAPL, change over time as the fluid weathers. The net effect is generally that weathering increases the required pore entry pressure head for NAPL to enter a given soil.

Soil borings and excavations from the Source Area indicate that during, and immediately following, the Line 6B crude oil release, pore entry pressures, which were exceeded by the pressure in the ruptured pipeline, were sufficient to facilitate pore saturation due to lower viscosity associated with the fresh oil and the volume of material near the release point.

However, with extensive remedial action (excavation) completed in the Source Area and along Talmadge Creek, the vast majority of the Line 6B crude oil has been removed from these areas. Verification of this has been documented through the *Remedial Investigation Report for Reach 1*, submitted to the MDEQ on February 28, 2014 (Enbridge, 2014a).

Outside the Source Area transport of the NAPL occurred by flood water and river current, and laterally spread (thinned) the NAPL. This, in combination with concurrent weathering of the NAPL, resulted in insufficient pressures for NAPL to overcome the pore entry pressure head of the primary soil porosity.

Secondary porosity, represented as cavities from burrowing animals or vegetation (e.g., tree roots, etc.) within the overbank soil, have much lower pore entry pressure heads due to large pore size and can provide an alternate pathway for oil to enter the soil. The presence of remaining Line 6B crude oil in secondary macropores is limited to the shallow subsurface, and encountered generally near the river bank. Most instances of these conditions were addressed during response and excavation activities from 2010 to 2012.

In the cases where NAPL was deposited on overbank soil or within overbank soils via secondary porosity, its short term and long term mobility is restricted by mass balance (i.e., a finite mass emplaced in soils will spread to residual NAPL saturation after which time spreading will be limited). Residual NAPL saturation occurred quickly (within days of the release) in areas away from the source due to the lateral spreading of the oil caused by the flowing river water and lack of pore entry pressure head present at placement on overbank soils. This is supported by the shallow observation of oil indicators both on the ground surface and within the soil borings, and the lack of NAPL in any monitoring well.

3.3 Chemical Composition Line 6B Crude Oil

This section of the report summarizes the chemical composition and characteristics of Line 6B crude oil and includes a discussion of weathering effects on the chemical composition and physical properties of the Line 6B crude oil.

The chemical composition of Line 6B crude oil, a heavy crude oil blend of bitumen and diluents, is primarily a combination of VOC and PNA compounds. Chemical analysis of weathered and unweathered Line 6B crude oil is summarized in *Table 1.*

VOCs detected in the Line 6B crude oil analyses are not major components of the oil and are rapidly lost from the diluents during weathering. This is further discussed in *Section 3.5.1*.

The primary organic compounds of regulatory concern in crude oil are the less volatile PNAs. The 16 non-alkylated “parent” PNAs are of particular interest because they comprise the U.S. EPA Priority Pollutant list of PNAs. This is significant when evaluating the risk associated with potential residual NAPL in the Spill Area. Parent PNA chemical structures consist only of joined aromatic rings and lack side chains attached to these rings. Parent PNAs are minor components of the Line 6B crude oil, where the aromatic fraction is dominated by petrogenic alkylated PNAs. Understanding the broad spectrum of PNAs present in NAPL is important because PNAs are derived from both pyrogenic and petrogenic sources. Pyrogenic PNAs are formed by high temperature processes such as combustion of petroleum, wood, coal, and the pyrolysis of petroleum or coal to produce creosote, coal tar, and other products associated with manufactured gas production. Petrogenic PNAs are those associated with petroleum formation and are formed by the diagenesis and catagenesis of kerogen. The two groups of PNAs are generally distinguishable from one another via chemical analyses. PNAs associated with petroleum formation have compositional “patterns” dominated by alkylated derivatives of the parent PNAs. As a result, the pattern of PNAs can be used to geochemically ascertain the most likely source (pyrogenic versus petrogenic) of PNAs in a given sample.

As documented in the CSM-January 2015, chemical analyses of Line 6B crude oil produces a unique PNA chemical signature in both fresh and weathered states, which is a petrogenic signature. The analyses presented in the CSM-January 2015 was used in a consensus-based development of a unique “fingerprint” reference signature that was presented in two reports to the MDEQ in 2013 (*Supplement to the Response Plan for Downstream Impacted Areas commonly referred to as the "Quantification of Submerged Oil Report",* submitted to the MDEQ on March 21, 2013 (Enbridge, 2013a) and *Report of Findings for Hydrocarbon Fingerprint Evaluation in Overbank Soil,* submitted to the MDEQ on May 7, 2013 (Enbridge, 2013b).

Additional information regarding the chemical composition of the Line 6B crude oil is detailed in the *White Paper: Evaluation of Line 6B Crude Oil PNA and VOC Related Risk to Groundwater Quality*, submitted to the MDEQ on July 24, 2014 (Enbridge, 2014b).

3.4 Physical Properties of Line 6B Crude Oil

This section discusses physical properties and physical weathering of the NAPL and includes evaluation of density, viscosity, and fluorescence.

3.4.1 Flammability

The weathered and degraded NAPL from Line 6B crude oil is not flammable. In August 2010, a series of five waste characterization samples were tested for flash point (ignitability) as part of waste characterization. The results showed no flash below the maximum temperature (200°F) for the test. *Attachment E* includes the waste characterization laboratory test results.

3.4.2 Density

The density of six samples of Line 6B crude oil were analyzed using ASTM Method D 1963 85 "Standard Test Method for Specific Gravity of Drying Oils, Varnishes, Resins, and Related Materials". The six samples were segregated into three that were reflective of CL blend (collected upstream of the Marshall pump station) and three that were reflective of WCS blend (collected downstream of the Marshall pump station). *Table 2* summarizes the results of the testing and shows very similar results in all six samples with density ranging from 0.92 grams per cubic centimeter (g/cm^3) to 0.93 g/cm^3. *Attachment E* contains laboratory analytical reports for this effort. These results are consistent with the density measurements made by SL Ross in laboratory experiments on MacKay River Heavy Bitumen and Cold Lake Bitumen containing diluent (SL Ross, 2012). The experiments showed that density of the NAPL approached, but did not exceed water. However, these controlled experiments lasted for only 5 days and sediment was not incorporated into the NAPL.

As densities approach near neutral conditions, the density driven forces which typically exert pressure on a NAPL to either rise to the surface of water, (i.e., light non-aqueous phase liquid (LNAPL)), or to sink through the water column, (i.e., dense non-aqueous phase liquid) reduces migration potential. However, when sediment becomes entrained within the weathered NAPL the density can become greater than 1 (Environment Canada, 2013).

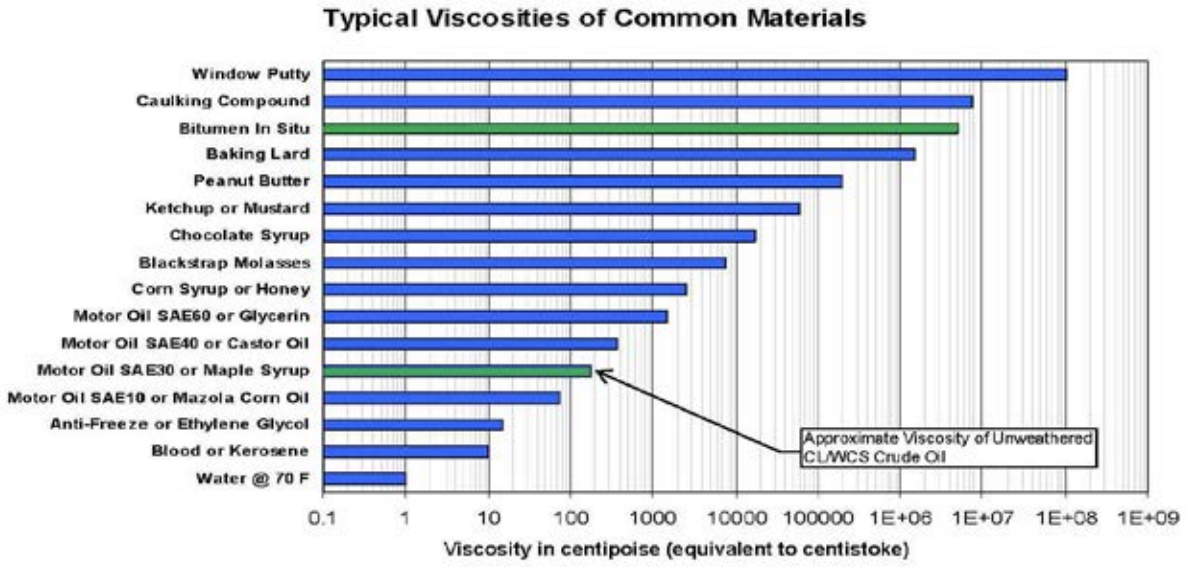
3.4.3 Viscosity

As previously noted, Line 6B crude oil is a western Canadian heavy crude oil, composed of bitumen, a naturally altered heavy crude oil that is characterized by very high viscosity and diluents, which are added to reduce viscosity. *Table 2* summarizes the viscosity measurement from six samples of Line 6B crude oil (three representative of CL blend and three representative of WCS blend).

These results are similar to the Crude Quality, Inc. reference guide for CL and WCS viscosity from 2009 to 2013 (Crude Quality, 2013). The average viscosity measurements from *Table 2* are as follows:

- CL – 200 centistokes (cSt) at 15°C (59°F), and
- WCS – 196 cSt at 15°C (59°F).

These viscosities are typical for the Line 6B crude oil (including diluent) at the time of release and do not reflect weathering. They are substantially higher than water (1 cSt) or those associated with light crude oil (<10 cSt) to medium crude oils (<20 cSt). By comparison, the chart below shows that Line 6B crude oil had a viscosity similar to motor oil (SAE30) or maple syrup.



Source: CHOA, 2013

After the Line 6B crude oil release, weathering of the Line 6B crude oil was dominated by evaporation of the more volatile components (Environment Canada, 2013; Wang and Christensen, 2006; Jobson et al., 1972). Recent weathering studies on similar crude oil by the Canadian government (Environment Canada, 2013) showed an increase in viscosity from 308 cSt for unweathered crude oil to 1,395 cSt at 15°C with 8.5% mass loss due to evaporative weathering. With a mass loss of 25% the viscosity increased to 39,100 cSt.

3.4.4 Fluorescence

Petroleum hydrocarbons, such as PNAs and saturated hydrocarbons absorb light energy at a given wavelength and re-emit it in the form of fluorescence when exposed to UV light. This characteristic has been effectively employed in high resolution identification of Line 6B crude oil.

TarGOST® bench test on soil core

Initially, fluorescence was employed using LIF during Tar-Specific Green Optical Screening Tool® (TarGOST®) screening program in November 2010. Bench testing showed that Line 6B crude oil generated a recognizable response. However, in many cases the response to background organics was greater than the response signature to Line 6B crude oil. Subsequent to this, bench-scale testing showed that LIF technology was capable of identifying and discriminating the unique signature attributable to the Line 6B crude oil based on archived crude oil samples collected during the release. However, the soil did not contain adequate Line 6B crude oil occurrences even within the “worst case” locations to generate a clear signal. As a result, the use of TarGOST® on the project was discontinued.

Starting in 2011, soil cores were logged to evaluate the presence of potential Line 6B crude oil using UV fluorescence (365 nanometer range) and visible light. The use of UV and high-resolution photography was adapted and enhanced from similar procedures used in oil exploration but rarely employed in Michigan for environmental projects. The refinement and enhancement of the equipment and procedure has been critical in accomplishing the goals of this project. Prior to logging, soil cores were cut in half lengthwise and then screened under UV light in a specially designed photographic booth. Soil core intervals with UV fluorescence were evaluated for distribution and color of the florescence.

UV fluorescence observations were recorded as a percent of the inspected surface area of the soil core across the logged interval on boring logs using the following identifiers:

- Trace UV fluorescence - if UV fluorescence appeared in the interval with impact at less than 5% of the surface area,
- UV fluorescence - if UV fluorescence appeared in the interval with impact at 5% or greater, and
- Fluoresced Globules – if UV fluorescence appeared in the interval with impact greater than 5% and in the form of globules.

During the RI, UV fluorescence observations included the distribution, thickness, and approximate amount of UV fluorescence (in percent area coverage) as well as the physical appearance of potential direct or indirect indicator of residual Line 6B crude oil (i.e., sheen, globules, and visible Line 6B crude oil) under white light.

3.5 Weathering and its impact on the Chemical and Physical properties of Line 6B Crude oil

Over time the chemical composition and physical properties of any Line 6B crude oil emplaced within the river floodplain has undergone alteration as the result of chemical, physical, and biological processes. Collectively these processes are referred to as “weathering” and they generally work to degrade the NAPL within the environment.

3.5.1 Weathering Impacts on Chemistry

The processes by which weathering alters the chemistry of a NAPL are summarized as follows:

- Chemical Processes – The chemical processes are dominated by abiotic reactions which act predominantly on the lighter fraction of the NAPL.
- Physical Processes – The physical processes are dominated by volatilization, which acts to remove the light, volatile and semi-volatile diluent components that are exposed to atmospheric conditions.
- Biological Processes – The biological processes are dominated by bacteria, which consume the lighter, diluent fraction of the oil as a food source, and act to incorporate the remaining NAPL material into the soil matrix.

In general, as the Line 6B crude oil interacted with water and air in the environment, volatile diluent components were lost to volatilization and biodegradation. The composition of the remaining NAPL therefore became less volatile.

Line 6B crude oil in the Source Area, which never emerged to the surface, was not exposed to open air or sunlight and exhibits a chemical profile that includes the lighter aromatic constituents related to the diluent (i.e., benzene, toluene, ethylbenzene, and xylenes).

Table 1 presents a tabulated summary of chemical analyses performed on three unweathered and two weathered samples of Line 6B crude oil. The following is a summary of the samples including their weathered status, ID, and sample date:

- Unweathered crude oil chemical composition is based on three samples collected from the Line 6B crude oil pipeline when it was restarted or from Talmadge Creek, close to the release point and shortly after the release occurred. These samples are as follows:
    - CL-6B-072223-092710-JPS-KA-001-33 is a CL sample collected upstream of the Marshall Pump Station upon the Line 6B pipeline restart on September 27, 2010.
    - WCS 6B 072223-092910-JPS-KA-002-20 is a WCS sample collected downstream of the Marshall Pump Station on September 29, 2010, and
    - DS02 MARSHALL OIL RESPONSE, a sample collected by the U.S. EPA from freshly released Line 6B crude oil being carried down the channel of Talmadge Creek on July 27, 2010.
- Weathered crude oil chemical composition is based on two samples collected after the release:
    - OLXX RECOVERED 2010 is a composite Line 6B crude oil sample recovered between July 2010 and September 2010. This sample reflects initial weathering of the Line 6B crude oil in the first several months following the release.
    - OLKR 1340L01 is a discrete Line 6B crude oil sample collected from voids (likely animal burrows) that were exposed following an excavation on the left descending bank (LDB) at MP 13.40. The sample was collected on February 21, 2012 (575 days following the release) and represents longer term weathered Line 6B crude oil.

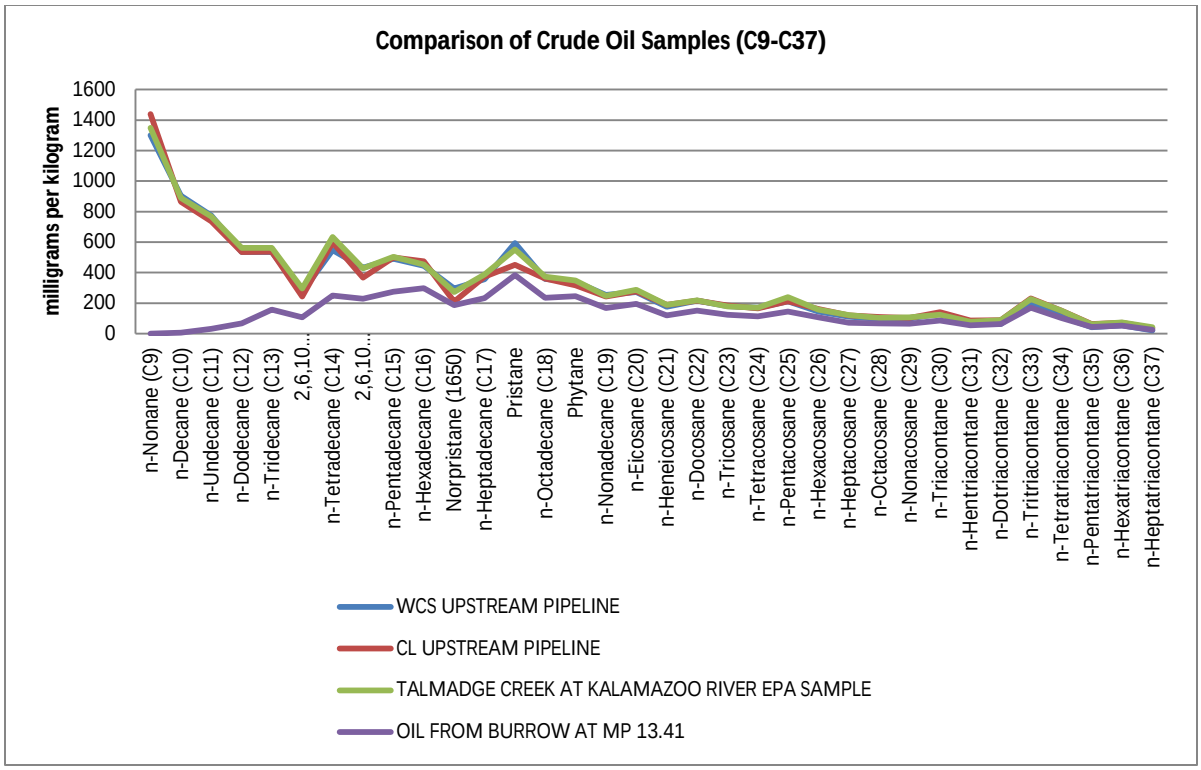
Weathering of the Line 6B crude oil that was exposed to atmospheric conditions on surface water (i.e., Talmadge Creek or the Kalamazoo River), or overbank areas, was likely dominated by evaporation of the more volatile components (Wang and Christensen, 2006; Environment Canada, 2013). Many of the volatile diluent components of Line 6B crude oil rapidly evaporated after the release.

The Canadian government report stated that “dissolution was found to account for a net loss of less than 2% of the total oil.” (Environment Canada, 2013). This observation explains the limited amount of aromatic hydrocarbons detected in groundwater in the Source Area. The less volatile Line 6B crude oil components were then weathered through biodegradation and photo oxidation. These slower processes are on-going and degrade crude oil exposed to sunlight and water, removing additional lower molecular weight aromatics and n-alkanes.

Contrasting the results between the unweathered samples (CL-6B-072223-092710-JPS-KA-001-33, WCS 6B 072223-092910-JPS-KA-002-20, and DS02 MARSHALL OIL RESPONSE) and the weathered samples (OLXX RECOVERED 2010 and OLKR 1340L01) in *Table 1* shows the chemical compositional changes due to weathering of the Line 6B crude oil. The following observations are most notable:

- The concentration of VOCs decreases from the unweathered to moderately weathered (OLXX RECOVERED 2010), to the more weathered (OLKR 1340L01) samples. Many of the VOCs detected in the unweathered samples at concentrations on orders of magnitude between 10^1 to 10^3 micrograms per kilogram were not detected in the more weathered sample.
- The concentration of semi-volatile target analytes decrease from the unweathered samples to moderately weathered OLXX RECOVERED 2010 and further to the more weathered OLKR 1340L01. Nonetheless these constituents are typically detected in all samples and reduction in concentration is inversely proportional to molecular weight.

The chart below further illustrates this and shows that sample OLKR 1340L01 has comparatively less C_9 to C_{37} hydrocarbons, with the most significant reductions in the more volatile and lower molecular weight C_9 to C_{16} carbon range.



As the weathering reduced volatile fractions of the NAPL, the physical properties of the NAPL changed as well, increasing its density and viscosity (*Section 3.5.2*). The remaining NAPL continues to undergo weathering and degradation.

3.5.2 Weathering Impacts on Physical Properties

As detailed above, when the Line 6B crude oil interacted with water and air in the environment, volatile diluent components were lost to volatilization and biodegradation. As the lighter fraction compounds were lost from the NAPL, the physical properties were impacted. Specifically, the loss of volatiles increases the viscosity of the Line 6B crude oil and decreases the potential mobility as shown in the Canadian study (Environment Canada, 2013). This process resulted in the loss of all or nearly all of the diluent originally in the blends. This is significant because the high viscosity of the remaining NAPL reduces its mobility. The degree to which weathering processes acted upon the released Line 6B crude oil to decrease mobility varied depending on if the oil was emergent on the surface (the majority of the released crude oil observed in both Spill Area and Source Area) or limited to the subsurface alone (as occurred in a portion of the Source Area near the Line 6B pipeline break).

NAPL density was also impacted by weathering. Triton Analytics Corporation analyzed the density of four NAPL samples using a modification of ASTM Method D 4052 09 “Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Meter”.

As *Table 2* shows, these samples showed higher densities, as expected following weathering. Samples WCS-6B-072223-092910-JPS-KA-002-20 (0.9308 g/cm^3) and CL-6B-072223-092710-JPS-KA-001-33 (0.9290 g/cm^3), which are most similar to parent Line 6B crude oil have densities that are nearly identical to those of the CL and WCS blends and are only slightly greater densities than the 5-year average for WCS (0.9290 g/cm^3) and CL (0.9285 g/cm^3) as reported by Crude Quality Inc. on August 10, 2011 (Crude Quality, 2013). These densities are somewhat lower than the sample OLXX Recovered 2010 (0.9806 g/cm^3), which was exposed to more weathering.

Sample OLKR 1340L01, considered to be the most representative of weathered Line 6B crude oil, had the highest density (1.0097 g/cm^3). The increase in density is due to the sample material containing a substantial amount of water and entrapped sediment, making it slightly more dense than water. Studies have shown that as little as 2% to 3% of sediment entrained within crude oil can cause the mixture to sink (NRC, 1999).

3.6 Implications of Physical and Chemical Properties of Line 6B Crude Oil For NAPL Risk

Weathering processes continue to reduce the concentrations of VOCs and PNAs in the NAPL and reduce the potential for the NAPL to act as a source of chemicals of concern in soil, groundwater, and vapor (compositional risk) as well as reduce its mobility (saturational risk).

3.6.1 NAPL Observations in Monitoring Wells or Seeps

Within the environmental industry, observations and measurements of NAPL, as a separate phase, in monitoring wells is common practice and a high confidence method used to assess the presence of mobile NAPL. For this reason, Enbridge has routinely used interface probes to evaluate for the presence of NAPL as a separate phase in monitoring wells. However, NAPL associated with the Line 6B crude oil release has never been observed or measured in any of the monitoring wells installed in the Source Area or Spill Area. Likewise, following response actions, NAPL has not been observed on the ground surface within either the Spill Area or the Source Area.

4.0 NAPL – Mobility Testing

Enbridge has documented extensive NAPL recovery during response actions (*Section 1.2*) and weathering of the residual remaining NAPL (*Section 3.3*). However, the MDEQ has expressed concern that the remaining NAPL in the Spill Area may be mobile and could potentially migrate to a sensitive receptor and result in an unacceptable exposure. To address this, Enbridge worked closely with the MDEQ in 2013 to develop and implement a Line 6B crude oil NAPL mobility evaluation. The objective of this evaluation was to determine the potential for NAPL to exist in a mobile condition where it could pose a saturational risk, or to act as a source for dissolved phase groundwater impacts where it could pose a compositional risk. The testing focused on "worst case" locations and employed NAPL saturation and NAPL mobility testing to evaluate overall mobility.

4.1 Field Investigation

To focus this effort in areas most likely to contain NAPL, Enbridge reviewed historic observations and analytical results collected during response actions and the RI. As the evaluation proceeded, it was divided into three separate phases. This allowed Enbridge to consult with the MDEQ between each of the phases. A total of four initial "worst case" locations were identified. These were presented to the MDEQ for concurrence prior to field work. As the program proceeded, two additional phases of work were conducted and a total of 12 "worst case" locations, depicted on *Figure 1*, were identified. While the selection process focused on impacted locations that were most likely to have the highest NAPL saturation (i.e., visible oil in soil cores), *Table 3* shows that the locations selected also had a range of visual impacts, UV fluorescence, soil type, and saturation. The field investigation description below provides additional details on the three phases of work.

4.1.1 Soil Borings

During the November 2013 initial phase, two borings were drilled in Reach 1 (Source Area) (SBSA0025R523 and SBSA0025R525) and two borings were drilled in Reach 5 (SBKR0250L550 and SBKR0250L510PC), both depicted in *Figure 1, Sheet 2*. Each boring was installed within 5 ft of the original RI boring where indications of potential NAPL were recorded. However, when the NAPL mobility cores were screened, substantially fewer NAPL indicators (visible oil, oil globules, and fluorescence) were observed in comparison to the original RI borings. This reflects either (or both) weathering of the remaining NAPL since the original RI boring was conducted in 2011, or the isolated and heterogeneous distribution of NAPL within the Spill Area.

It should be noted that the core samples from SBKR0250L550 and SBKR0250L510 were designated as SBKR0250L550S and SBKR0250L510PC, respectively. In subsequent phases, the isolated and heterogeneous distribution of NAPL was addressed by drilling three offset borings, around the original RI boring.

In December 2013, the second phase of borings was conducted. During this effort, two additional locations were investigated in the Source Area (SBSA0025R514 and SBSA0025R524) and also in Reach 5 (SBKR0250L560 and SBKR0250L566). As noted above, three offset borings were drilled at each location. Each boring was identified with the same site ID as the original RI boring, but also included an A, B, or C designation to denote them as offset borings. *Figure 1, Sheet 1* and *Sheet 2* also depicts the location of the 12 borings drilled during the second phase of work.

In February 2014, the third phase of borings was conducted. During this effort, three offset borings were drilled in Reach 5 (SBKR0250L567), and at each of the three downstream locations in Reach 16 (SBKR1075L512), Reach 20 (SBKR1150L538), and Reach 21 (SBKR1300R594). *Figure 1, Sheet 2, Sheet 3, Sheet 4,* and *Sheet 5* depict the location of the 12 borings drilled during the third phase of work.

In total, 28 borings were drilled at the 12 locations considered “worst case” to provide sample cores for the NAPL mobility analysis.

4.1.2 Soil Cores

Direct push sampling with a hand probe was used to collect discrete soil cores in accordance with *SOP EN-301; Subsurface Soil Sampling by Geoprobe™ Methods* and *SOP EN-305; Soil Sampling Via Hand Auger,* as stated in the approved *Sampling and Analysis Plan (SAP)*, submitted to the MDEQ on August 30, 2011 (Enbridge, 2011). One 4-ft long soil core was collected from each boring. Upon removal from the borehole, the soil core was capped, labeled, and transported vertically to the Enbridge facility where it was placed upright (vertically) and rapidly frozen with dry ice.

After freezing, the cores were cut into 2-ft sections, packed with blue ice packs, and transported for next-day delivery to the MDEQ-recommended PTS Laboratory of Santa Fe, California (PTS) under chain-of-custody control for UV photography and selection of intervals for analysis of petrophysical parameters.

At PTS the frozen soil cores were vertically cut and photographed for UV fluorescence. *Attachment A* provides boring logs and well construction records (monitoring wells were installed at five locations) of the original RI borings. *Attachment B* contains Enbridge core photographs of the original RI borings.

Attachment C contains the PTS core photographs of the offset borings and the original Enbridge RI soil boring photographs. Enbridge reviewed the UV photographs with the MDEQ and together eight intervals, listed below, were selected for petrophysical analysis.

<u>Reach 1 (Source Area)</u>

- SBSA0025R514 PTS-C 1.95 ft bgs.
- SBSA0025R525 3.35 ft bgs.

<u>Reach 5 (MP 2.50 LDB)</u>

- SBKR0250L510PC 0.80 ft bgs.
- SBKR0250L560 PTS-A 1.95 ft bgs.
- SBKR0250L560 PTS-A 2.25 ft bgs.
- SBKR0250L567 PTS-B 1.8 ft bgs.

<u>Reach 16 (MP 10.75 LDB)</u>

- SBKR1075L512 PTS-C 0.55 ft bgs.

<u>Reach 20 (MP 11.50 LDB)</u>

- SBKR1150L538 PTS-A 0.15 ft bgs.

4.2 Petrophysical Testing

This section presents results of the petrophysical testing, including NAPL saturation and mobility testing, from the cores collected from worst case locations. *Table 4* presents a tabulated summary of these efforts. *Attachment D* provides the PTS laboratory reports.

4.2.1 NAPL Saturation

PTS used the Dean-Stark Method as described in *Recommended Practices for Core Analysis (API RP40)* (API, 1998) to determine NAPL saturation of each sample. The Dean-Stark distillation-extraction method of determining fluid saturations is dependent upon distilling water from the sample, condensing it, and collecting it in a calibrated receiver.

The oil is removed by solvent extraction and is determined as the difference between the weight loss of the sample during the extraction operation and the volume of the accumulated water.

Since the solvent used for extracting the oil (toluene) has a boiling point above that of water, the water within the core sample is distilled out as it is heated by the solvent vapor.

The refluxed solvent vapors then drip continuously on the sample to extract the oil. Fluid saturations are reported as a percentage of the pore volume of the core sample. *Table 4* presents results for these samples where total NAPL saturations ranged between 2.5% and 10.7%.

4.2.2 NAPL Mobility

Two methods are typically used for measuring NAPL mobile and residual saturations as a fraction of total saturation. For NAPLs which are present in the vadose zone where water saturated conditions are not common NAPL mobility is determined using a centrifuge (ASTM method D425) to simulate NAPL moving under primarily gravimetric forces. For NAPLs which are present in a typically water saturated zone NAPL mobility is determined using water drive methods which simulate NAPL moving under saturated zone hydraulic forces. Initial sample results indicate samples had water saturations in excess of 60% coupled with the proximity of the samples to water saturated areas (surface water and groundwater) NAPL mobility testing was performed using the water drive method. During the test, each sample was flushed with 250 milliliters of water at a pressure of 5 pounds per square inch (well above the pressures present in the Spill Area). Since each sample had a unique porosity, including several samples with relatively high organic carbon, and hence high porosity, this resulted in a range of 5.6 to 11.8 pore volumes of water being flushed through the samples during the tests.

Using the water drive method, NAPL mobility is evaluated as a difference in NAPL saturation before (pre-water drive, total NAPL saturation) and after (post-water drive, residual NAPL saturation). As *Table 4* documents, the pre-water drive and post-water drive NAPL saturations were identical in seven of the eight samples, showing no mobility.

One sample, SBKR0250L560 PTS-A from 1.95 ft bgs initially measured total NAPL saturation at 2.5% and after water drive measured NAPL saturation (residual) at 2.4%, a difference (0.1%) between the pre- and post-water drive NAPL saturation values. As noted, the laboratory result for this sample recorded “dark brown LNAPL was produced”.

However, upon reviewing the testing, the laboratory determined that this LNAPL was not mobilized through the core, but was present as a NAPL glob on the end of the sample, which was displaced during the process of setting up and taking down sample for testing. As a result, the difference in pre-water drive and post-water drive NAPL saturation values do not reflect the presence of mobile NAPL.

Mr. Michael Brady, the District Manager for PTS Laboratory, concluded in an email correspondence (included in *Attachment D*) that the NAPL was not mobile and stated that he "would not expect to see any mobile NAPL production from viscous NAPL in silty soil with low NAPL saturation levels like these". Further, he stated that the test results for the sample with the 0.1% NAPL saturation difference "are not representative" and as a result could not be used to show mobile NAPL.

A monitoring well was installed (MWKR0250L560) to address continuing MDEQ concerns of potential NAPL mobility based on the PTS NAPL mobility results at SBKR0250L560. No measurable NAPL has been observed in MWKR0250L560 since its installation (five quarterly monitoring events to date). In addition, as NAPL has not accumulated in monitoring wells placed within the most impacted areas, the effective LNAPL transmissivity is 0 ft^2/day which is below the MDEQ NAPL guidance for performing effective recovery.

No other analyzed core interval produced observable NAPL or measurable NAPL mobility. A faint hydrocarbon odor was reported by PTS in the water produced from SBSA0025R525 and SBKR0250L510PC. In addition, a strong organic odor was produced from SBKR0250L567 PTS-B, SBKR1075L512 PTS-C, and SBKR1150L538 PTS-A. The three samples with strong organic odor correspond to silt and organic soil logged in the original borings.

4.3 NAPL Mobility Conclusions

The NAPL mobility evaluation used worst case soil samples to quantify NAPL saturation and mobility. The results found notably low levels of NAPL saturation (2.5% to 10.7%), which are nominally below the range for residual NAPL saturations (7% to 16%) of the soil types present within the Spill Area (Carsell and Parish, 1988). NAPL is rarely observed to exhibit significant mobility at saturations below 20% to 25% (Rousseau et al, 2012). It is assumed that NAPL, following over 4 years of weathering would, owing to its very high viscosity, require substantially higher saturations before mobility would be expected. This likely reflects a combination of extensive and successful response actions, coupled with ongoing weathering of the limited residual NAPL remaining in the Spill Area.

These observations are further supported by the lack of NAPL observed in any monitoring wells and particularly the monitoring wells installed at the locations of NAPL mobility evaluation soil borings. Together, these results clearly show that remaining NAPL in the Spill Area is immobile. As a result, there is no saturational risk associated with the remaining *de minimis*, isolated and immobile NAPL.

5.0 NAPL – Analytical Testing

This section uses the results of laboratory analytical testing to evaluate the potential for NAPL impacted soil to act as a source of dissolved phase impact in groundwater. Results are compared against Criteria to evaluate the potential risk to human health and the environment. However, it should be noted that constituents that are attributable to other sources are not consider in this evaluation. This includes metals as well as PNAs likely associated with pyrogenic sources.

The analytical data were evaluated using samples collected at or immediately adjacent to the NAPL mobility sample locations, and also on a more broad scale, evaluating samples from the entire Spill Area where potential direct and indirect NAPL observations were recorded.

5.1 Analytical Results from Worst Case Locations

Laboratory analytical testing was conducted on soil and groundwater samples collected from worst case locations to assess compositional risks. Worst case locations are defined as locations with the largest directly observed (at the time of the Line 6B crude oil release or in subsequent RI data) Line 6B crude oil impacts. The results of this effort show that Criteria exceedances are limited to an isolated portion of the Source Area.

5.1.1 Analytical Testing

In addition to the petrophysical testing, laboratory analytical testing was conducted on soil and groundwater samples collected from worst case locations to assess compositional risk, the potential for the NAPL to leach dissolved phase impacts to groundwater at concentrations in excess of Criteria. The data outside of the Source Area provide an additional line-of-evidence to demonstrate that soil and groundwater in the Spill Area reflect minimal impacts from the weathered, immobile NAPL. *Table 5*, *Table 6*, and *Table 7* present tabulated analytical results of the soil, SPLP, and groundwater, respectively. *Attachment E* contains the analytical data reports. The following subsections provide an assessment of the laboratory analysis at each worst case location.

5.1.1.1 Reach 1 – Source Area (MP 0.25 RDB)

A total of 10 soil samples were selected for laboratory analyses from 4 borings (SBSA0025R514, SBSA0025R523, SBSA0025R524, and SBSA0025R525) in the Source Area. However, as *Table 5* documents, only two samples (both from boring SBSA0025R525) had analytical results that exceed PNA or VOC Criteria.

The two samples intervals, collected immediately above and below the NAPL mobility core interval, had exceedances as follows:

- SBSA0025R525 – the shallow unsaturated sample (1.45 ft to 2.2 ft bgs) exceeded the Part 201 Groundwater Surface Water Interface Protection Criteria (GSIPC) for 1,2,4-trimethylbenzene, ethylbenzene, and xylenes as well as the Part 201 Drinking Water Protection Criteria (DWPC) for benzene.
- SBSA0025R525 – the deep saturated sample (4.2 ft to 5.2 ft bgs) exceeded DWPC for benzene.

Table 6 presents the Synthetic Precipitation Leaching Procedure (SPLP) results and shows that sample SBSA0025R525 from a portion of the shallow zone (1.9 ft to 2.1 ft bgs), shows exceedances of the Part 201 Generic Residential Groundwater Surface Water Interface Criteria (GSIC) for 1,2,4-trimethylbenzene, ethylbenzene, and xylenes as well as exceedance of the Part 201 Generic Residential Drinking Water Criteria (DWC) for benzene.

Table 7 presents the groundwater results and shows the only Criteria exceedance is benzene, which exceeds the DWC. All other PNAs and VOCs are below Criteria. It should be noted that benzene exceedances have been reported in five other wells in the Source Area. Enbridge is continuing to monitor these wells.

5.1.1.2 Reach 5 (MP 2.50 LDB)

As shown in *Table 3*, over the three phases of work, five locations in Reach 5 were evaluated for NAPL mobility (four of the five locations were subsequently selected for mobility analysis). From the five locations (SBKR0250L510, SBKR0250L550, SBKR0250L560, SBKR0250L566, and SBKR0250L567), 20 soil samples were selected for laboratory analyses and 11 of these showed exceedances of PNA or VOC Criteria. The remainder of this section presents an evaluation of these results.

- SBKR0250L510 – *Table 5* shows a soil sample from SBKR0250L510, over the same interval as the NAPL mobility sample (0.8 ft bgs), exceeded the GSIPC for 1,2,4-trimethylbenzene. However, *Table 6* shows that SPLP analysis on the sample did not leach above the GSIC for 1,2,4-trimethylbenzene. No other VOC or PNA exceeded the Criteria from this sample.

- SBKR0250L550 – *Table 5* shows three of the four soil samples collected from SBKR0250L550 (not selected for NAPL mobility analysis) reported one or more of the following exceedances: benzo(a)pyrene for the Part 201 Generic Residential Direct Contact Criteria (DCC); fluoranthene and/or phenanthrene for GSIPC. However, as shown on *Table 6*, an SPLP test from the 0 ft to 0.5 ft bgs sample did not leach above Criteria for any of the PNAs, including benzo(a)pyrene, fluoranthene, and phenanthrene. No VOCs were detected in the unsaturated soil samples. In addition, no PNAs or VOCs were detected in a groundwater sample collected from the location (*Table 7*).
- SBKR0250L560 – *Table 5* shows six samples and one duplicate were collected from SBKR0250L560. One sample (1.6 ft to 2.1 ft bgs) extended over the same shallow interval as the NAPL mobility sample (1.9 ft to 2.0 ft bgs) did not exceed the Criteria for VOCs or PNAs. However, a soil sample collected at a shallower interval (1.2 ft to 1.6 ft bgs) exceeded the GSIPC for 2-methylnaphthalene, naphthalene, and phenanthrene and exceeded the DWPC and GSIPC for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. Groundwater sampling from this location shows no PNAs or VOCs were detected in a temporary well (SBKR0250L560) or permanent well (MWKR0250L560) which is included in the groundwater monitoring program (*Table 7*).
- SBKR0250L566 – *Table 5* shows three of five soil samples collected from SBKR0250L566 (not selected for NAPL mobility analysis) reported one or more of the following exceedances: benzo(a)pyrene for the DCC; 2-methylnaphthalene, ethylbenzene, fluoranthene, naphthalene, n-propylbenzene, phenanthrene, xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene for DWPC or GSIPC. *Table 6*, shows that SPLP tests from the two 0 ft to 0.3 ft bgs samples reported that fluoranthene did not leach above the DWC or GSIC. A groundwater sample collected from a temporary well was non-detect for all PNAs and VOCs (*Table 7*), showing that there was not adequate leaching to exceed Criteria.
- SBKR0250L567 – A NAPL mobility sample was analyzed at location SBKR0250L567 from a depth of 1.8 ft bgs. No analytical sample was collected from this depth; however, two unsaturated soil samples were collected from shallower depth intervals (0 ft to 0.5 ft bgs and 0.7ft to 1.2 ft bgs). Both samples exceeded Criteria for PNAs.
    - The 0 ft to 0.5 feet bgs soil sample exceeded the DCC for benzo(a)pyrene and the GSIPC for fluoranthene and phenanthrene (*Table 5*). The fluoranthene and phenanthrene did not leach above the GSIC using the SPLP (*Table 6*).

- The 0.7ft to1.2 feet bgs soil sample also exceeded the DCC for benzo(a)pyrene and the GSIPC for fluoranthene (*Table 5*). Fluoranthene did not leach above the GSIC using the SPLP (*Table 6*).

A groundwater sample collected from a temporary well at location SBKR0250L567 was non-detect for all PNAs and VOCs (*Table 7*).

5.1.1.3 Reach 16 (MP 10.75 LDB)

At SBKR1075L512, a NAPL mobility sample was analyzed from a depth of 0.55 ft bgs. No analytical sample was collected from this depth. However, as *Table 5* shows, two unsaturated soil samples were collected from a shallower depth (0 ft to 0.4 ft bgs) and a deeper depth (0.7 ft to 1 ft bgs). Neither sample exceeded Criteria for PNAs or VOCs. No groundwater samples were collected from the location.

5.1.1.4 Reach 20 (MP 11.50 LDB)

An unsaturated soil sample was collected from SBKR1150L538 at the same shallow interval as the NAPL mobility sample (0 ft to 0.5 ft bgs). *Table 5* shows this sample exceeded the GSIPC for phenanthrene. VOCs were non-detect with the exception of 2-methylnaphthalene which was detected at a concentration below Criteria. *Table 6* shows the results of an SPLP test, which found that the leachate did not exceed Criteria for PNAs. A deeper saturated interval was also analyzed (1.7 ft to 2.1 ft bgs); however all PNAs and VOCs were non-detect (*Table 5*). No groundwater samples were collected from the location.

5.1.1.5 (MP 13.00 RDB)

No NAPL mobility sample was analyzed at location SBKR1300R594; however, two unsaturated soil samples were collected from the location at depth intervals of 0 ft to 0.5 ft bgs and 1 ft to 2 ft bgs. *Table 5* shows that both intervals contained detections of PNAs below the Criteria and no detections of VOCs. No groundwater samples were collected from the location.

5.1.2 Conclusions of Analytical Results from Worst Case Locations

Chemical analyses from the worst case locations showed few exceedances of Criteria. With the exception of the VOC exceedances in the Source Area, no other SPLP or groundwater samples from temporary wells or permanent wells showed exceedances. Given that these samples were collected from the most impacted areas remaining in the Spill Area, these analytical results demonstrate that the remaining NAPL does not pose a risk of contributing dissolved phase impacts to groundwater. As a result, the residual NAPL in worst case locations does not pose a compositional risk to groundwater.

5.2 Analytical Results from Entire Spill Area

To evaluate the risk to groundwater impact over the entire Spill Area, this section uses a broader assessment of the project data. This assessment uses a three step process to document the degree to which weathering has degraded the remaining NAPL and to identify the few locations where NAPL may continue to generate soil and or groundwater concentrations that exceed Criteria.

- First, soil boring logs were reviewed for NAPL indicators. Only samples that displayed either potential direct NAPL observations (visible oil or globules of oil) or potential indirect NAPL indicators (UV fluorescence, sheen) were included in this evaluation. This review identified 85 boring locations with potential direct NAPL observations and 249 soil boring locations with potential indirect NAPL observations. *Table 8* summarizes the 334 boring locations, out of approximately 5,800 logged soil borings, with potential NAPL observations and *Figure 2* depicts their locations.
- Second, soil samples from the 334 boring locations were screened against the Part 201 Generic Residential Soil Criteria to identify locations that exceeded Criteria. To better correlate NAPL observations with exceedances, soil samples were only included if they were collected from within the depth zone where the NAPL observations/indicators were recorded. Of the 334 locations with NAPL observations, only 80 locations (98 samples, less than 25% of samples) were identified as having an exceedance (*Table 9)*.
- Third, the data base was reviewed to identify which locations, that contained NAPL observations, also had co-located groundwater samples. Since this evaluation focuses on the ability of the residual NAPL to act as a source of dissolved phase impact, all groundwater samples (not just those with exceedances) were identified. This evaluation identified a total of 175 groundwater samples (76 from monitoring wells and 99 from temporary wells in soil borings).

The remainder of this section provides additional detail on the soil and groundwater sample results.

5.2.1 Soil Sample Results

An initial review of *Table 9* shows that 90 soil samples from the 334 soil boring locations where NAPL was potentially present included exceedances of PNAs likely associated with pyrogenic sources.

As noted in the forthcoming *White Paper: Urban PAH Background Evaluation*, these PNAs, which account for all of the PNA exceedances in the Spill Area, are most typically associated with high temperature processes such as combustion of petroleum, wood, coal, and the pyrolysis of petroleum or coal to produce creosote, coal tar, and other products associated with manufactured gas production, as well as internal combustion engine exhaust. None of the locations with PNA detects or Criteria exceedances likely associated with pyrogenic sources were located in the Source Area where no urban impact is anticipated.

These PNAs are widely distributed in North America generally (Stout et al., 2004), and in the Kalamazoo River watershed specifically (Wesley, 2005). Forthcoming analysis on PNA background concentrations for this project will show PNA concentrations well above Criteria. As a result, the pyrogenic PNAs are not an indicator of impact attributable to Line 6B crude oil. Their presence in the samples reflect a source of impact other than Line 6B crude oil.

In addition to the PNAs, three VOCs (methylene chloride, tetrahydrofuran, and tetrachloroethylene) were each reported once (in three separate samples) at a concentration above the DWPC. These compounds were not detected in Line 6B crude oil samples and are not attributable to Line 6B crude oil. As a result, these exceedances are also discounted in this evaluation.

Using this basis, a review of *Table 9* shows only 14 locations where Line 6B crude oil-associated VOC detections exceeded Criteria. These include:

- SBKR0250L508, 0 ft to 1 ft bgs, sampled on December 7, 2011, exceeded the GSIPC and/or DWPC for 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; and 2-methylnaphthalene. However, none of these compounds leached above the GSIC or DWC using the SPLP (*Table 10).*
- SBKR0250L509, 0 ft to 1 ft bgs, sampled on December 7, 2011, exceeded the GSIPC for 1,2,4-trimethylbenzene. However, this compound did not leach above the GSIC using the SPLP (*Table 10*).
- SBKR0250L510, 0 ft to 1 ft bgs, sampled on December 7, 2011, exceeded the GSIPC for 1,2,4-trimethylbenzene. However, this compound did not leach above the GSIC using the SPLP (*Table 10).*

- SBKR0250L560, 1.2 ft to 1.6 ft bgs, two samples collected on December 5 and December 18, 2013, exceeded the GSIPC and/or DWPC for 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 2-methylnaphthalene; and naphthalene. Naphthalene also leached above the GSIC or DWC using SPLP (*Table 10*). However, none of these compounds were detected in a temporary well installed at this location or during four rounds of quarterly sampling conducted at the monitoring well installed at this location (*Table 11*).
- SBKR0897I001, 0 ft to 0.5 ft bgs, sampled on November 28, 2011, exceeded the GSIPC for 1,2,4-trimethylbenzene; 2-methylnaphthalene; and naphthalene. However, none of these compounds leached above the GSIC using the SPLP (*Table 10*).
- SBKR0897I002, 0 ft to 0.5 ft bgs, sampled on November 28, 2011, exceeded the GSIPC and/or DWPC for 1,2,4-trimethylbenzene; 2-methylnaphthalene; and naphthalene. However, none of these compounds leached above the GSIC or DWC using the SPLP (*Table 10*).
- SBKR0897I013, 0 ft to 0.5 ft bgs, sampled on November 29, 2011, exceeded the GSIPC and/or DWPC for 1,2,4-trimethylbenzene; 2-methylnaphthalene; naphthalene; and xylenes. However, neither 2-methylnaphthalene nor naphthalene leached above the GSIC or DWC using the SPLP (*Table 10*). The SPLP analysis did not evaluate 1,2,4-trimethylbenzene or xylenes.
- SBKR1070I025, 0 ft to 0.6 ft bgs, sampled on November 16, 2011, exceeded the GSIPC for 1,2,4-trimethylbenzene; 2-methylnaphthalene; and naphthalene. Although no SPLP test was conducted, a temporary well at this location showed that none of these compounds exceeded the GSIC (*Table 11*).
- SBKR1070I031, 0 ft to 0.9 ft bgs, sampled on November 16, 2011, exceeded the GSIPC for 1,2,4-trimethylbenzene; 2-methylnaphthalene; and naphthalene. No corresponding SPLP test, temporary well, or monitoring well was sampled at this location.
- SBKR1350L005, 2 ft to 3 ft bgs, sampled on November 3, 2011, exceeded the GSIPC for 1,2,4-trimethylbenzene; 2-methylnaphthalene; and naphthalene. No corresponding SPLP test, temporary well, or monitoring well was sampled at this location.
- SBKR1350L025, 1 ft to 2 ft bgs, sampled on November 8, 2011, exceeded the GSIPC for naphthalene. No corresponding SPLP test, temporary well, or monitoring well was sampled at this location.

- SBSA0025R525, 1.45 ft to 2.2 ft bgs, sampled on November 12, 2013, exceeded the GSIPC or DWPC for 1,2,4-trimethylbenzene; benzene; ethylbenzene; and xylenes. A monitoring well installed at this location (MWSA0025R525) has been sampled over the past six quarters. While the results have shown benzene exceeding the DWC, there is a clear downward trend. During the last sampling event the benzene concentration was 5.5 micrograms per liter (ug/l), only slightly above the 5 ug/l DWC (*Table 11*). The six quarterly sampling events have also shown that none of the other compounds exceeded the GSIC or DWC.
- SBSA0025R545, 1.4 ft to 1.75 ft bgs, sampled on December 19, 2013, exceeded the GSIPC or DWPC for 1,2,4-trimethylbenzene and xylenes. A monitoring well installed at this location (MWSA0025R545) has been sampled over the past six quarters during which no exceedances of GSIC or DWC were observed.
- SBTC0175R073, 0 ft to 1 ft bgs, sampled on October 7, 2011, exceeded the GSIPC and/or DWPC for 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; ethylbenzene; naphthalene, and xylenes. However, none of these compounds leached above the GSIC or DWC using the SPLP (*Table 10*).

Overall, these results show a near absence of compositional risk from the Line 6B crude oil NAPL. Only 14 of the 334 locations where NAPL was observed (less than 5% of the locations) showed a potential for groundwater impact (an exceedance of conservative, generic leaching criteria). Of these 14 locations, 12 were accompanied by SPLP, temporary well, or monitoring well testing which, with one exception in the Source Area, showed that the residual NAPL did not contribute to groundwater impacts in excess of Criteria. The one exception occurred in the Source Area where an isolated area of impact has contributed to benzene exceedances of DWC. However, even in this single location, the benzene concentrations reported in quarterly groundwater sampling is clearly trending downward and is expected to soon fall below the DWC during continued monitoring.

5.2.2 Groundwater Sample Results

As noted above, 175 analytical groundwater samples (76 from monitoring wells and 99 from temporary wells in soil borings) were collected from the 334 locations where NAPL observations were recorded.

Table 11 summarizes the groundwater analytical results which can be segregated into 76 samples collected from 13 monitoring wells over the course of six sampling events, and 99 samples from temporary wells installed across the Spill Area.

While a review of *Table 11* shows remarkably few exceedances, there are several exceedances which are not attributable to Line 6B crude oil. These include:

- pH – The isolated pH exceedances are not considered attributable to Line 6B crude oil.
- Metals – As outlined in the *White Paper: Evaluation of Metals in Soil and Groundwater*, submitted to the MDEQ on June 4, 2014 (Enbridge, 2014c) exceedances of beryllium, molybdenum, nickel, and vanadium are not attributable to Line 6B crude oil.
- Benzo(g,h,i)perylene – The only PNA groundwater exceedance at a location where NAPL was observed occurred at SBKR2225L503. At this location benzo(g,h,i)perylene was detected at 1.2 ug/l, exceeding the DWC of 1.0 ug/l. Benzo(g,h,i)perylene is associated with pyrogenic sources and is not from the Line 6B crude oil. In addition, a soil sample associated with this location showed no exceedance of the GSIPC for benzo(g,h,i)perylene.

As *Table 11* shows, the only remaining compound that exceeds Criteria is benzene. The benzene exceedances are limited to three monitoring wells (MWSA0025R514, MWSA0025R525, MWSA0025R526) and two boring locations (SBSA0025R541 and SBSA0125). These wells/borings are proximate to one another in the Source Area. As previously noted, this area of benzene impacted groundwater is attributable to Line 6B crude oil. Further, benzene concentrations in the monitoring wells have shown an overall decreasing trend, reflecting the NSZD of the residual NAPL in the Source Area. While Enbridge fully expects these concentrations to continue decreasing, and with time reach a level below Criteria, Enbridge remains committed to continued monitoring of this impacted groundwater in accordance with Part 201.

Overall, the evaluation of groundwater samples collected at locations where NAPL observations have been recorded show only isolated groundwater impacts.

More specifically the only area of groundwater exceedances of Criteria that can be attributed to residual NAPL occurs within the Source Area where the original Line 6B pipeline break occurred below grade forcing crude oil into the surrounding soil under pressure. Taken as a whole the Spill Area-wide groundwater assessment of locations where NAPL was observed provides another line-of-evidence to demonstrate that the residual NAPL from the Line 6B pipeline break does not represent an unacceptable risk to human health or the environment.

6.0 Conclusions

This NAPL White Paper presents Enbridge's current understanding of NAPL in isolated overbank locations within Talmadge Creek and the Kalamazoo River watersheds as a result of the release of Line 6B crude oil from the Enbridge Line 6B pipeline break in July 2010. This understanding was developed using the best available industry guidance documents and most up to date regulatory framework. The following six lines of evidence support the conclusion that remaining NAPL is residual, *de minimis,* isolated, and immobile. As such it poses no unacceptable risk to human health or the environment.

- Remaining NAPL impacts in the Spill Area have been delineated using multiple methods and have been documented only in isolated, discontinuous areas over a small scale.
- The initial spill mechanism, outside of the Source Area, did not provide sufficient NAPL driving head to overcome NAPL pore entry pressure requirements of the primary porosity of site soils.
- LNAPL has not accumulated in any site monitoring wells or temporary wells and therefore LNAPL transmissivity at the site is 0 ft^2/day.
- Petrophysical testing of undisturbed soil cores collected from the most highly impacted areas indicates all of the remaining NAPL is residual and immobile.
- PNAs and VOCs associated with Line 6B crude oil that exceed Criteria are rare and only exceed Criteria on a limited basis (only 3 out of the 334 sample locations remain that have a pathway that is potentially complete, as presented in *Section 5.2.1*).
- Only 3 Source Area monitoring wells show constituents in groundwater that exceed Criteria and have shown a decreasing trend over time. Soil and groundwater laboratory analytical results, from both specific worst case locations agreed upon by Enbridge and the MDEQ, as well as locations identified from a review of Spill Area wide NAPL observations show that the residual NAPL does not contribute to groundwater exceedances of Criteria, except within an isolated portion of the Source Area, which Enbridge is committed to addressing. With this exception, the evaluation of analytical data shows that the remaining NAPL poses no risk to human health or the environment.

This evaluation shows that the *de minimis*, isolated, and immobile NAPL associated with the Line 6B pipeline crude oil release does not pose a saturational or compositional risk nor should the presence of this residual NAPL be an impediment to regulatory closure.

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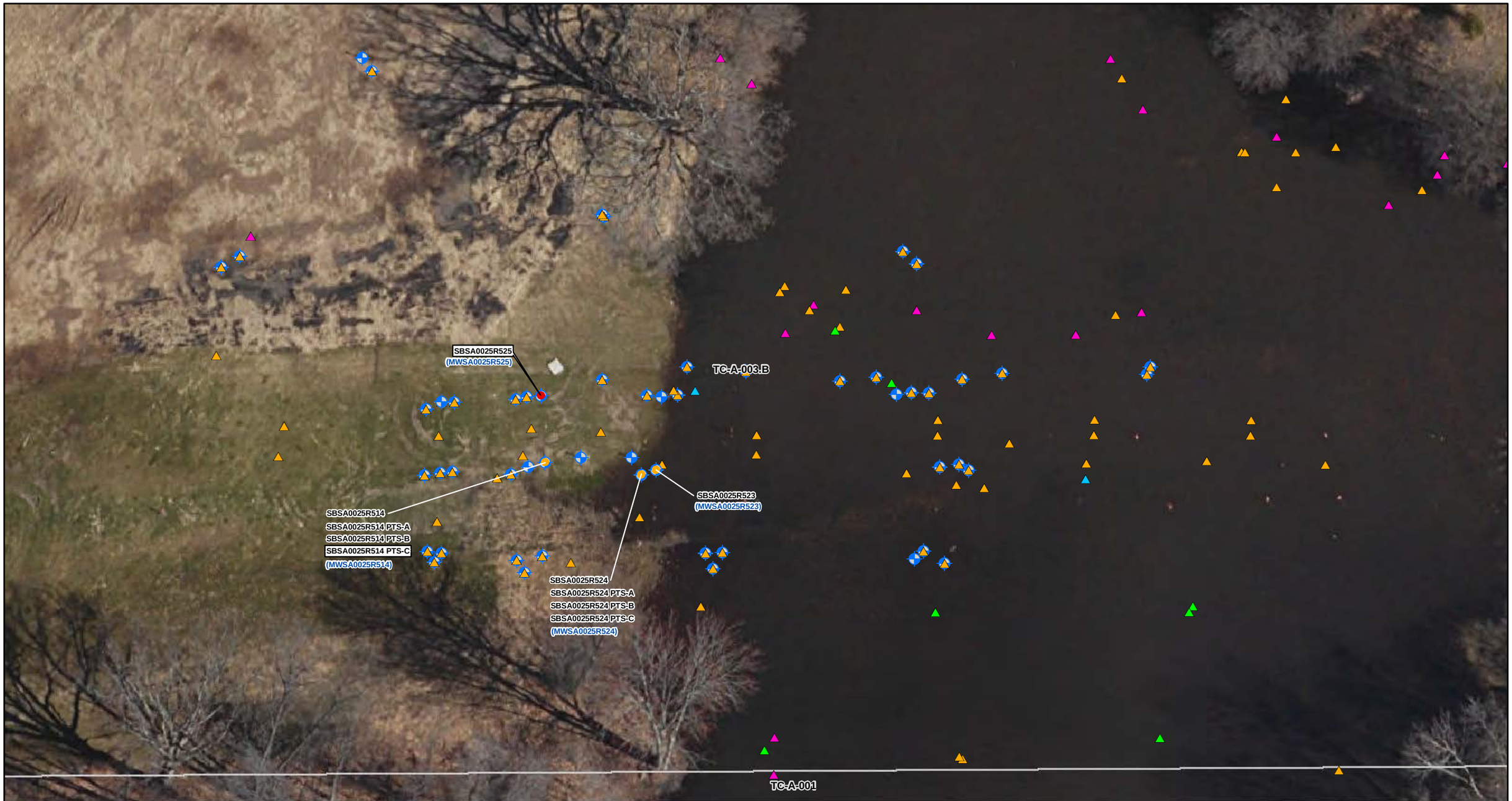
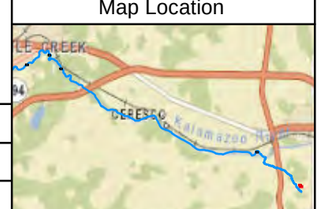
Figures



ENBRIDGE

Drawn:	NS	5/29/2015
Approved:	MW	5/29/2015
Project #:	60339671	

Map Location



Legend

PTS Boring
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

Sample Location
- Monitoring Well
- Potable Well
- Sediment
- Soil Boring
- Surface Water
- Surface Soil
- Other

- Parcel Boundary
- Kalamazoo River Flood Inundation Boundary
- Quarter Mile Grid Segments
- SBKR0250L560 NAPL Core Location
- SBKR0250L560 NAPL Mobility Analysis
- (MWKR0250L560) Monitoring Well
- NAPL Non-Aqueous Phase Liquid

N

0 15 30 60
Scale in Feet

FIGURE 1
OVERBANK SOIL CORE LOCATIONS
NAPL MOBILITY EVALUATION
SHEET 1 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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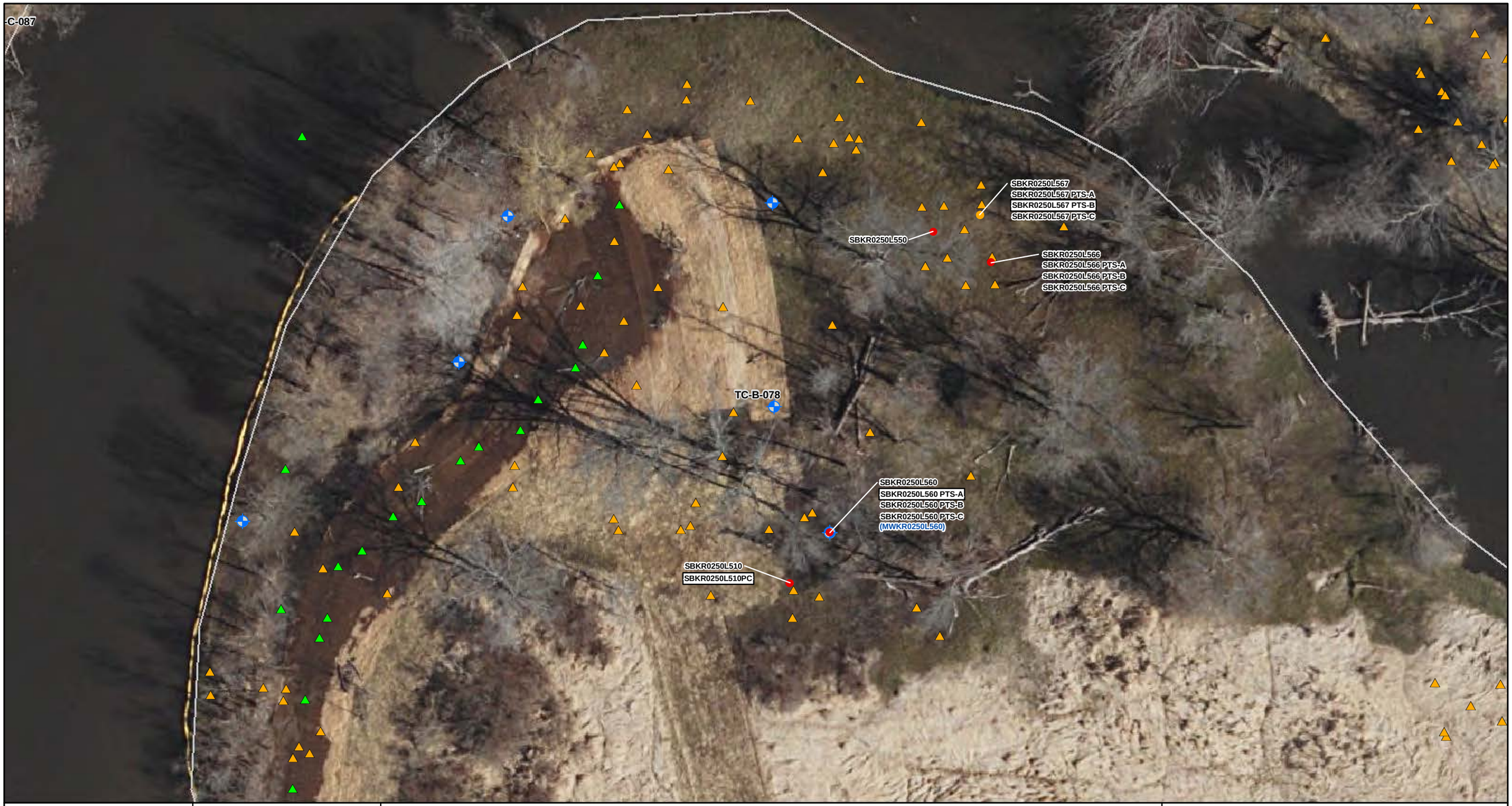
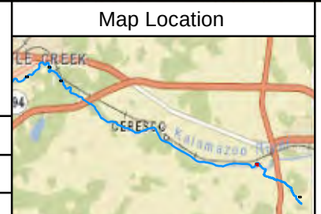
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	NS	5/29/2015
Approved:	MW	5/29/2015
Project #:	60339671	

Map Location



Legend

PTS Boring
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

Sample Location
- Monitoring Well
- Potable Well
- Sediment
- Soil Boring
- Surface Water
- Surface Soil
- Other

- Parcel Boundary
- Kalamazoo River Flood Inundation Boundary
- Quarter Mile Grid Segments
- SBKR0250L560 — NAPL Core Location
- SBKR0250L560 — NAPL Mobility Analysis
- (MWKR0250L560) — Monitoring Well
- NAPL — Non-Aqueous Phase Liquid

N

0 15 30 60

Scale in Feet

FIGURE 1
OVERBANK SOIL CORE LOCATIONS
NAPL MOBILITY EVALUATION
SHEET 2 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	NS	5/29/2015
Approved:	MW	5/29/2015
Project #:	60339671	

Map Location

Legend

PTS Boring
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

Sample Location
- Monitoring Well
- Potable Well
- Sediment
- Soil Boring
- Surface Water
- Surface Soil
- Other

- Parcel Boundary
- Kalamazoo River Flood Inundation Boundary
- Quarter Mile Grid Segments
- SBKR0250L560 — NAPL Core Location
- SBKR0250L560 — NAPL Mobility Analysis
- (MWKR0250L560) — Monitoring Well
- NAPL — Non-Aqueous Phase Liquid

N

0 15 30 60

Scale in Feet

FIGURE 1
OVERBANK SOIL CORE LOCATIONS
NAPL MOBILITY EVALUATION
SHEET 3 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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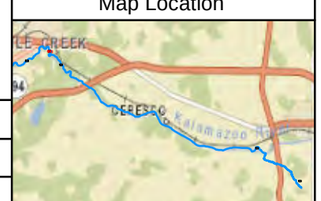
Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	NS	5/29/2015
Approved:	MW	5/29/2015
Project #:	60339671	

Map Location



Legend

PTS Boring
- Oil
- Visible Sheen
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- Trace Fluorescence
- No Oil Observed
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Sample Location
- Monitoring Well
- Potable Well
- Sediment
- Soil Boring
- Surface Water
- Surface Soil
- Other

- Parcel Boundary
- Kalamazoo River Flood Inundation Boundary
- Quarter Mile Grid Segments
- SBKR0250L560 NAPL Core Location
- SBKR0250L560 NAPL Mobility Analysis
- (MWKR0250L560) Monitoring Well
- NAPL Non-Aqueous Phase Liquid

N

0 15 30 60
Scale in Feet

FIGURE 1
OVERBANK SOIL CORE LOCATIONS
NAPL MOBILITY EVALUATION
SHEET 4 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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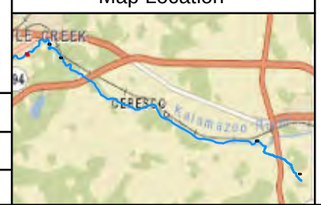
Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	NS	5/29/2015
Approved:	MW	5/29/2015
Project #:	60339671	

Map Location



Legend

PTS Boring
- Oil
- Visible Sheen
- Fluoresced Oil
- Trace Fluorescence
- No Oil Observed
- Not Logged

Sample Location
- Monitoring Well
- Potable Well
- Sediment
- Soil Boring
- Surface Water
- Surface Soil
- Other

- Parcel Boundary
- Kalamazoo River Flood Inundation Boundary
- Quarter Mile Grid Segments
- SBKR0250L560 NAPL Core Location
- SBKR0250L560 NAPL Mobility Analysis
- (MWKR0250L560) Monitoring Well
- NAPL Non-Aqueous Phase Liquid

N

0 15 30 60

Scale in Feet

FIGURE 1
OVERBANK SOIL CORE LOCATIONS
NAPL MOBILITY EVALUATION
SHEET 5 OF 5

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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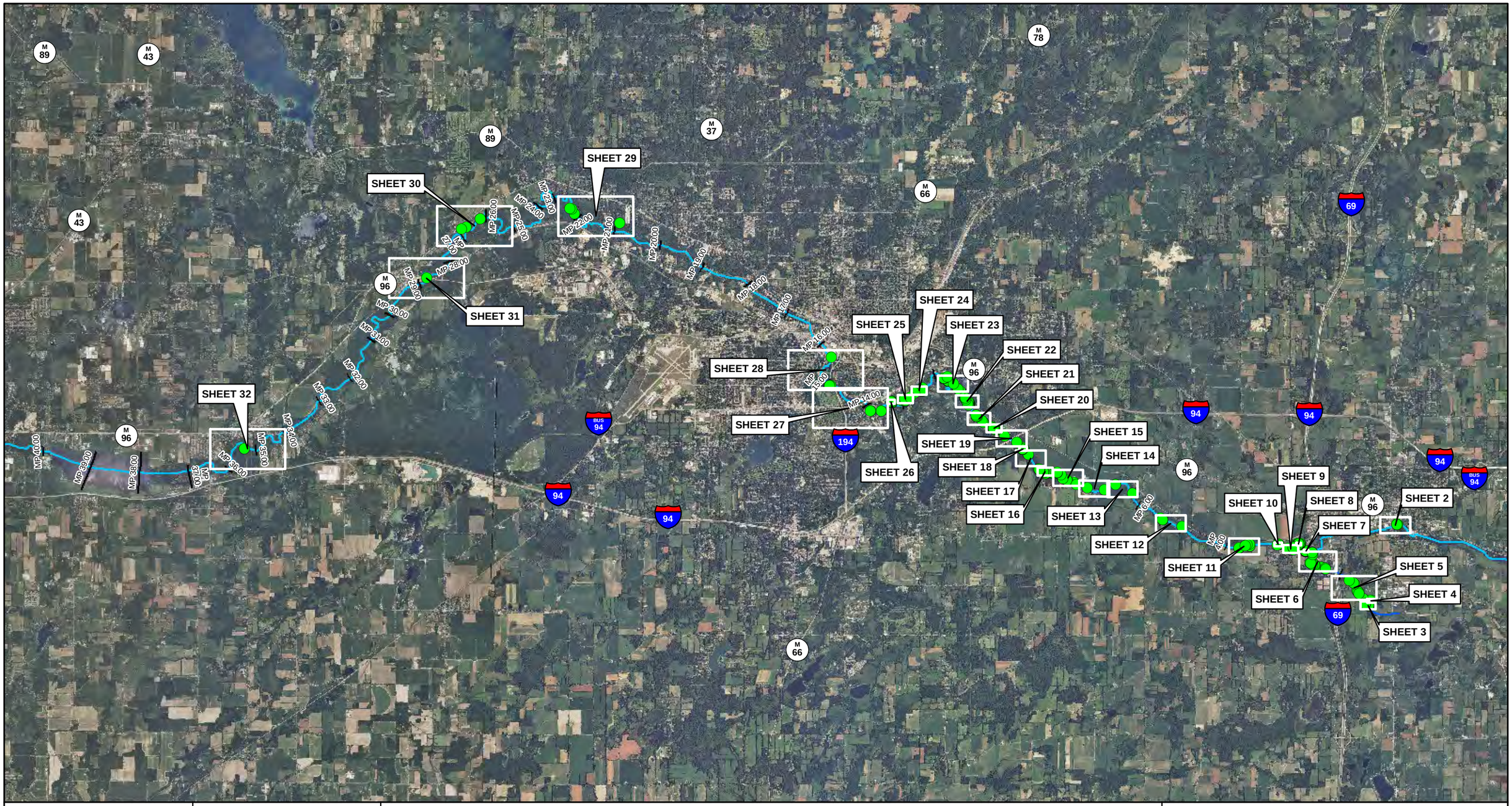
Aerial Photography Date: April 2011



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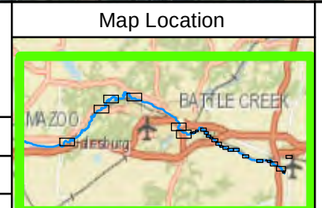
Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River
- Talmadge Creek
- Mile Grid Segments

N

0 5,000 10,000 20,000

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 1 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location

Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 2 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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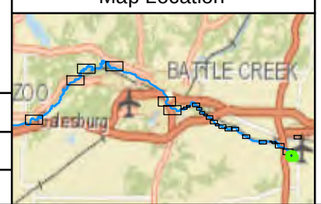
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 3 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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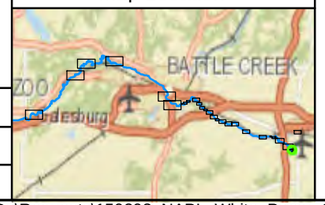
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 25 50 100

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 4 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
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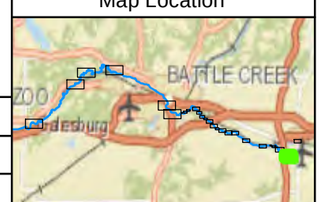
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 150 300 600

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 5 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

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Approved:	JB	6/2/2015
Project #:	60339671	

Map Location

Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 6 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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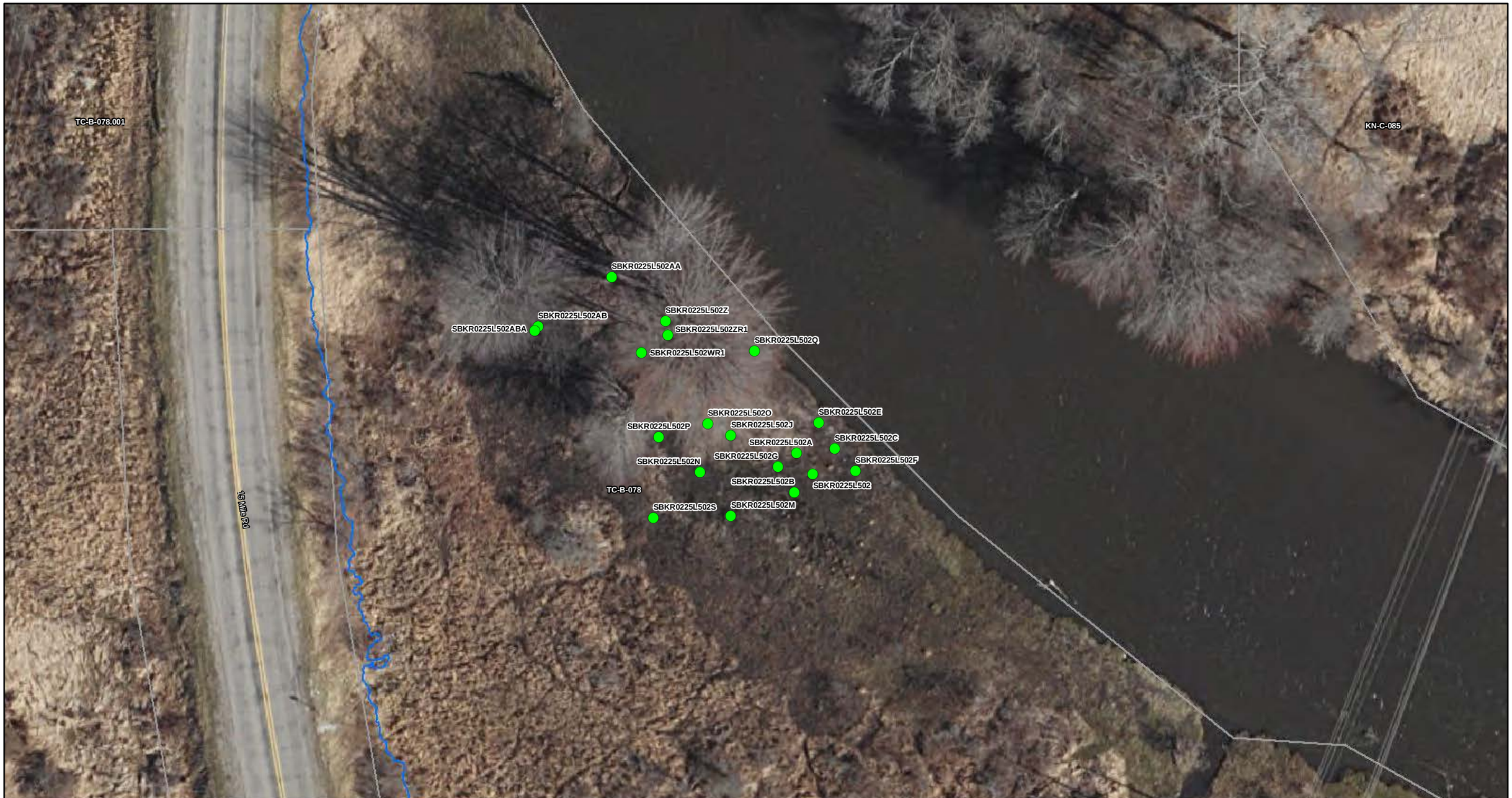

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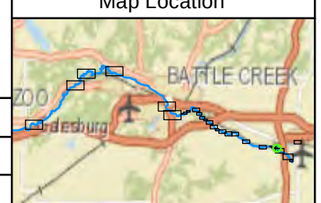
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 15 30 60

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 7 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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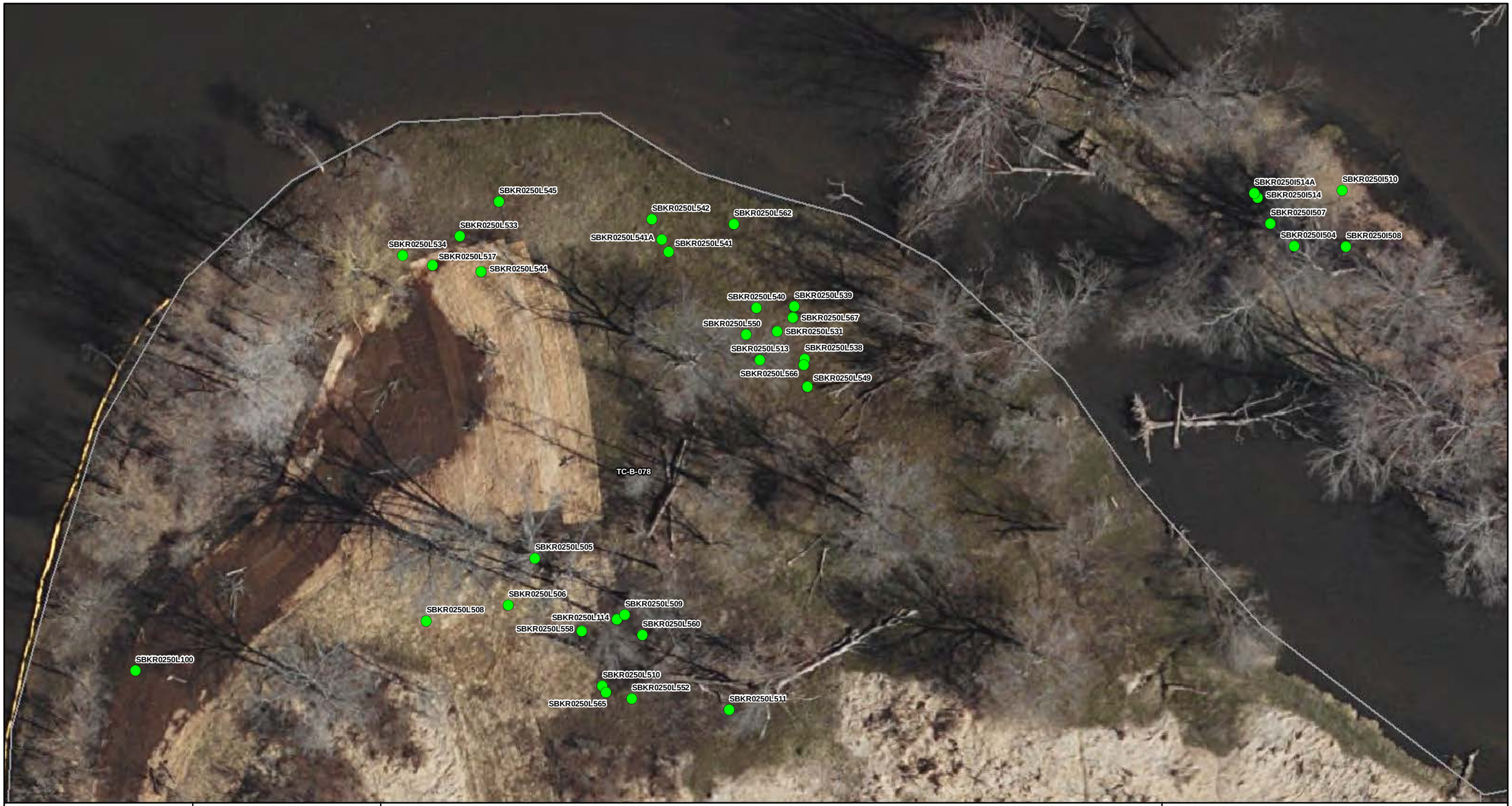
Aerial Photography Date: April 2011 over 2010



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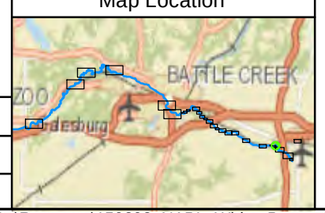
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 15 30 60

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 8 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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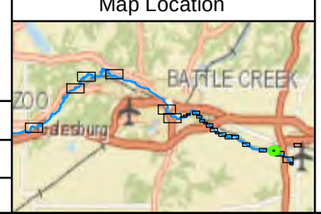
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 9 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

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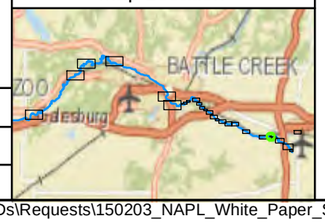
Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 25 50 100

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 10 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location

Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 11 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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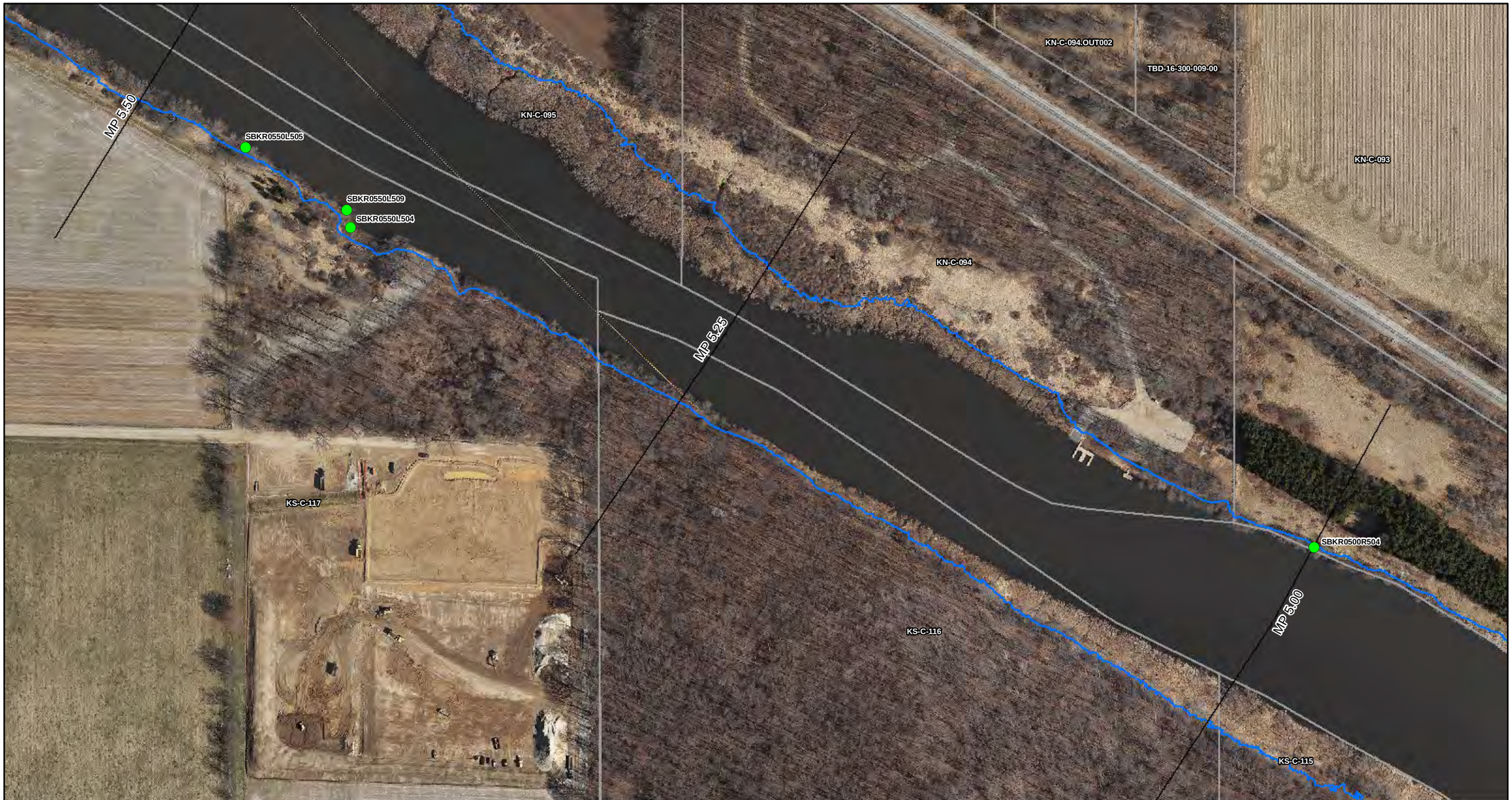
Aerial Photography Date: April 2011 over 2010



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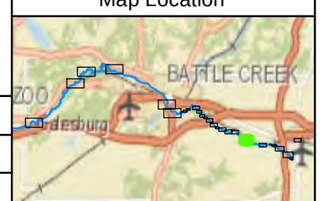
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 12 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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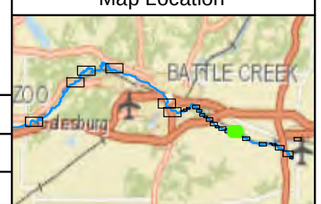
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 13 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
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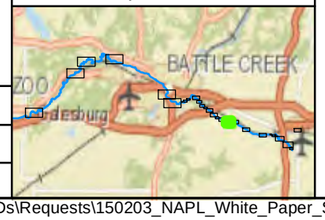
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 14 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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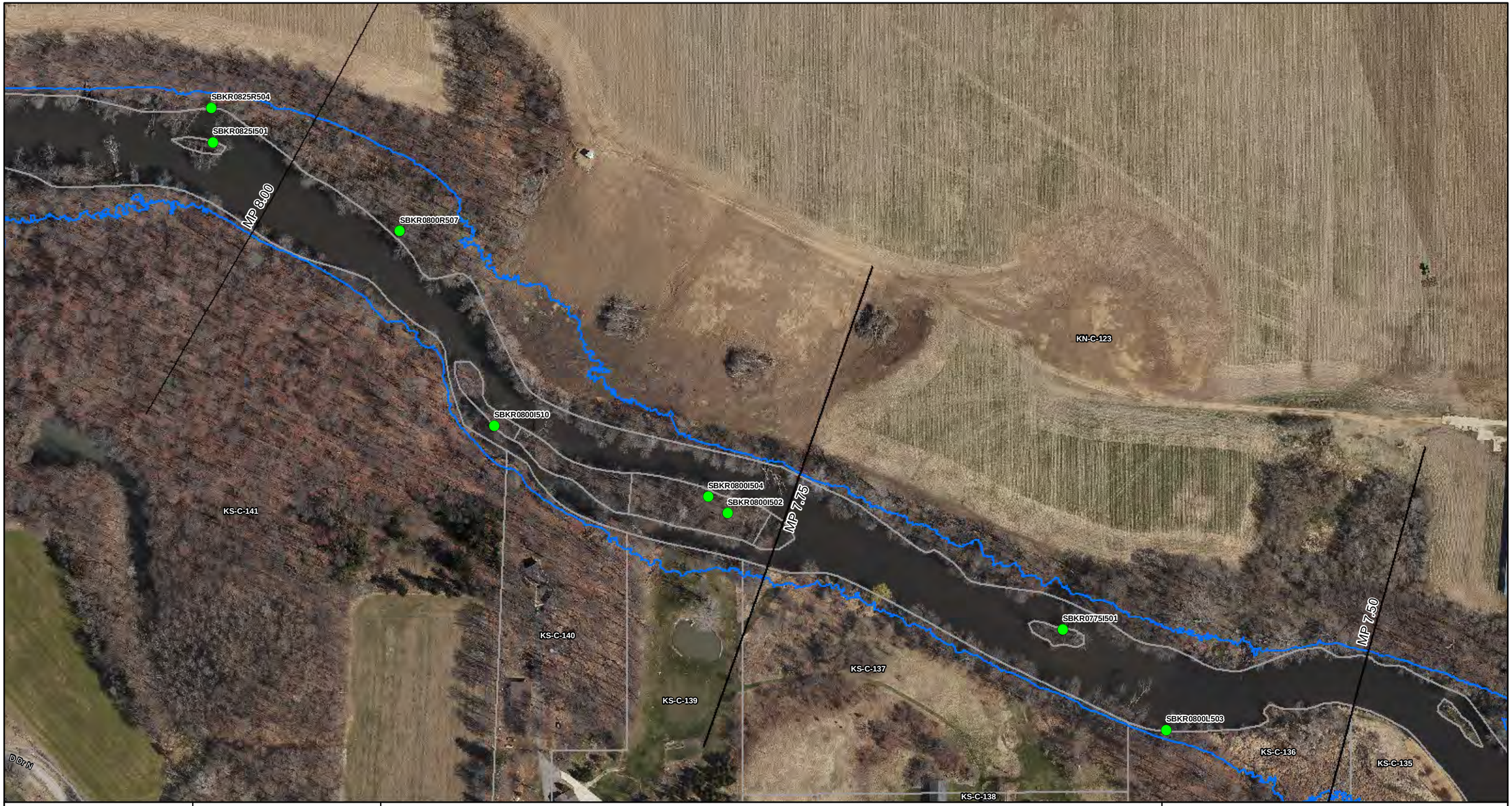
Aerial Photography Date: April 2011 over 2010



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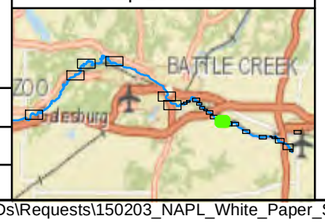
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 15 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
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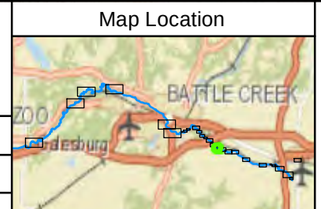
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 16 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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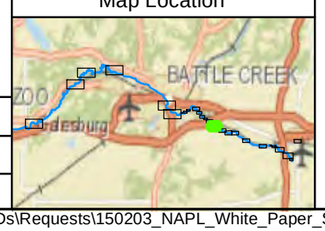
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 17 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

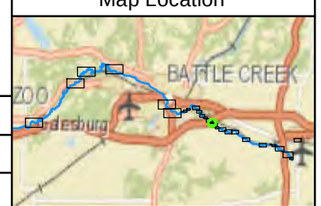
Z:\Work\GIS\Kalamazoo_River_RI\MXDs\Requests\150203_NAPL_White_Paper_Samples_Sheet2-32.mxd

Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 25 50 100

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 18 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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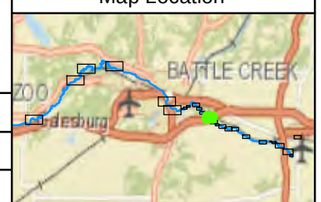
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 19 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

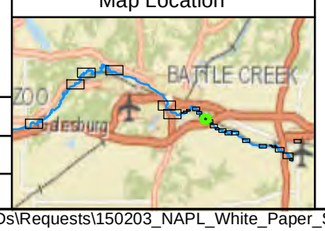
Z:\Work\GIS\Kalamazoo_River_RI\MXDs\Requests\150203_NAPL_White_Paper_Samples_Sheet2-32.mxd

Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 20 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

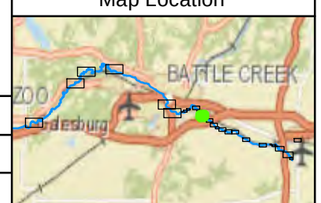
Z:\Work\GIS\Kalamazoo_River_RI\MXDs\Requests\150203_NAPL_White_Paper_Samples_Sheet2-32.mxd

Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 21 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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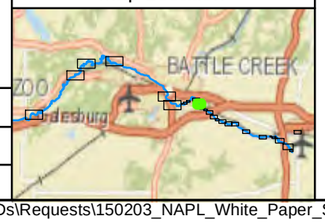
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 75 150 300

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 22 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location

Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 100 200 400

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 23 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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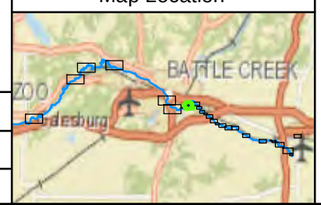
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 24 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Kalamazoo_River_RI\MXDs\Requests\150203_NAPL_White_Paper_Samples_Sheet2-32.mxd

Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location

Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 50 100 200

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 25 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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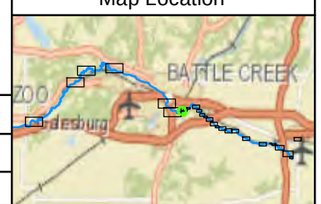
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 25 50 100

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 26 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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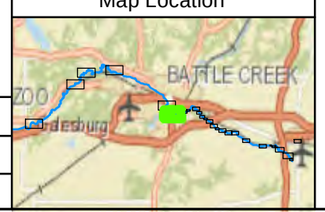
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 250 500 1,000

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 27 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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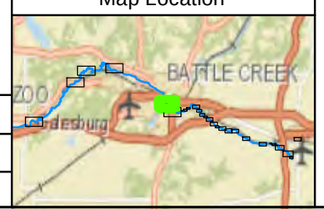
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 250 500 1,000

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 28 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

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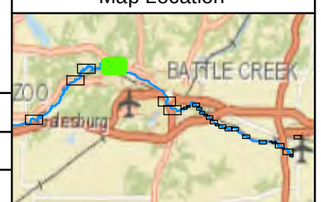
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 250 500 1,000

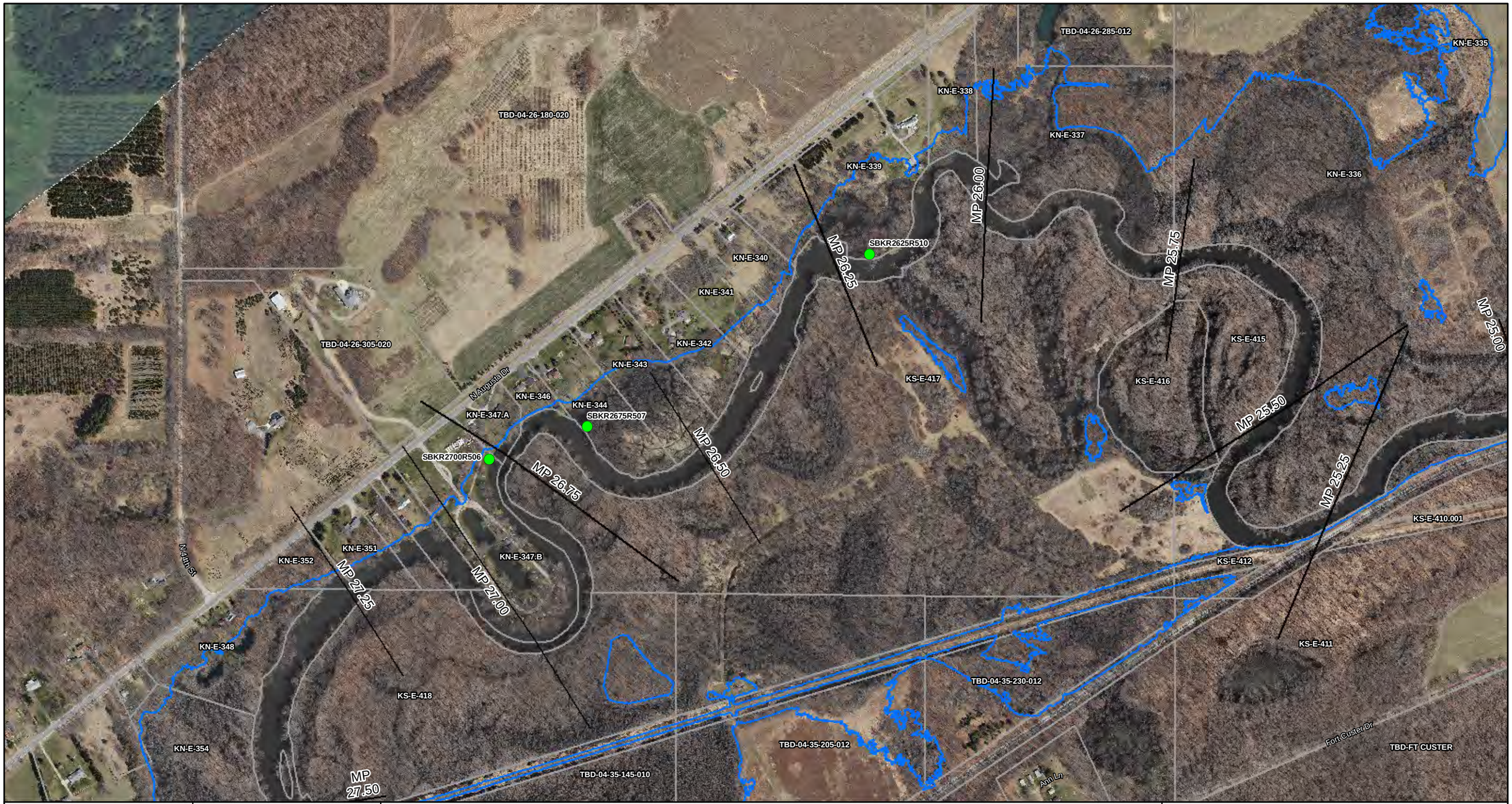
Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 29 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Kalamazoo_River_RI\MXDs\Requests\150203_NAPL_White_Paper_Samples_Sheet2-32.mxd

Aerial Photography Date: April 2011 over 2010



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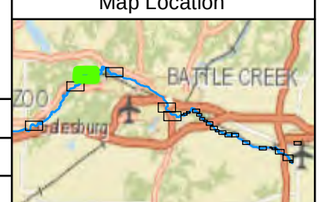
Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 250 500 1,000

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 30 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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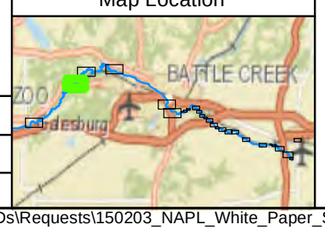
Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location



Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 250 500 1,000

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 31 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

ENBRIDGE

Drawn:	NS	6/2/2015
Approved:	JB	6/2/2015
Project #:	60339671	

Map Location

Legend

- NAPL Observation
- Kalamazoo River Flood Inundation Boundary
- Parcel
- Quarter Mile Grid Segments

N

0 250 500 1,000

Scale in Feet

FIGURE 2
OVERBANK BORINGS WITH NAPL OBSERVATIONS
BACKGROUND AND ENTIRE SPILL AREA
SHEET 32 OF 32

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011 over 2010

Tables

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
Parent PNAs, Alkylated PNAs, and Biomarkers						
13a,17b-20S-Ethyldiacholestane	mg/kg	**6.76**	**6**	**5.51**	**6.25**	**5.22**
13b(H),17a(H)-20R-Diacholestane	mg/kg	**17.4**	**15.5**	**16.5**	**15.9**	**12.2**
13b(H),17a(H)-20S-Diacholestane	mg/kg	**40.4**	**36.5**	**35.6**	**36.3**	**28**
13b,17a-20S-Methyldiacholestane	mg/kg	**18.2**	**13.3**	**17.6**	**15.3**	**11.6**
14a(H),17a(H)-20R-Cholestane/13b(H),17a(H)-20R-Ethyldiacholestane (S17)	mg/kg	**79.3**	**79.1**	**76.6**	**74.6**	**56**
14a(H),17a(H)-20R-Ethylcholestane	mg/kg	**58**	**54.6**	**55.6**	**51.8**	**41.3**
14a(H),17a(H)-20S-Cholestane/13b(H),17a(H)-20S-Ethyldiacholestane (S12)	mg/kg	**64.1**	**60.1**	**61.5**	**59.4**	**48.1**
14a(H),17a(H)-20S-Ethylcholestane	mg/kg	**69.8**	**65.9**	**62**	**67.8**	**49.1**
14a,17a-20R-Methylcholestane	mg/kg	**31**	**29.8**	**27.4**	**28.4**	**20.6**
14a,17a-20S-Methylcholestane	mg/kg	**34.8**	**31.9**	**32.5**	**29.8**	**23.6**
14b(H),17b(H)-20R-Cholestane	mg/kg	**52.3**	**51.2**	**46.7**	**46.9**	**38.6**
14b(H),17b(H)-20R-Ethylcholestane	mg/kg	**81.2**	**86.4**	**73.2**	**77.6**	**64.6**
14b(H),17b(H)-20S-Cholestane	mg/kg	**51.8**	**48.3**	**47.2**	**47.2**	**38.4**
14b(H),17b(H)-20S-Ethylcholestane	mg/kg	**52.9**	**42.9**	**52**	**45**	**33.2**
14b,17b-20R-Methylcholestane	mg/kg	**43**	**42.2**	**41.4**	**38**	**30.7**
14b,17b-20S-Methylcholestane	mg/kg	**59.5**	**52.3**	**50.7**	**53.9**	**42.9**
17a(H),21b(H)-25-Norhopane	mg/kg	**12.6**	**12.6**	**11.1**	**11.1**	**8.68**
17a(H)-22,29,30-Trisnorhopane-TM	mg/kg	**79.6**	**76.6**	**75.4**	**72.1**	**57.2**
17a(H)-Diahopane	mg/kg	**9.39**	**8.86**	**10.1**	**8.15**	**7.66**
17a/b,21b/a 28,30-Bisnorhopane	mg/kg	**51.2**	**50.4**	**47.6**	**44.2**	**35.2**
18a(H)&18b(H)-Oleananes	mg/kg	**3.15**	**2.67**	**3.1**	**3.04**	**1.97**
18a(H)-30-Norneohopane-C29Ts	mg/kg	**29.2**	**25.4**	**29**	**24.4**	**19.7**
18a-22,29,30-Trisnorneohopane-TS	mg/kg	**33.9**	**32.8**	**32.5**	**30.1**	**24**
1-Methyldibenzothiophene	mg/kg	**44.4**	**44.9**	**38.4**	**41.3**	**32.4**
1-Methylnaphthalene	mg/kg	**111**	**108**	**109**	**103**	**25**
1-Methylphenanthrene	mg/kg	**43.4**	**40.3**	**43**	**42.1**	**31.7**
2,3,5-Trimethylnaphthalene	mg/kg	**69.8**	**48.8**	**55**	**68.3**	**43.1**
2,6-Dimethylnaphthalene	mg/kg	**179**	**158**	**195**	**170**	**71.8**
2/3-Methyldibenzothiophene	mg/kg	**66.8**	**69.3**	**60.9**	**62.1**	**49.7**
2-Methylanthracene	mg/kg	**4.53**	**4.83**	**3.62**	**4.06**	**2.76**
2-Methylnaphthalene	mg/kg	**164**	**156**	**169**	**150**	**33.2**
2-Methylphenanthrene	mg/kg	**51.4**	**48.6**	**50.4**	**49.6**	**36.9**
30,31-Bishomohopane-22R	mg/kg	**61.6**	**59.4**	**58.5**	**53.9**	**42.8**
30,31-Bishomohopane-22S	mg/kg	**86.2**	**81.3**	**80.1**	**75.8**	**60.4**

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
30,31-Trishomohopane-22R	mg/kg	**43**	**40.3**	**39.4**	**41.2**	**29.8**
30,31-Trishomohopane-22S	mg/kg	**64.8**	**62.9**	**63**	**59.6**	**49**
30-Homohopane-22R	mg/kg	**109**	**105**	**100**	**96.9**	**77.7**
30-Homohopane-22S	mg/kg	**134**	**125**	**122**	**117**	**94.9**
30-Norhopane	mg/kg	**214**	**206**	**200**	**194**	**155**
30-Normoretane	mg/kg	**20.9**	**18.8**	**19.3**	**18.8**	**14.8**
3-Methylphenanthrene	mg/kg	**45.4**	**42.3**	**43.4**	**44**	**33.5**
4/9-Methylphenanthrene	mg/kg	**76.7**	**75.1**	**70.7**	**71.5**	**56.3**
4-Methyldibenzothiophene	mg/kg	**80.5**	**81.4**	**71.6**	**75.1**	**59**
Acenaphthene	mg/kg	**12.9**	**12.1**	**13.4**	**13**	**6.02**
Acenaphthylene	mg/kg	**3.09**	**2.68**	**3.46**	**3.18**	**1.69**
Anthracene	mg/kg	< 0.912	< 0.977	< 0.976	< 0.998	< 0.947
Benzo(a)anthracene	mg/kg	**3.91**	**3.6**	**3.44**	**3.4**	**2.55**
Benzo(a)fluoranthene	mg/kg	**0.661**	**0.522**	**0.63**	**0.606**	**0.456**
Benzo(a)pyrene	mg/kg	**4.91**	**4.42**	**5.06**	**4.24**	**3.42**
Benzo(b)fluoranthene	mg/kg	**5.84**	**5.74**	**6.13**	**5.33**	**4.57**
Benzo(b)fluorene	mg/kg	< 0.912	< 0.977	< 0.976	< 0.998	< 0.947
Benzo(e)pyrene	mg/kg	**10.7**	**9.52**	**10.6**	**8.67**	**7.5**
Benzo(g,h,i)perylene	mg/kg	**6.51**	**6.02**	**7.1**	**5.76**	**4.71**
Benzo[j]fluoranthene/Benzo[k]fluoranthene	mg/kg	**1.85**	**1.32**	**2.01**	**1.51**	**1.22**
Benzothiophene	mg/kg	**6.93**	**8.38**	**5.31**	**6.13**	**0.567**
Biphenyl	mg/kg	**17.1**	**16.7**	**16.6**	**17**	**5.32**
C1-Benzo(b)thiophenes	mg/kg	**40**	**43.2**	**32.3**	**35.1**	**9.12**
C1-Chrysenes	mg/kg	**54.3**	**50**	**55**	**49.3**	**39.6**
C1-Decalins	mg/kg	**291**	**266**	**296**	**230**	**16.4**
C1-Dibenzothiophenes	mg/kg	**210**	**216**	**184**	**196**	**154**
C1-Fluoranthenes/Pyrenes	mg/kg	**72.2**	**67.2**	**72.7**	**66.4**	**53.7**
C1-Fluorenes	mg/kg	**83.1**	**77.2**	**81.6**	**78.3**	**55.8**
C1-Naphthalenes	mg/kg	**178**	**170**	**179**	**164**	**37.3**
C1-Naphthobenzothiophenes	mg/kg	**118**	**120**	**106**	**109**	**91.5**
C1-Phenanthrenes/Anthracenes	mg/kg	**223**	**215**	**215**	**213**	**164**
C23 Tricyclic Terpane	mg/kg	**116**	**112**	**112**	**105**	**83.4**
C24 Tetracyclic Terpane	mg/kg	**20.5**	**20.4**	**20.5**	**19.1**	**15.5**
C24 Tricyclic Terpane	mg/kg	**67.1**	**61**	**62.4**	**58**	**47.7**
C25 Tricyclic Terpane	mg/kg	**58.8**	**54.7**	**57.3**	**52.8**	**42.2**

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
C26 Tricyclic Terpane-22R	mg/kg	**21.4**	**20.7**	**21.4**	**20.3**	**15.4**
C26 Tricyclic Terpane-22S	mg/kg	**22**	**21.6**	**22.5**	**20.5**	**16.2**
C26,20R- +C27,20S- triaromatic steroid	mg/kg	**293**	**273**	**276**	**266**	**212**
C27,20R-triaromatic steroid	mg/kg	**185**	**172**	**176**	**166**	**130**
C28 Tricyclic Terpane-22R	mg/kg	**26.2**	**26**	**26.4**	**24.7**	**19.8**
C28 Tricyclic Terpane-22S	mg/kg	**25.8**	**23.6**	**25.4**	**24.2**	**18.2**
C28,20R-triaromatic steroid	mg/kg	**212**	**192**	**203**	**188**	**149**
C28,20S-triaromatic steroid	mg/kg	**251**	**230**	**237**	**225**	**180**
C29 Tricyclic Terpane-22R	mg/kg	**32.8**	**30.5**	**30.8**	**29.2**	**23.6**
C29 Tricyclic Terpane-22S	mg/kg	**33.5**	**33.7**	**33.8**	**29.3**	**24.4**
C2-Benzo(b)thiophenes	mg/kg	**76.1**	**84.7**	**57.7**	**67.5**	**30**
C2-Chrysenes	mg/kg	**91.6**	**84.4**	**90**	**79.8**	**65.3**
C2-Decalins	mg/kg	**428**	**399**	**422**	**344**	**58.2**
C2-Dibenzothiophenes	mg/kg	**388**	**393**	**344**	**366**	**293**
C2-Fluoranthenes/Pyrenes	mg/kg	**99**	**93.8**	**98.4**	**93.4**	**76.8**
C2-Fluorenes	mg/kg	**180**	**170**	**182**	**176**	**134**
C2-Naphthalenes	mg/kg	**431**	**381**	**462**	**408**	**179**
C2-Naphthobenzothiophenes	mg/kg	**182**	**183**	**166**	**168**	**138**
C2-Phenanthrenes/Anthracenes	mg/kg	**336**	**332**	**324**	**327**	**260**
C30 Tricyclic Terpane-22R	mg/kg	**24.6**	**24.5**	**24.2**	**22.8**	**17.2**
C30 Tricyclic Terpane-22S	mg/kg	**24.9**	**23**	**24.2**	**21.3**	**16.4**
C3-Benzo(b)thiophenes	mg/kg	**144**	**152**	**119**	**130**	**79.6**
C3-Chrysenes	mg/kg	**108**	**96.8**	**104**	**94.1**	**75.5**
C3-Decalins	mg/kg	**287**	**266**	**291**	**253**	**72.5**
C3-Dibenzothiophenes	mg/kg	**429**	**436**	**381**	**406**	**330**
C3-Fluoranthenes/Pyrenes	mg/kg	**118**	**111**	**115**	**105**	**87.6**
C3-Fluorenes	mg/kg	**214**	**205**	**211**	**208**	**162**
C3-Naphthalenes	mg/kg	**538**	**476**	**556**	**512**	**320**
C3-Naphthobenzothiophenes	mg/kg	**164**	**164**	**149**	**145**	**126**
C3-Phenanthrenes/Anthracenes	mg/kg	**302**	**302**	**284**	**284**	**226**
C4-Benzo(b)thiophenes	mg/kg	**161**	**166**	**128**	**146**	**105**
C4-Chrysenes	mg/kg	**64.7**	**56.4**	**61.4**	**54.4**	**43.5**
C4-Decalins	mg/kg	**328**	**306**	**330**	**281**	**133**
C4-Dibenzothiophenes	mg/kg	**298**	**307**	**264**	**280**	**232**
C4-Fluoranthenes/Pyrenes	mg/kg	**113**	**110**	**112**	**102**	**85.7**

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
C4-Naphthalenes	mg/kg	**435**	**401**	**434**	**412**	**298**
C4-Naphthobenzothiophenes	mg/kg	**124**	**123**	**113**	**111**	**92.9**
C4-Phenanthrenes/Anthracenes	mg/kg	**143**	**139**	**135**	**136**	**102**
Carbazole	mg/kg	**4.52**	**3.95**	**4.03**	**3.96**	**3.04**
Chrysene/Triphenylene	mg/kg	**21.4**	**20**	**20.3**	**20**	**15.2**
cis/trans-Decalin	mg/kg	**137**	**128**	**144**	**104**	**3.28**
Dibenz[ah]anthracene/Dibenz[ac]anthracene	mg/kg	**1.3**	**1.29**	**1.37**	**0.987**	**0.742**
Dibenzofuran	mg/kg	**7.7**	**7.83**	**7.65**	**7.18**	**3.31**
Dibenzothiophene	mg/kg	**59.2**	**59.8**	**53.8**	**54.6**	**38.9**
Fluoranthene	mg/kg	**6.51**	**5.44**	**6.48**	**5.67**	**4.73**
Fluorene	mg/kg	**28.8**	**26.4**	**28.8**	**27**	**14.7**
Hopane	mg/kg	**296**	**280**	**270**	**264**	**209**
Indeno(1,2,3-c,d)pyrene	mg/kg	**2.79**	**2.81**	**2.98**	**2.47**	**2.02**
Moretane	mg/kg	**21.1**	**21.2**	**19.7**	**21**	**15.4**
Naphthalene	mg/kg	**59.5**	**59.2**	**61**	**50.9**	**4**
Naphthobenzothiophenes	mg/kg	**35.7**	**36.3**	**31.6**	**32.2**	**27.5**
Pentakishomohopane-22R	mg/kg	**39.8**	**37.6**	**37.2**	**34.2**	**26.1**
Pentakishomohopane-22S	mg/kg	**56.2**	**53.5**	**51.2**	**49.2**	**38.8**
Perylene	mg/kg	**9.49**	**8.98**	**9.35**	**8.21**	**6.68**
Phenanthrene	mg/kg	**81.6**	**76.9**	**78.1**	**74.6**	**53.5**
Pyrene	mg/kg	**19.2**	**17.1**	**20.1**	**19**	**14.4**
Retene	mg/kg	< 0.912	< 0.977	**60.7**	**51.9**	**41.1**
T22a-Gammacerane/C32-diahopane	mg/kg	**49.2**	**46.1**	**45**	**45.1**	**33.1**
Tetrakishomohopane-22R	mg/kg	**31.4**	**29.4**	**28.4**	**27.2**	**20.4**
Tetrakishomohopane-22S	mg/kg	**44.2**	**42.6**	**40**	**40**	**30.7**
Unknown Sterane (S18)	mg/kg	**14**	**12.8**	**15.8**	**13.3**	**9.83**
Saturated Hydrocarbons and TPH						
2,6,10 Trimethyltridecane (1470)	mg/kg	**428**	**367**	**433**	**385**	**229**
2,6,10,14-TETRAMETHYL PENTADECANE	mg/kg	**552**	**452**	**593**	**497**	**385**
2,6,10,14-TETRAMETHYLHEXADECANE	mg/kg	**349**	**317**	**340**	**319**	**245**
2,6,10-TRIMETHYLDODECANE	mg/kg	**296**	**244**	**272**	**241**	**107**
DOTRIACONTANE	mg/kg	**88.6**	**87.6**	**62.3**	**91.3**	**63**
HEPTADECANE	mg/kg	**388**	**373**	**356**	**365**	**232**
HEXATRIACONTANE	mg/kg	**73.2**	**71.1**	**54.6**	**71.1**	**53**
N-DECANE	mg/kg	**889**	**864**	**904**	**610**	**6.63**

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
N-DOCOSANE	mg/kg	**219**	**217**	**216**	**203**	**151**
N-DODECANE	mg/kg	**563**	**534**	**535**	**495**	**67.4**
N-EICOSANE	mg/kg	**288**	**277**	**273**	**267**	**196**
n-Heneicosane (C21)	mg/kg	**189**	**188**	**177**	**176**	**119**
n-Hentriacontane (C31)	mg/kg	**77.2**	**87.1**	**68.9**	**71.1**	**54.2**
n-Heptacosane (C27)	mg/kg	**121**	**120**	**112**	**93.6**	**70.6**
n-Heptatriacontane (C37)	mg/kg	**42.2**	**35.8**	**20.3**	**34.8**	**24.4**
N-HEXACOSANE	mg/kg	**158**	**162**	**144**	**141**	**108**
N-HEXADECANE	mg/kg	**454**	**474**	**444**	**456**	**297**
N-NONANE	mg/kg	**1350**	**1440**	**1300**	**711**	**0.947**
n-Nonatriacontane (C39)	mg/kg	< 91.2	< 97.7	< 97.6	< 99.8	< 94.7
N-OCTACOSANE	mg/kg	**102**	**109**	**96.5**	**88.4**	**67.5**
N-OCTADECANE	mg/kg	**373**	**361**	**358**	**361**	**234**
n-Octatriacontane (C38)	mg/kg	< 91.2	< 97.7	< 97.6	< 99.8	< 94.7
NONACOSANE	mg/kg	**108**	**103**	**98**	**82.9**	**66**
NONADECANE	mg/kg	**248**	**244**	**253**	**247**	**168**
Norpristane (1650)	mg/kg	**272**	**209**	**295**	**232**	**186**
n-Tetracontane (C40)	mg/kg	< 91.2	< 97.7	< 97.6	< 99.8	< 94.7
N-TETRACOSANE	mg/kg	**170**	**165**	**169**	**154**	**114**
N-TETRADECANE	mg/kg	**634**	**598**	**547**	**561**	**250**
N-TRIACONTANE	mg/kg	**124**	**141**	**132**	**111**	**85.3**
N-TRIDECANE	mg/kg	**562**	**537**	**535**	**539**	**158**
n-Tritriacontane (C33)	mg/kg	**226**	**230**	**200**	**200**	**169**
N-UNDECANE	mg/kg	**768**	**737**	**775**	**637**	**31.2**
PENTACOSANE	mg/kg	**240**	**211**	**211**	**192**	**144**
PENTADECANE	mg/kg	**503**	**499**	**492**	**492**	**275**
PENTATRIACONTANE	mg/kg	**61.7**	**62.4**	**41.7**	**68.5**	**43.2**
TETRATRIACONTANE	mg/kg	**151**	**152**	**113**	**139**	**102**
Total Petroleum Hydrocarbons (C9-C44)	mg/kg	**462000**	**430000**	**438000**	**380000**	**272000**
TOTAL RESOLVABLE HYDROCARBONS	mg/kg	**60300**	**56700**	**60500**	**53300**	**24400**
Total Saturated Hydrocarbons	mg/kg	**11200**	**10900**	**10800**	**9490**	**4620**
TRICOSANE	mg/kg	**178**	**184**	**180**	**162**	**124**
VOC						
1,2,4,5-TETRAMETHYLBENZENE	mg/kg	**38.9**	**48.5**	**65**	**23.8**	**1.96**
1,2,4-Trimethylbenzene	mg/kg	**392**	**499**	**511**	**222**	**2.22**

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
1,2-Dichloroethane	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
1,2-DIETHYLBENZENE	mg/kg	**24.1**	**37.1**	**35**	**14.9**	< 0.35
1,3,5-Trimethylbenzene	mg/kg	**172**	**217**	**235**	**91.7**	< 0.35
1,3-Dimethyl-4-ethylbenzene	mg/kg	**63.8**	**88.9**	**103**	**43.2**	**1.94**
1-Decene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
1-ETHYL-2,3-DIMETHYLBENZENE	mg/kg	**32.2**	**47.7**	**49.9**	**21.4**	**1.45**
1-ETHYL-3-METHYL BENZENE	mg/kg	**244**	**296**	**294**	**127**	< 0.35
1-ETHYLTOLUENE	mg/kg	**108**	**138**	**149**	**59.3**	< 0.35
1-Heptene/1,2-DMCP (trans)	mg/kg	**808**	**1770**	**1330**	**171**	< 0.35
1-Hexene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
1-METHYL-2-PROPYLBENZENE	mg/kg	**53.6**	**67.5**	**83**	**34.8**	**1.17**
1-Methyl-3-propylbenzene	mg/kg	**78**	**99.8**	**118**	**52.8**	**1.25**
1-Methyl-4-propylbenzene	mg/kg	**46.1**	**56.4**	**65**	**31.1**	**0.7**
1-Methylnaphthalene	mg/kg	**90.7**	**121**	**152**	**60.9**	**18.3**
1-Nonene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
1-PENTENE	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
2,2,3-TRIMETHYL PENTANE	mg/kg	**10.7**	**18.7**	**15.7**	**2.43**	< 0.35
2,2,4-Trimethyl pentane	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
2,2-Dimethylpentane	mg/kg	**102**	**268**	**171**	**17.5**	< 0.35
2,3,3-TRIMETHYLPENTANE	mg/kg	**17.6**	**34.1**	< 4.34	**4.42**	< 0.35
2,3,4-TRIMETHYLPENTANE	mg/kg	**29.6**	**56.6**	**46.3**	**7.43**	< 0.35
2,3-DIHYDRO-1H-INDENE	mg/kg	**31.5**	**39.7**	**49**	**20**	< 0.35
2,3-DIMETHYL BUTANE	mg/kg	**457**	**1450**	**961**	**74.9**	< 0.35
2,3-DIMETHYL HEXANE	mg/kg	**124**	**236**	**178**	**31.1**	< 0.35
2,3-DIMETHYL PENTANE	mg/kg	**334**	**766**	**575**	**65.8**	< 0.35
2,4-DIMETHYL PENTANE	mg/kg	**196**	**488**	**340**	**34.6**	< 0.35
2,4-Dimethylhexane	mg/kg	**173**	**335**	**251**	**39**	< 0.35
2,5-DIMETHYL HEXANE	mg/kg	**143**	**268**	**194**	**32.2**	< 0.35
2-ETHYL-1,3-DIMETHYL BENZENE	mg/kg	**16.2**	**29.9**	**36.2**	**13.6**	< 0.35
2-ETHYL-1,4-DIMETHYL BENZENE	mg/kg	**52.3**	**69**	**85.9**	**35.4**	**1.56**
2-Ethylthiophene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
2-METHYL BUTANE	mg/kg	**6190**	**26100**	**19000**	**894**	< 0.35
2-METHYL HEXANE	mg/kg	**1120**	**2640**	**1800**	**222**	< 0.35
2-Methyl-1-butene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
2-METHYL-HEPTANE	mg/kg	**861**	**1700**	**1370**	**254**	< 0.35

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
2-Methylnaphthalene	mg/kg	**152**	**193**	**255**	**108**	**29**
2-METHYL-PENTANE	mg/kg	**2710**	**8470**	**5630**	**410**	< 0.35
2-Methylthiophene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
2-Pentene (cis)	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
2-Pentene (trans)	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
3,5-DIMETHYL-1-ETHYLBENZENE	mg/kg	**65.4**	**86.9**	**101**	**44**	**1.89**
3-Ethylhexane	mg/kg	**86.4**	**170**	**137**	**28.4**	< 0.35
3-METHYLHEPTANE	mg/kg	**588**	**1130**	**834**	**161**	< 0.35
3-METHYLHEXANE	mg/kg	**1150**	**2700**	**1920**	**239**	< 0.35
3-METHYLPENTANE	mg/kg	**1550**	**4900**	**3200**	**258**	< 0.35
3-Methylthiophene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
4-ETHYL-1,2-DIMETHYL BENZENE	mg/kg	**68.6**	**89.1**	**109**	**44.4**	**1.54**
4-Ethyltoluene	mg/kg	**124**	**147**	**151**	**64**	< 0.35
Benzene	mg/kg	**636**	**1550**	**999**	**103**	< 0.35
Benzothiophene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Cyclohexane	mg/kg	**1600**	**4030**	**2800**	**337**	< 0.35
CYCLOPENTANE	mg/kg	**551**	**1690**	**1120**	**81.6**	< 0.35
Di-isopropyl ether (DIPE)	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Ethylbenzene	mg/kg	**257**	**344**	**283**	**94.4**	< 0.35
Ethylene dibromide	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Ethyl-tert-butyl ether (ETBE)	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Isopropyl benzene	mg/kg	**57.6**	**73.6**	**73.5**	**26.4**	< 0.35
m&p-Xylene	mg/kg	**1320**	**1730**	**1450**	**512**	< 0.35
M-CYMENE	mg/kg	**46.4**	**56.1**	**71.9**	**27.6**	< 0.35
METHYLCYCLOHEXANE	mg/kg	**2660**	**5850**	**4410**	**672**	< 0.35
Methylcyclopentane	mg/kg	**1740**	**4620**	**3270**	**321**	< 0.35
Methyl-tert-butyl ether (MTBE)	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
MMT	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Naphthalene	mg/kg	**52.9**	**74.3**	**80.6**	**36.3**	**3.73**
n-Butylbenzene	mg/kg	**40.3**	**51.7**	**57.1**	**27.2**	**0.57**
N-DECANE	mg/kg	**515**	**900**	**927**	**322**	**3.95**
N-DODECANE	mg/kg	**195**	**424**	**419**	**153**	**29.9**
n-Heptane	mg/kg	**2860**	**5850**	**4220**	**612**	< 0.35
n-Hexane	mg/kg	**4090**	**10200**	**7610**	**612**	< 0.35
N-NONANE	mg/kg	**1090**	**1760**	**1520**	**502**	< 0.35

Table 1. Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Sample ID	DS02 MARSHALL OIL RESPONSE	CL-6B-072223-092710-JPS-KA-001-33	WCS-6B-072223-092910-JPS-KA-002-20	OLXX RECOVERED 2010	OLKR 1340L01
	Date Collected	7/27/2010	9/27/2010	9/29/2010	7-9/2010	2/21/2012
	Sample Description	Unweathered			Slightly Weathered	Weathered
		Discrete NAPL sample from crude oil storage tank during initial response activities	Discrete CL sample from Line 6B upstream of Marshall Pump Station	Discrete WCS sample from Line 6B downstream of Marshall Pump Station	Composite NAPL sample from crude oil collected during early response activities	Discrete sample from soil cavity/void collected at MP 13.40 575 days after release
	Task	TxSed1	TxSed1	TxSed1	TxSed1	TxSed1
Analyte	Units	Result	Result	Result	Result	Result
N-OCTANE	mg/kg	**1770**	**3130**	**2420**	**593**	< 0.35
n-Propylbenzene	mg/kg	**92.4**	**113**	**105**	**46.2**	< 0.35
N-TRIDECANE	mg/kg	**136**	**314**	**289**	**101**	**40.8**
N-UNDECANE	mg/kg	**305**	**620**	**620**	**224**	**14**
OCTENE-1	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
O-CYMENE (O-ISOPROPYLTOLUENE)	mg/kg	**9.98**	< 4.28	**17.6**	**5.58**	< 0.35
o-Xylene	mg/kg	**370**	**490**	**433**	**151**	< 0.35
Pentane	mg/kg	**6360**	**25600**	**18500**	**798**	< 0.35
Pentylbenzene	mg/kg	**13.9**	**25.8**	**28.6**	**11.4**	**1.19**
p-Isopropyl toluene (p-Cymene)	mg/kg	**35.8**	**43.4**	**53.5**	**55.9**	< 0.35
sec-Butylbenzene	mg/kg	**33.2**	**43.5**	**48.5**	**19.9**	< 0.35
Styrene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
t-Amyl methyl ether (TAME)	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
t-Butyl alcohol	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Thiophene	mg/kg	< 0.45	< 4.28	< 4.34	< 0.45	< 0.35
Toluene	mg/kg	**1560**	**2790**	**2000**	**305**	< 0.35

Table 1. Footnotes - Summary of Line 6B Crude Oil Chemical Composition
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Soil Footnotes:
Bold values are concentrations detected above the reporting limit.
Shaded VOCs are colletively referred to as petroleum VOCs.
Shaded PNAs are the 16 United States Environmental Protection Agency Priority Pollutant PNAs plus 2-methylnaphthalene.
CL = Cold Lake.
mg/kg = milligrams per kilogram.
MP = mile post.
NAPL = non-aqueous phase liquid.
PNAs = polynuclear aromatic hydrocarbons.
TPH = total petroleum hydrocarbons.
VOC = volatile organic compound.
WCS = Western Canadian Select

Table 2. Summary of Line 6B Crude Oil Density and Viscosity Measurements
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Designation	Density (g/cm^3)	Viscosity (cSt)
Cold Lake Representative Samples		
CL-6B-072223-092710-JPS-KA-001-16 (1)	0.92	200
CL-6B-072223-092710-JPS-KA-001-31 (1)	0.92	206
CL-6B-072223-092710-JPS-KA-001-59 (1)	0.92	195
Arithmetic Mean	0.92	200
Western Canadian Select Representative Samples		
WCS-6B-072223-092910-JPS-KA-002-13 (1)	0.92	179
WCS-6B-072223-092910-JPS-KA-002-28 (1)	0.93	210
WCS-6B-072223-092910-JPS-KA-002-43 (1)	0.93	198
Arithmetic Mean	0.93	196
NAPL Samples		
OLXX Recovered 2010, weathered up to 60 days (2)	0.9806	NA
OLKR 1340L01, weathered up to 525 Days (2) (3)	1.0097	NA
WCS-6B-072223-092910-JPS-KA-002-20, unweathered (2)	0.9308	NA
CL-6B-072223-092710-JPS-KA-001-33, unweathered (2)	0.9290	NA

Footnotes

1. Samples analyzed by ASTM Method D 1963 85 “Standard Test Method for Specific Gravity of Drying Oils, Varnishes, Resins, and Related Materials”
2. Samples analyzed by ASTM Method D 4052 09 “Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Meter”
3. Note: Sample OLKR 1340L01 contained ~39.6% sediment and water. This measurement has an uncertainty of ±2.2%

cSt = centistokes a measure dynamic discosity defined as is the tangential force per unit area required to move one horizontal plane with respect to the other at unit velocity when maintained a unit distance apart by the fluid.

g/cm^3 = grams per cubic centimeter.

NA = not analyzed.

NAPL = non-aqueous phase liquid.

Table 3. Soil Core Locations by Phase with NAPL Observations - NAPL Mobility Evaluation
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Visual	UV	Fluorescent Interval(s)	Percent Fluorescence	Soil Type	Saturated/Unsaturated
Phase 1 (November 2013)						
SBSA0025R523	Sheen	Fl Oil	0.5 - 0.7 ft/0.7 - 0.9 ft/ 0.9 - 1.1 ft/2.15 - 2.4 ft	25/75/25/90	SW	Unsat/Sat
SBSA0025R525	Visible Oil	Fl Oil	1.45 - 1.9 ft/1.9 - 2.1 ft	80/97	ML	Unsat
SBKR0250L510	Sheen and Globules	Fl Globules/ Fl Oil	0 - 1 ft/1 - 1.3 ft/1.3 - 2 ft	75/100/10	ML	Unsat/Sat
SBKR0250L550	Sheen and Globules	Fl Globules	0 - 0.6 ft/0.6 - 1.4 ft	70/20	OL/ML	Unsat/Sat
Phase 2 (December 2013)						
SBSA0025R514	None	Fl Oil	0.95 - 2 ft/2 - 2.3 ft	70/2	ML	Sat
SBSA0025R524	None	Fl Oil	0.3 - 0.7 ft/0.7 - 1.3 ft/1.3 - 1.7 ft	40/85/15	SM/SW	Unsat/Sat
SBKR0250L560	Globules	Fl Globules	0.3 - 0.7 ft/0.9 - 1.2 ft/ 1.2 - 1.6 ft/1.6 - 3.8 ft	15/50/80/15	ML/SM/CL	Unsat/Sat
SBKR0250L566	Globules	Fl Globules	0 - 0.3 ft/0.9 - 1.4 ft/1.4 - 1.8 ft	50/3/90	OL/ML	Unsat/Sat
Phase 3 (February 2014)						
SBKR0250L567	None	Fl Globules	0 - 0.2 ft/0.2 - 0.5 ft	75/10	OL	Unsat
SBKR1075L512	Sheen	FL Oil	0 - 0.1 ft/0.1 - 0.4 ft	90/20	OL	Unsat
SBKR1150L538	Sheen and Globules	Fl Globules/Fl Oil/Tr Oil	0 - 0.5 ft/0.5 - 1.1 ft/1.1 - 1.4 ft	90/70/5	OL/ML	Unsat/Sat
SBKR1300R594	Visible Oil	Fl Oil	0 - 0.2 ft/0.2 - 0.5 ft	100/10	OL	Unsat

Table 3. Footnotes - Soil Core Locations by Phase with NAPL Observations - NAPL Mobility Evaluation
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Soil Footnotes:
Fl = fluoresced.
ft = feet.
Sat = saturated.
Tr = trace.
Unsat = unsaturated.
UV=ultraviolet.

Unified Soil Classification System (USCS) Code Footnotes:
CL = Lean clay or lean clay with sand or lean clay with gravel or sandy lean clay or sandy lean clay with gravel or gravelly lean clay or gravelly lean clay with sand.
ML = Silt or wilt with sand or silt with gravel or sandy silt or sandy silt with gravel or gravelly silt or gravelly silt with sand.
OL = Organic silts and organic silty clays of low plasticity.
SM = Silty sand or silty sand with gravel.
SW = Well graded sand.

Table 4. NAPL Mobility Evaluation Summary
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Location	Depth (ft)	Soil Type	Soil Moisture (Saturated/ Unsaturated)	Water Drive Mobility Test NAPL Saturation Results (%)		Water Drive Observations	Part 201 Soil Exceedance	Part 201 Groundwater Exceedance
				Pre-Water Drive	Post-Water Drive			
Reach 1 (Source Area)								
SBSA0025R514 PTS-C	1.95	ML	Sat	4.2	4.2	No visible NAPL produced. Produced clear water with yellow tint and no hydrocarbon odor.	None (0.95 - 2 ft Unsat)	None (ND)
SBSA0025R525	3.35	ML	Unsat	7.4	7.4	No visible NAPL produced. Produced clear water with yellow tint and faint hydrocarbon odor.	Interval not sampled Benzene (DWPC)* Ethylbenzene (GSIPC)* Xylene (GSIPC)* 1,2,4-Trimethylbenzene (GSIPC)* (1.45 - 2.2 ft Unsat)	Benzene (DWC)
Reach 5 (MP 2.50 LDB)								
SBKR0250L510PC	0.8	ML	Unsat	4.8	4.8	No visible NAPL produced. Produced clear water with yellow tint and faint hydrocarbon odor.	1,2,4-Trimethylbenzene (GSIPC) (0 - 1 ft Unsat)	None (MWs at site)
SBKR0250L560 PTS-A	1.95	SM	Sat	2.5	2.4	Dark Brown NAPL generated during sample preparation*** No NAPL produced during test. Produced clear water with yellow tint and faint hydrocarbon odor.	None (1.6 - 2.1 ft Sat)	None (ND)
SBKR0250L560 PTS-A	2.25	CL	Sat	2.7	2.7	No visible NAPL produced. Produced clear water with yellow tint and no hydrocarbon odor.	Interval not sampled None* (1.6 - 2.1 ft Sat) None** (2.9 - 3.5 ft Sat)	None (ND)
SBKR0250L567 PTS-B	1.8	ML	Unsat	3.7	3.7	No visible NAPL produced. Produced clear water with yellow tint and strong organic odor.	Benzo(a)pyrene (DCC)* Fluoranthene (GSIPC ND-SPLP)* Phenenthrene (GSIPC ND-SPLP)* (0 - 0.5 ft Unsat) Benzo(a)pyrene (DCC)* Fluoranthene (GSIPC ND-SPLP)* (0.7 - 1.2 ft Unsat)	None (ND)
Reach 16 (MP 10.75 LDB)								
SBKR1075L512 PTS-C	0.55	OL	Unsat	4.9	4.9	No visible NAPL produced. Produced clear water with yellow tint and strong organic odor.	Interval not sampled None* (0 - 0.4 ft Unsat) None** (0.7 - 1 ft Unsat)	Interval not sampled
Reach 20 (MP 11.50 LDB)								
SBKR1150L538 PTS-A	0.15	OL	Unsat	10.7	10.7	No visible NAPL produced. Produced clear water with yellow tint and strong organic odor.	Phenenthrene (GSIPC ND-SPLP) (0 - 0.5 ft Unsat) None** (1.7 - 2.1 ft Unsat)	Interval not sampled

Soil Footnotes:
Reach 1 (Source Area)
* = results from shallower sample interval
** = results from deeper sample interval
*** a very small glob (0.03 ml) of NAPL, located at the end of the sample and was physically pushed off of the sample during mounting and confining in the flow cell
DCC = Part 201 Generic Residential Direct Contact Criteria
DWC = Part 201 Generic Residential Drinking Water Criteria
DWPC = Part 201 Generic Residential Soil Drinking Water Protection Criteria
ft = feet.
GSIPC = Part 201 Generic Residential Groundwater Surface Water Interface Protection Criteria (for soils)
LDB = Left Descending Bank.
MP = Mile Post.
MW = Monitoring well.
NAPL = non-aqueous phase liquid.
ND = non-detect.
Sat = saturated.
SPLP = synthetic precipitation leaching procedure
Unsat = unsaturated.

Unified Soil Classification System (USCS) Code Footnotes:
CL = Lean clay or lean clay with sand or lean clay with gravel or sandy lean clay or sandy lean clay with gravel or gravelly lean clay or gravelly lean clay with sand.
ML = Silt or wilt with sand or silt with gravel or sandy silt or sandy silt with gravel or gravelly silt or gravelly silt with sand.
OL = Organic silts and organic silty clays of low plasticity.
SM = Silty sand or silty sand with gravel.

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	12/7/2011 10:19 AM	12/7/2011 10:19 AM	12/7/2011 10:31 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 510	SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550
	Sample						SBKR0250L 510S 120711S010	SBKR0250L510S120711S010-SPLIT	SBKR0250L 510S 120711S024	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014
	Depth						0 - 1 ft	0 - 1 ft	2 - 2.4 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft
	USCS Code						ML	ML	SP-SM	OL	OL	ML	ML	ML
	Saturation Status						Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units						Result	Split	Result	Result	Result	Result	Result	Duplicate
Metals														
Arsenic	mg/kg	7.6	4.6	4.6	NLV	0.1	---	**18**	---	---	---	---	---	---
Barium	mg/kg	37000(B)	1300(B)	720(B)(G)	(B)NLV	1	---	**230**	---	---	---	---	---	---
Beryllium	mg/kg	410	51	250(G)	NLV	0.5	< 0.50	**0.46**	< 0.50	---	**0.85**	**0.73**	---	---
Cadmium	mg/kg	550(B)	6(B)	5(B)(G,X)	(B)NLV	0.2	---	**7.5**	---	---	---	---	---	---
Chromium (Total)	mg/kg	2500	30	3.3	NLV	2	---	**32**	---	---	---	---	---	---
Copper	mg/kg	20000(B)	5800(B)	100(B)(G)	(B)NLV	1	---	**19**	---	---	---	---	---	---
Iron	mg/kg	160000(B)	6(B)	(B)NA	(B)NLV	5	---	**41000**	---	---	---	---	---	---
Lead	mg/kg	400(B)	700(B)	7000(B)(G,X)	(B)NLV	1	---	**44**	---	---	---	---	---	---
Molybdenum	mg/kg	2600(B)	1.5(B)	64(B)(X)	(B)NLV	1	**1.6**	**1.6**	< 1.0	---	**2.2**	**1.7**	---	---
Nickel	mg/kg	40000(B)	100(B)	110(B)(G)	(B)NLV	1	**24**	**22**	**5.6**	---	**38**	**29**	---	---
Selenium	mg/kg	2600(B)	4(B)	0.4(B)	(B)NLV	0.2	---	**2.3**	---	---	---	---	---	---
Silver	mg/kg	2500(B)	4.5(B)	0.1(B)(M);27	(B)NLV	0.1	---	**0.54**	---	---	---	---	---	---
Vanadium	mg/kg	750(DD)	72	430	NLV	1	**22**	**21**	**8.6**	---	**28**	**24**	---	---
Zinc	mg/kg	170000(B)	2400(B)	240(B)(G)	(B)NLV	1	---	**160**	---	---	---	---	---	---
PNA														
2-Methylnaphthalene	ug/kg	8.1e+006	57000	4200	2.7e+006	330	< 1200	< 13000	< 330	< 1100	< 2600	< 330	**370**	**1500**
Acenaphthene	ug/kg	4.1e+007	300000	8700	1.9e+008	330	< 1200	< 5200	< 330	< 1100	< 2600	< 330	< 330	**330**
Acenaphthylene	ug/kg	1.6e+006	5900	ID	1.6e+006	330	< 1200	< 5200	< 330	< 1100	< 2600	**740**	< 330	**500**
Anthracene	ug/kg	2.3e+008	41000	ID	1e+009(D)	330	< 1200	< 5200	< 330	< 1100	< 2600	**930**	**360**	< 330
Benzo(a)anthracene	ug/kg	20000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	< 1200	< 5200	< 330	**3500**	**7300**	**4100**	**1700**	**2200**
Benzo(a)pyrene	ug/kg	2000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	< 1200	< 10000	< 330	**4400**	**9100**	**6500**	**2000**	**2700**
Benzo(b)fluoranthene	ug/kg	20000(Q)	(Q)NLL	(Q)NLL	(Q)ID	330	< 1200	< 10000	< 330	**4500**	**9500**	**6800**	**2100**	**2900**
Benzo(g,h,i)perylene	ug/kg	2.5e+006	NLL	NLL	NLV	330	< 1200	< 10000	< 330	**3200**	**5800**	**4100**	**1300**	**1700**
Benzo(k)fluoranthene	ug/kg	200000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	< 1200	< 10000	< 330	**1500**	**3500**	**2500**	**740**	**950**
Chrysene	ug/kg	2e+006(Q)	(Q)NLL	(Q)NLL	(Q)ID	330	**1300**	< 5200	< 330	**4600**	**6500**	**4300**	**1800**	**2600**
Dibenzo(a,h)anthracene	ug/kg	2000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	< 1200	< 10000	< 330	< 1100	< 2600	**1100**	**350**	**420**
Fluoranthene	ug/kg	4.6e+007	730000	5500	1e+009(D)	330	< 1200	< 5200	< 330	**5300**	**8700**	**5600**	**2400**	**2900**
Fluorene	ug/kg	2.7e+007	390000	5300	5.8e+008	330	< 1200	< 5200	< 330	< 1100	< 2600	**340**	< 330	**600**
Indeno(1,2,3-c,d)pyrene	ug/kg	20000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	< 1200	< 10000	< 330	**2700**	**6500**	**3900**	**1200**	**1600**
Naphthalene	ug/kg	1.6e+007	35000	730	250000	330	< 1200	< 5200	< 330	< 1100	< 2600	< 330	< 330	**480**
Phenanthrene	ug/kg	1.6e+006	56000	2100	2.8e+006	330	< 1200	< 5200	< 330	**1900**	**3600**	**2100**	**940**	**2400**
Pyrene	ug/kg	2.9e+007	480000	ID	1e+009(D)	330	**1500**	< 5200	< 330	**5100**	**11000**	**6200**	**2500**	**3400**
Solids														
Moisture	%	NCE	NCE	NCE	NCE	NCE	**61**	---	**43**	**59**	**62**	**69**	**71**	**70**

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	12/7/2011 10:19 AM	12/7/2011 10:19 AM	12/7/2011 10:31 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 510	SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550
	Sample						SBKR0250L 510S 120711S010	SBKR0250L510S120711S010-SPLIT	SBKR0250L 510S 120711S024	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014
	Depth						0 - 1 ft	0 - 1 ft	2 - 2.4 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft
	USCS Code						ML	ML	SP-SM	OL	OL	ML	ML	ML
	Saturation Status						Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units						Result	Split	Result	Result	Result	Result	Result	Duplicate
Solids	%	NCE	NCE	NCE	NCE	NCE	---	**38.1**	---	---	---	---	---	---
TPH														
Diesel Range Organics (C10-C20)	mg/kg	NCE	NCE	NCE	NCE	10	**3000**	---	**23**	---	---	---	---	---
Diesel Range Organics (C10-C20)	ug/kg	NCE	NCE	NCE	NCE	10000	---	**3800000**	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/kg	NCE	NCE	NCE	NCE	10	**35**	---	< 4.0	---	---	---	---	---
Gasoline Range Organics (C6-C10)	ug/kg	NCE	NCE	NCE	NCE	10000	---	< 21000	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/kg	NCE	NCE	NCE	NCE	20	**11000**	---	**77**	---	---	---	---	---
Oil Range Organics (C20-C34)	ug/kg	NCE	NCE	NCE	NCE	20000	---	**8400000**	---	---	---	---	---	---
VOC														
1,1,1,2-Tetrachloroethane	ug/kg	480000(C)	1500	ID	6200	100	< 320	< 220	< 130	---	< 410	< 640	---	---
1,1,1-Trichloroethane	ug/kg	5e+008(C)	4000	1800	250000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,1,2,2-Tetrachloroethane	ug/kg	53000	170	1600(X)	4300	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,1,2-Trichloroethane	ug/kg	180000	100	6600(X)	4600	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,1-Dichloroethane	ug/kg	2.7e+007(C)	18000	15000	230000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,1-Dichloroethylene	ug/kg	200000(I)	140(I)	2600(I)	62(I)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,2,3-Trichlorobenzene	ug/kg	NCE	NCE	NCE	NCE	250	< 320	< 1100	< 250	---	< 410	< 640	---	---
1,2,3-Trichloropropane	ug/kg	1.3e+006(C)	840	NA	4000	100	< 320	< 220	< 130	---	< 410	< 640	---	---
1,2,3-Trimethylbenzene	ug/kg	NCE	NCE	NCE	NCE	250	< 320	< 220	< 250	---	< 410	< 640	---	---
1,2,4-Trichlorobenzene	ug/kg	990000(DD)	4200	5900(X)	9.6e+006(C)	330	< 320	< 1100	< 250	---	< 410	< 640	---	---
1,2,4-Trimethylbenzene	ug/kg	3.2e+007(C)	2100(I)	570(I)	4.3e+006(C)	100	**600**	< 220	< 130	---	< 410	< 640	---	---
1,2-Dichlorobenzene	ug/kg	1.9e+007(C)	14000	280	1.1e+007(C)	100	< 320	< 220	< 130	---	< 410	< 640	---	---
1,2-Dichloroethane	ug/kg	91000(I)	100(I)	7200(I)(X)	2100(I)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,2-Dichloropropane	ug/kg	140000(I)	100(I)	4600(I)(X)	4000(I)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,3,5-Trimethylbenzene	ug/kg	3.2e+007(C)	1800(I)	1100(I)	2.6e+006(C)	100	**500**	< 220	< 130	---	< 410	< 640	---	---
1,3-Dichlorobenzene	ug/kg	200000(C)	170	680	26000	100	< 320	< 220	< 130	---	< 410	< 640	---	---
1,3-Dichloropropene, cis	ug/kg	NCE	NCE	NCE	NCE	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,3-Dichloropropene, trans	ug/kg	NCE	NCE	NCE	NCE	50	< 320	< 220	< 130	---	< 410	< 640	---	---
1,4-Dichloro-2-butene, trans	ug/kg	NCE	NCE	NCE	NCE	50	< 320	< 1100	< 130	---	< 410	< 640	---	---
1,4-Dichlorobenzene	ug/kg	400000	1700	360	19000	100	< 320	< 220	< 130	---	< 410	< 640	---	---
2-Butanone (MEK)	ug/kg	1.2e+008(C,DD)	260000(I)	44000(I)	5.4e+007(C)	750	< 1100	< 1100	< 750	---	< 1400	< 2100	---	---
2-Hexanone	ug/kg	3.2e+007(C)	20000	ID	990000	2500	< 2500	< 1100	< 2500	---	< 2500	< 2500	---	---
2-Methylnaphthalene	ug/kg	8.1e+006	57000	4200	2.7e+006	330	**1400**	< 1100	< 440	---	< 1400	< 2100	---	---
4-Methyl-2-pentanone (MIBK)	ug/kg	5.6e+007(C)	36000(I)	(I)ID	3.7e+007(C)	2500	< 2500	< 1100	< 2500	---	< 2500	< 2500	---	---
Acetone	ug/kg	2.3e+007(I)	15000(I)	34000(I)	2.9e+008(C)	1000	< 2600	< 4400	< 1100	---	< 3400	< 5300	---	---
Acrylonitrile	ug/kg	16000(I)	100(I)(M);52	100(I)(M);40	6600(I)	100	< 320	< 1100	< 130	---	< 410	< 640	---	---

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	12/7/2011 10:19 AM	12/7/2011 10:19 AM	12/7/2011 10:31 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 510	SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550
	Sample						SBKR0250L 510S 120711S010	SBKR0250L510S120711S010-SPLIT	SBKR0250L 510S 120711S024	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014
	Depth						0 - 1 ft	0 - 1 ft	2 - 2.4 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft
	USCS Code						ML	ML	SP-SM	OL	OL	ML	ML	ML
	Saturation Status						Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units						Result	Split	Result	Result	Result	Result	Result	Duplicate
Benzene	ug/kg	180000(I)	100(I)	4000(I)(X)	1600(I)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Bromobenzene	ug/kg	540000(I)	550(I)	(I)NA	310000(I)	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Bromochloromethane	ug/kg	NCE	NCE	NCE	NCE	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Bromodichloromethane	ug/kg	110000	1600(W)	ID	1200	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Bromoform	ug/kg	820000	1600(W)	ID	150000	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Bromomethane	ug/kg	320000	200	700	860	200	< 320	< 870	< 200	---	< 410	< 640	---	---
Carbon disulfide	ug/kg	7.2e+006(C,DD)	16000(I,R)	(I,R)ID	76000(I,R)	250	< 320	< 220	< 250	---	< 410	< 640	---	---
Carbon tetrachloride	ug/kg	96000	100	900(X)	190	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Chlorobenzene	ug/kg	4.3e+006(C)	2000(I)	500(I)	120000(I)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Chloroethane	ug/kg	2.6e+006(C)	8600	22000(X)	2.9e+006(C)	250	< 1100	< 1100	< 440	---	< 1400	< 2100	---	---
Chloroform	ug/kg	1.2e+006	1600(W)	7000	7200	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Chloromethane	ug/kg	1.6e+006(C)	5200(I)	(I)ID	2300(I)	250	< 320	< 1100	< 250	---	< 410	< 640	---	---
cis-1,2-Dichloroethylene	ug/kg	2.5e+006(C)	1400	12000	22000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Cyclohexane	ug/kg	NCE	NCE	NCE	NCE	500	< 500	< 1100	< 500	---	< 500	< 640	---	---
Dibromochloromethane	ug/kg	110000	1600(W)	ID	3900	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Dibromochloropropane	ug/kg	4400(C)	10(M);4	ID	220(C)	10	< 320	< 1100	< 130	---	< 410	< 640	---	---
Dibromomethane	ug/kg	2.5e+006(C)	1600	NA	ID	250	< 320	< 220	< 250	---	< 410	< 640	---	---
Dichlorodifluoromethane	ug/kg	5.2e+007(C)	95000	ID	900000	250	< 320	< 1100	< 250	---	< 410	< 640	---	---
Diethyl ether	ug/kg	1.1e+008(C)	200	ID	2.8e+007(C)	200	< 320	< 870	< 200	---	< 410	< 640	---	---
Di-isopropyl ether (DIPE)	ug/kg	920000(C)	600	ID	670000(C)	250	< 320	< 1100	< 250	---	< 410	< 640	---	---
Ethylbenzene	ug/kg	2.2e+007(C)	1500(I)	360(I)	87000(I)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Ethylene dibromide	ug/kg	92	20(M);1	110(X)	670	20	< 320	< 220	< 130	---	< 410	< 640	---	---
Ethyl-tert-butyl ether (ETBE)	ug/kg	ID	980	ID	540000	250	< 320	< 1100	< 250	---	< 410	< 640	---	---
Hexachloroethane	ug/kg	230000	430	1800(X)	40000	300	< 320	< 1100	< 300	---	< 410	< 640	---	---
Isopropyl benzene	ug/kg	2.5e+007(C)	91000	3200	400000(C)	250	< 320	< 220	< 250	---	< 410	< 640	---	---
m&p-Xylene	ug/kg	(J)	(J)	(J)	(J)	100	< 630	< 440	< 270	---	< 820	< 1300	---	---
Methyl Iodide	ug/kg	NCE	NCE	NCE	NCE	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Methylene chloride	ug/kg	1.3e+006	100	30000(X)	45000	100	< 320	< 440	< 130	---	< 1400	< 2100	---	---
Methyl-tert-butyl ether (MTBE)	ug/kg	1.5e+006	800	140000(X)	9.9e+006(C)	250	< 320	< 220	< 250	---	< 410	< 640	---	---
Naphthalene	ug/kg	1.6e+007	35000	730	250000	330	< 1100	< 1100	< 440	---	< 1400	< 2100	---	---
n-Butylbenzene	ug/kg	2.5e+006	1600	ID	ID	50	< 320	< 220	< 130	---	< 410	< 640	---	---
n-Propylbenzene	ug/kg	2.5e+006(I)	1600(I)	(I)ID	(I)ID	100	< 320	< 220	< 130	---	< 410	< 640	---	---
o-Xylene	ug/kg	(J)	(J)	(J)	(J)	50	< 320	< 220	< 130	---	< 410	< 640	---	---
p-Isopropyl toluene (p-Cymene)	ug/kg	NCE	NCE	NCE	NCE	100	< 320	< 220	< 130	---	< 410	< 640	---	---
sec-Butylbenzene	ug/kg	2.5e+006	1600	ID	ID	50	< 320	< 220	< 130	---	< 410	< 640	---	---

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	12/7/2011 10:19 AM	12/7/2011 10:19 AM	12/7/2011 10:31 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 510	SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550
	Sample						SBKR0250L 510S 120711S010	SBKR0250L510S120711S010-SPLIT	SBKR0250L 510S 120711S024	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014
	Depth						0 - 1 ft	0 - 1 ft	2 - 2.4 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft
	USCS Code						ML	ML	SP-SM	OL	OL	ML	ML	ML
	Saturation Status						Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units						Result	Split	Result	Result	Result	Result	Result	Duplicate
Styrene	ug/kg	400000	2700	2100(X)	250000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
t-Amyl methyl ether (TAME)	ug/kg	2.9e+007(C)	3900	NA	58000	250	< 320	< 1100	< 250	---	< 410	< 640	---	---
t-Butyl alcohol	ug/kg	1.2e+008(C)	78000	NA	3.1e+008(C)	2500	< 2500	< 11000	< 2500	---	< 2500	< 2500	---	---
t-Butylbenzene	ug/kg	2.5e+006(I)	1600(I)	(I)ID	(I)ID	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Tetrachloroethylene	ug/kg	200000(C)	100	1200(X)	11000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Tetrahydrofuran	ug/kg	2.9e+006	1900	220000(X)	1.3e+006	1000	< 1100	< 1100	< 1000	---	< 1400	< 2100	---	---
Toluene	ug/kg	5e+007(C)	16000(I)	5400(I)	330000(C)	100	< 320	< 220	< 130	---	< 410	< 640	---	---
trans-1,2-Dichloroethylene	ug/kg	3.8e+006(C)	2000	30000(X)	23000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Trichloroethylene	ug/kg	500000(C,DD)	100	4000(X)	1000	50	< 320	< 220	< 130	---	< 410	< 640	---	---
Trichlorofluoromethane	ug/kg	7.9e+007(C)	52000	NA	2.8e+006(C)	100	< 320	< 220	< 130	---	< 410	< 640	---	---
Vinyl chloride	ug/kg	3800	40	260(X)	270	40	< 320	< 220	< 130	---	< 410	< 640	---	---
Xylenes	ug/kg	4.1e+008(C)	5600(I)	820(I)	6.3e+006(C)	150	< 630	---	< 270	---	< 820	< 1300	---	---

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/22/2013 10:15 AM	12/5/2013 8:50 AM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 9:00 AM	12/5/2013 9:00 AM	12/5/2013 9:07 AM	12/5/2013 9:11 AM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/5/2013 10:55 AM	12/5/2013 11:00 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM
	Location	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 550S 112213S022	SBKR0250L 560S 120513S007	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S021	SBKR0250L 560D 120513S021	SBKR0250L 560S 120513S035	SBKR0250L 560S 120513S038	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 566S 120513S027	SBKR0250L 566S 120513S037	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012
	Depth	1.6 - 2.2 ft	0.3 - 0.7 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	1.6 - 2.1 ft	1.6 - 2.1 ft	2.9 - 3.5 ft	3.5 - 3.8 ft	0 - 0.3 ft	0 - 0.3 ft	1.45 - 1.8 ft	2.4 - 2.7 ft	3 - 3.7 ft	0 - 0.5 ft	0.7 - 1.2 ft
	USCS Code	ML	OL	ML	ML	CL	CL	ML	SW	OL	OL	ML	SM	SW	OL	ML
	Saturation Status	Saturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals																
Arsenic	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Barium	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Beryllium	mg/kg	< 0.50	< 0.50	< 0.50	---	< 0.50	< 0.50	< 0.50	< 0.50	**0.56**	---	< 0.51	< 0.50	< 0.50	**0.54**	**0.62**
Cadmium	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chromium (Total)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Copper	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Iron	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lead	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Molybdenum	mg/kg	< 1.0	< 1.0	**2.2**	---	< 1.0	< 1.0	< 1.0	< 1.0	**1.5**	---	**1.6**	< 1.0	< 1.0	**1.3**	**1.4**
Nickel	mg/kg	**10**	**16**	**12**	---	**5.8**	**6.0**	**5.4**	**4.5**	**33**	---	**14**	**6.8**	**6.4**	**31**	**23**
Selenium	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Silver	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vanadium	mg/kg	**7.6**	**16**	**17**	---	**7.7**	**9.6**	**6.1**	**4.7**	**26**	---	**18**	**6.2**	**4.6**	**25**	**24**
Zinc	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PNA																
2-Methylnaphthalene	ug/kg	< 330	< 330	**2200**	**590**	< 330	< 330	< 330	< 330	< 330	< 330	**15000**	< 330	< 330	< 330	< 330
Acenaphthene	ug/kg	< 330	< 330	**440**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**1700**	< 330	< 330	< 330	< 330
Acenaphthylene	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**770**	**640**	< 330	< 330	< 330	**910**	**580**
Anthracene	ug/kg	< 330	< 330	**700**	< 330	< 330	< 330	< 330	< 330	**850**	**580**	**3600**	< 330	< 330	**910**	**930**
Benzo(a)anthracene	ug/kg	< 330	**440**	**330**	< 330	< 330	< 330	< 330	< 330	**4000**	**2900**	**1600**	< 330	< 330	**4500**	**3700**
Benzo(a)pyrene	ug/kg	< 330	**660**	< 330	< 330	< 330	< 330	< 330	< 330	**4400**	**3600**	**1900**	< 330	< 330	**4900**	**4200**
Benzo(b)fluoranthene	ug/kg	< 330	**660**	< 330	< 330	< 330	< 330	< 330	< 330	**4700**	**3800**	**830**	< 330	< 330	**5500**	**4500**
Benzo(g,h,i)perylene	ug/kg	< 330	**560**	< 330	< 330	< 330	< 330	< 330	< 330	**1400**	**1900**	**450**	< 330	< 330	**3100**	**2700**
Benzo(k)fluoranthene	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**2100**	**1300**	**1000**	< 330	< 330	**1800**	**1300**
Chrysene	ug/kg	< 330	**760**	**800**	< 330	< 330	< 330	< 330	< 330	**4000**	**3200**	**2600**	< 330	< 330	**4400**	**3900**
Dibenzo(a,h)anthracene	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**490**	**480**	< 330	< 330	< 330	**840**	**680**
Fluoranthene	ug/kg	< 330	**550**	**370**	< 330	< 330	< 330	< 330	< 330	**5600**	**4000**	**1800**	< 330	< 330	**6200**	**5600**
Fluorene	ug/kg	< 330	< 330	**980**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**4300**	< 330	< 330	< 330	< 330
Indeno(1,2,3-c,d)pyrene	ug/kg	< 330	**440**	< 330	< 330	< 330	< 330	< 330	< 330	**2200**	**1900**	**630**	< 330	< 330	**3000**	**2600**
Naphthalene	ug/kg	< 330	< 330	**770**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**3800**	< 330	< 330	< 330	< 330
Phenanthrene	ug/kg	< 330	< 330	**3100**	**660**	**370**	**520**	< 330	< 330	**1700**	**1200**	**11000**	< 330	< 330	**2200**	**2100**
Pyrene	ug/kg	< 330	**700**	**770**	**340**	< 330	< 330	< 330	< 330	**5900**	**4300**	**4000**	< 330	< 330	**6500**	**5800**
Solids																
Moisture	%	**53**	**56**	**44**	**49**	**25**	**32**	**42**	**20**	**61**	**65**	**66**	**50**	**15**	**64**	**61**

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Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/22/2013 10:15 AM	12/5/2013 8:50 AM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 9:00 AM	12/5/2013 9:00 AM	12/5/2013 9:07 AM	12/5/2013 9:11 AM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/5/2013 10:55 AM	12/5/2013 11:00 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM
	Location	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 550S 112213S022	SBKR0250L 560S 120513S007	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S021	SBKR0250L 560D 120513S021	SBKR0250L 560S 120513S035	SBKR0250L 560S 120513S038	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 566S 120513S027	SBKR0250L 566S 120513S037	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012
	Depth	1.6 - 2.2 ft	0.3 - 0.7 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	1.6 - 2.1 ft	1.6 - 2.1 ft	2.9 - 3.5 ft	3.5 - 3.8 ft	0 - 0.3 ft	0 - 0.3 ft	1.45 - 1.8 ft	2.4 - 2.7 ft	3 - 3.7 ft	0 - 0.5 ft	0.7 - 1.2 ft
	USCS Code	ML	OL	ML	ML	CL	CL	ML	SW	OL	OL	ML	SM	SW	OL	ML
	Saturation Status	Saturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Result
Solids	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TPH																
Diesel Range Organics (C10-C20)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Diesel Range Organics (C10-C20)	ug/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	ug/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	ug/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
1,1,1-Trichloroethane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,1,2,2-Tetrachloroethane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,1,2-Trichloroethane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,1-Dichloroethane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,1-Dichloroethylene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,2,3-Trichlorobenzene	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
1,2,3-Trichloropropane	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
1,2,3-Trimethylbenzene	ug/kg	< 260	< 280	**1400**	**980**	< 250	< 250	< 250	< 250	< 380	---	**12000**	< 250	< 250	< 450	< 370
1,2,4-Trichlorobenzene	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
1,2,4-Trimethylbenzene	ug/kg	< 260	< 280	**3000**	**2800**	< 100	< 100	< 150	< 100	< 380	---	**20000**	< 190	< 100	< 450	< 370
1,2-Dichlorobenzene	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
1,2-Dichloroethane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,2-Dichloropropane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,3,5-Trimethylbenzene	ug/kg	< 260	< 280	**2400**	**1400**	< 100	< 100	< 150	< 100	< 380	---	**9500**	< 190	< 100	< 450	< 370
1,3-Dichlorobenzene	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
1,3-Dichloropropene, cis	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,3-Dichloropropene, trans	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,4-Dichloro-2-butene, trans	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
1,4-Dichlorobenzene	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
2-Butanone (MEK)	ug/kg	< 860	< 930	< 750	< 750	< 750	< 750	< 750	< 750	< 1300	---	< 1800	< 750	< 750	< 1500	< 1200
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	< 860	< 930	**4900**	**4100**	< 330	< 330	< 480	< 330	< 1300	---	**42000**	< 650	< 330	< 1500	< 1200
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500
Acetone	ug/kg	< 2200	< 2300	< 1300	< 1000	< 1000	< 1000	< 1200	< 1000	< 3200	---	< 4600	< 1600	< 1000	< 3800	< 3100
Acrylonitrile	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/22/2013 10:15 AM	12/5/2013 8:50 AM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 9:00 AM	12/5/2013 9:00 AM	12/5/2013 9:07 AM	12/5/2013 9:11 AM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/5/2013 10:55 AM	12/5/2013 11:00 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM
	Location	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 550S 112213S022	SBKR0250L 560S 120513S007	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S021	SBKR0250L 560D 120513S021	SBKR0250L 560S 120513S035	SBKR0250L 560S 120513S038	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 566S 120513S027	SBKR0250L 566S 120513S037	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012
	Depth	1.6 - 2.2 ft	0.3 - 0.7 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	1.6 - 2.1 ft	1.6 - 2.1 ft	2.9 - 3.5 ft	3.5 - 3.8 ft	0 - 0.3 ft	0 - 0.3 ft	1.45 - 1.8 ft	2.4 - 2.7 ft	3 - 3.7 ft	0 - 0.5 ft	0.7 - 1.2 ft
	USCS Code	ML	OL	ML	ML	CL	CL	ML	SW	OL	OL	ML	SM	SW	OL	ML
	Saturation Status	Saturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Bromobenzene	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Bromochloromethane	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Bromodichloromethane	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Bromoform	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Bromomethane	ug/kg	< 260	< 280	< 200	< 200	< 200	< 200	< 200	< 200	< 380	---	< 550	< 200	< 200	< 450	< 370
Carbon disulfide	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
Carbon tetrachloride	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Chlorobenzene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Chloroethane	ug/kg	< 860	< 930	< 500	< 260	< 250	< 290	< 480	< 250	< 1300	---	< 1800	< 650	< 250	< 1500	< 1200
Chloroform	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Chloromethane	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
cis-1,2-Dichloroethylene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Cyclohexane	ug/kg	< 500	< 500	**530**	**510**	< 500	< 500	< 500	< 500	< 500	---	**4100**	< 500	< 500	< 500	< 500
Dibromochloromethane	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Dibromochloropropane	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 48	< 450	< 370
Dibromomethane	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
Dichlorodifluoromethane	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
Diethyl ether	ug/kg	< 260	< 280	< 200	< 200	< 200	< 200	< 200	< 200	< 380	---	< 550	< 200	< 200	< 450	< 370
Di-isopropyl ether (DIPE)	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
Ethylbenzene	ug/kg	< 260	< 280	< 150	**130**	< 67	< 86	< 150	< 56	< 380	---	**830**	< 190	< 50	< 450	< 370
Ethylene dibromide	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 48	< 450	< 370
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
Hexachloroethane	ug/kg	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 380	---	< 550	< 300	< 300	< 450	< 370
Isopropyl benzene	ug/kg	< 260	< 280	**370**	**310**	< 250	< 250	< 250	< 250	< 380	---	**1000**	< 250	< 250	< 450	< 370
m&p-Xylene	ug/kg	< 520	< 560	< 300	**290**	< 130	< 170	< 290	< 110	< 760	---	**6500**	< 390	< 100	< 900	< 750
Methyl Iodide	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Methylene chloride	ug/kg	< 860	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Methyl-tert-butyl ether (MTBE)	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
Naphthalene	ug/kg	< 860	< 930	**1500**	**1200**	< 330	< 330	< 480	< 330	< 1300	---	**10000**	< 650	< 330	< 1500	< 1200
n-Butylbenzene	ug/kg	< 260	< 280	< 150	**430**	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
n-Propylbenzene	ug/kg	< 260	< 280	**460**	**480**	< 100	< 100	< 150	< 100	< 380	---	**2000**	< 190	< 100	< 450	< 370
o-Xylene	ug/kg	< 260	< 280	< 150	**160**	< 67	< 86	< 150	< 56	< 380	---	**4100**	< 190	< 50	< 450	< 370
p-Isopropyl toluene (p-Cymene)	ug/kg	< 260	< 280	**620**	**440**	< 100	< 100	< 150	< 100	< 380	---	**2800**	< 190	< 100	< 450	< 370
sec-Butylbenzene	ug/kg	< 260	< 280	< 150	**470**	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370

	Date \ Time Collected	11/22/2013 10:15 AM	12/5/2013 8:50 AM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 9:00 AM	12/5/2013 9:00 AM	12/5/2013 9:07 AM	12/5/2013 9:11 AM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/5/2013 10:55 AM	12/5/2013 11:00 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM
	Location	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 550S 112213S022	SBKR0250L 560S 120513S007	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S021	SBKR0250L 560D 120513S021	SBKR0250L 560S 120513S035	SBKR0250L 560S 120513S038	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 566S 120513S027	SBKR0250L 566S 120513S037	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012
	Depth	1.6 - 2.2 ft	0.3 - 0.7 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	1.6 - 2.1 ft	1.6 - 2.1 ft	2.9 - 3.5 ft	3.5 - 3.8 ft	0 - 0.3 ft	0 - 0.3 ft	1.45 - 1.8 ft	2.4 - 2.7 ft	3 - 3.7 ft	0 - 0.5 ft	0.7 - 1.2 ft
	USCS Code	ML	OL	ML	ML	CL	CL	ML	SW	OL	OL	ML	SM	SW	OL	ML
	Saturation Status	Saturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Result
Styrene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
t-Amyl methyl ether (TAME)	ug/kg	< 260	< 280	< 250	< 250	< 250	< 250	< 250	< 250	< 380	---	< 550	< 250	< 250	< 450	< 370
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Tetrachloroethylene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Tetrahydrofuran	ug/kg	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1300	---	< 1800	< 1000	< 1000	< 1500	< 1200
Toluene	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
trans-1,2-Dichloroethylene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Trichloroethylene	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 50	< 450	< 370
Trichlorofluoromethane	ug/kg	< 260	< 280	< 150	< 100	< 100	< 100	< 150	< 100	< 380	---	< 550	< 190	< 100	< 450	< 370
Vinyl chloride	ug/kg	< 260	< 280	< 150	< 77	< 67	< 86	< 150	< 56	< 380	---	< 550	< 190	< 48	< 450	< 370
Xylenes	ug/kg	< 520	< 560	< 300	**450**	< 130	< 170	< 290	< 110	< 760	---	**11000**	< 390	< 100	< 900	< 750

Table 5. NAPL Mobility Locations - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	3/23/2012 9:55 AM	3/23/2012 10:00 AM	6/7/2012 9:15 AM	6/7/2012 9:15 AM	6/7/2012 9:25 AM	2/9/2012 3:35 PM	2/9/2012 3:40 PM	11/7/2013 2:05 PM	11/7/2013 2:05 PM	11/7/2013 2:30 PM	11/11/2013 2:00 PM	11/11/2013 2:07 PM	11/11/2013 2:14 PM	11/12/2013 7:57 AM	11/12/2013 8:02 AM
	Location	SBKR1075L 512	SBKR1075L 512	SBKR1150L 538	SBKR1150L 538	SBKR1150L 538	SBKR1300R 594	SBKR1300R 594	SBSA0025R 514	SBSA0025R 514	SBSA0025R 514	SBSA0025R 523	SBSA0025R 523	SBSA0025R 523	SBSA0025R 524	SBSA0025R 524
	Sample	SBKR1075L 512S 032312S004	SBKR1075L 512S 032312S010	SBKR1150L 538S 060712S005	SBKR1150L538S060712S005-split	SBKR1150L 538S 060712S021	SBKR1300R 594S 020912S005	SBKR1300R 594S 020912S020	SBSA0025R 514S 110713S020	SBSA0025R 514D 110713S020	SBSA0025R 514S 110713S026	SBSA0025R 523S 111113S011	SBSA0025R 523S 111113S024	SBSA0025R 523S 111113S052	SBSA0025R 524S 111213S007	SBSA0025R 524S 111213S017
	Depth	0 - 0.4 ft	0.7 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	1.7 - 2.1 ft	0 - 0.5 ft	1 - 2 ft	0.95 - 2 ft	0.95 - 2 ft	2.4 - 2.6 ft	0.5 - 1.1 ft	2.15 - 2.4 ft	4.2 - 5.2 ft	0.3 - 0.7 ft	0.7 - 1.7 ft
	USCS Code	OL	OL	OL	OL	ML	OL	CL	ML	ML	CL	SW	SW	SW	SM	SW
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Split	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result
Metals																
Arsenic	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Barium	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Beryllium	mg/kg	< 0.50	**0.51**	< 0.50	**0.47**	< 0.50	**0.51**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chromium (Total)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Copper	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Iron	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Lead	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Molybdenum	mg/kg	**1.1**	**1.2**	**2.1**	**1.7**	**1.1**	< 1.0	**1.0**	< 1.0	< 1.0	**3.2**	**1.2**	< 1.0	< 1.0	**1.5**	< 1.0
Nickel	mg/kg	**13**	**14**	**24**	**22**	**8.1**	**17**	**12**	**5.4**	**6.3**	**9.4**	**12**	**16**	**15**	**13**	**15**
Selenium	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Silver	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vanadium	mg/kg	**16**	**24**	**39**	**35**	**16**	**25**	**23**	**9.7**	**12**	**14**	**9.6**	**8.4**	**11**	**13**	**10**
Zinc	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PNA																
2-Methylnaphthalene	ug/kg	< 15000	< 330	< 2700	< 34000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Acenaphthene	ug/kg	< 15000	< 330	< 2700	< 14000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Acenaphthylene	ug/kg	< 15000	< 330	< 2700	< 14000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Anthracene	ug/kg	< 15000	< 330	< 2700	< 14000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Benzo(a)anthracene	ug/kg	< 15000	< 330	< 2700	< 14000	< 330	**400**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Benzo(a)pyrene	ug/kg	< 15000	**370**	< 2700	< 27000	< 330	**590**	**430**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Benzo(b)fluoranthene	ug/kg	< 15000	**410**	< 2700	< 27000	< 330	**690**	**470**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Benzo(g,h,i)perylene	ug/kg	< 15000	< 330	< 2700	< 27000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Benzo(k)fluoranthene	ug/kg	< 15000	< 330	< 2700	< 27000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Chrysene	ug/kg	**19000**	**360**	**4700**	< 14000	< 330	**450**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Dibenzo(a,h)anthracene	ug/kg	< 15000	< 330	< 2700	< 27000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Fluoranthene	ug/kg	< 15000	**350**	< 2700	< 14000	< 330	**660**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Fluorene	ug/kg	< 15000	< 330	< 2700	< 14000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Indeno(1,2,3-c,d)pyrene	ug/kg	< 15000	< 330	< 2700	< 27000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Naphthalene	ug/kg	< 15000	< 330	< 2700	< 14000	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Phenanthrene	ug/kg	< 15000	< 330	**5200**	< 14000	< 330	**370**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Pyrene	ug/kg	< 15000	**460**	**2800**	< 14000	< 330	**820**	**500**	**330**	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Solids																
Moisture	%	**41**	**55**	**64**	---	**66**	**36**	**48**	**31**	**34**	**36**	**12**	**9.5**	**9.9**	**23**	**13**

	Date \ Time Collected	3/23/2012 9:55 AM	3/23/2012 10:00 AM	6/7/2012 9:15 AM	6/7/2012 9:15 AM	6/7/2012 9:25 AM	2/9/2012 3:35 PM	2/9/2012 3:40 PM	11/7/2013 2:05 PM	11/7/2013 2:05 PM	11/7/2013 2:30 PM	11/11/2013 2:00 PM	11/11/2013 2:07 PM	11/11/2013 2:14 PM	11/12/2013 7:57 AM	11/12/2013 8:02 AM
	Location	SBKR1075L 512	SBKR1075L 512	SBKR1150L 538	SBKR1150L 538	SBKR1150L 538	SBKR1300R 594	SBKR1300R 594	SBSA0025R 514	SBSA0025R 514	SBSA0025R 514	SBSA0025R 523	SBSA0025R 523	SBSA0025R 523	SBSA0025R 524	SBSA0025R 524
	Sample	SBKR1075L 512S 032312S004	SBKR1075L 512S 032312S010	SBKR1150L 538S 060712S005	SBKR1150L538S060712S005-split	SBKR1150L 538S 060712S021	SBKR1300R 594S 020912S005	SBKR1300R 594S 020912S020	SBSA0025R 514S 110713S020	SBSA0025R 514D 110713S020	SBSA0025R 514S 110713S026	SBSA0025R 523S 111113S011	SBSA0025R 523S 111113S024	SBSA0025R 523S 111113S052	SBSA0025R 524S 111213S007	SBSA0025R 524S 111213S017
	Depth	0 - 0.4 ft	0.7 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	1.7 - 2.1 ft	0 - 0.5 ft	1 - 2 ft	0.95 - 2 ft	0.95 - 2 ft	2.4 - 2.6 ft	0.5 - 1.1 ft	2.15 - 2.4 ft	4.2 - 5.2 ft	0.3 - 0.7 ft	0.7 - 1.7 ft
	USCS Code	OL	OL	OL	OL	ML	OL	CL	ML	ML	CL	SW	SW	SW	SM	SW
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Split	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result
Solids	%	---	---	---	**36.7**	---	---	---	---	---	---	---	---	---	---	---
TPH																
Diesel Range Organics (C10-C20)	mg/kg	**38000**	**120**	**9300**	---	**79**	**350**	**60**	---	---	---	---	---	---	---	---
Diesel Range Organics (C10-C20)	ug/kg	---	---	---	**7200000**	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/kg	---	---	---	---	---	< 4.0	< 4.0	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	ug/kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/kg	**200000**	**850**	**49000**	---	**570**	**2900**	**490**	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	ug/kg	---	---	---	**13000000**	---	---	---	---	---	---	---	---	---	---	---
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
1,1,1-Trichloroethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,1,2,2-Tetrachloroethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,1,2-Trichloroethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,1-Dichloroethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,1-Dichloroethylene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,2,3-Trichlorobenzene	ug/kg	< 250	< 250	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
1,2,3-Trichloropropane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
1,2,3-Trimethylbenzene	ug/kg	< 250	< 250	< 380	< 230	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
1,2,4-Trichlorobenzene	ug/kg	< 250	< 250	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
1,2,4-Trimethylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	**120**	< 100	< 100	< 100	< 100
1,2-Dichlorobenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
1,2-Dichloroethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,2-Dichloropropane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,3,5-Trimethylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	**170**	< 100	< 100	< 100	< 100
1,3-Dichlorobenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
1,3-Dichloropropene, cis	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,3-Dichloropropene, trans	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,4-Dichloro-2-butene, trans	ug/kg	< 120	< 230	< 380	< 1200	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
1,4-Dichlorobenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
2-Butanone (MEK)	ug/kg	< 750	< 770	< 1300	< 1200	< 1400	< 750	< 750	< 750	< 750	< 750	< 750	< 750	< 750	< 750	< 750
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 1200	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	< 410	< 770	**1400**	**2900**	< 1400	< 330	< 550	< 330	< 330	< 330	**570**	< 330	< 330	< 330	< 330
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 1200	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
Acetone	ug/kg	< 1000	< 1900	< 3100	< 4600	< 3500	< 1000	< 1400	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000
Acrylonitrile	ug/kg	< 120	< 230	< 380	< 1200	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100

	Date \ Time Collected	3/23/2012 9:55 AM	3/23/2012 10:00 AM	6/7/2012 9:15 AM	6/7/2012 9:15 AM	6/7/2012 9:25 AM	2/9/2012 3:35 PM	2/9/2012 3:40 PM	11/7/2013 2:05 PM	11/7/2013 2:05 PM	11/7/2013 2:30 PM	11/11/2013 2:00 PM	11/11/2013 2:07 PM	11/11/2013 2:14 PM	11/12/2013 7:57 AM	11/12/2013 8:02 AM
	Location	SBKR1075L 512	SBKR1075L 512	SBKR1150L 538	SBKR1150L 538	SBKR1150L 538	SBKR1300R 594	SBKR1300R 594	SBSA0025R 514	SBSA0025R 514	SBSA0025R 514	SBSA0025R 523	SBSA0025R 523	SBSA0025R 523	SBSA0025R 524	SBSA0025R 524
	Sample	SBKR1075L 512S 032312S004	SBKR1075L 512S 032312S010	SBKR1150L 538S 060712S005	SBKR1150L538S060712S005-split	SBKR1150L 538S 060712S021	SBKR1300R 594S 020912S005	SBKR1300R 594S 020912S020	SBSA0025R 514S 110713S020	SBSA0025R 514D 110713S020	SBSA0025R 514S 110713S026	SBSA0025R 523S 111113S011	SBSA0025R 523S 111113S024	SBSA0025R 523S 111113S052	SBSA0025R 524S 111213S007	SBSA0025R 524S 111213S017
	Depth	0 - 0.4 ft	0.7 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	1.7 - 2.1 ft	0 - 0.5 ft	1 - 2 ft	0.95 - 2 ft	0.95 - 2 ft	2.4 - 2.6 ft	0.5 - 1.1 ft	2.15 - 2.4 ft	4.2 - 5.2 ft	0.3 - 0.7 ft	0.7 - 1.7 ft
	USCS Code	OL	OL	OL	OL	ML	OL	CL	ML	ML	CL	SW	SW	SW	SM	SW
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Split	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result
Benzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Bromobenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Bromochloromethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Bromodichloromethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Bromoform	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Bromomethane	ug/kg	< 200	< 230	< 380	< 930	< 430	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200
Carbon disulfide	ug/kg	< 250	< 250	< 380	< 230	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Carbon tetrachloride	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Chlorobenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Chloroethane	ug/kg	< 410	< 770	< 1300	< 1200	< 1400	< 330	< 550	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Chloroform	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Chloromethane	ug/kg	< 410	< 770	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
cis-1,2-Dichloroethylene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Cyclohexane	ug/kg	< 500	< 500	< 500	< 1200	< 500	< 500	< 500	< 500	< 500	< 500	**1000**	< 500	< 500	< 500	< 500
Dibromochloromethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Dibromochloropropane	ug/kg	< 120	< 230	< 380	< 1200	< 430	< 99	< 160	< 47	< 46	< 53	< 43	< 40	< 41	< 63	< 45
Dibromomethane	ug/kg	< 250	< 250	< 380	< 230	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Dichlorodifluoromethane	ug/kg	< 250	< 250	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Diethyl ether	ug/kg	< 200	< 230	< 380	< 930	< 430	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200
Di-isopropyl ether (DIPE)	ug/kg	< 250	< 250	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Ethylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Ethylene dibromide	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 47	< 46	< 53	< 43	< 40	< 41	< 63	< 45
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 250	< 250	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Hexachloroethane	ug/kg	< 300	< 300	< 380	< 1200	< 430	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 300
Isopropyl benzene	ug/kg	< 250	< 250	< 380	< 230	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
m&p-Xylene	ug/kg	< 240	< 460	< 750	< 460	< 850	< 200	< 330	< 100	< 100	< 110	< 100	< 100	< 100	< 130	< 100
Methyl Iodide	ug/kg	< 410	< 770	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Methylene chloride	ug/kg	< 120	< 230	< 380	< 460	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 210	< 100
Methyl-tert-butyl ether (MTBE)	ug/kg	< 250	< 250	< 380	< 230	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Naphthalene	ug/kg	< 410	< 770	< 1300	< 1200	< 1400	< 330	< 550	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
n-Butylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
n-Propylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
o-Xylene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
p-Isopropyl toluene (p-Cymene)	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	**170**	< 100	< 100	< 100	< 100
sec-Butylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50

	Date \ Time Collected	3/23/2012 9:55 AM	3/23/2012 10:00 AM	6/7/2012 9:15 AM	6/7/2012 9:15 AM	6/7/2012 9:25 AM	2/9/2012 3:35 PM	2/9/2012 3:40 PM	11/7/2013 2:05 PM	11/7/2013 2:05 PM	11/7/2013 2:30 PM	11/11/2013 2:00 PM	11/11/2013 2:07 PM	11/11/2013 2:14 PM	11/12/2013 7:57 AM	11/12/2013 8:02 AM
	Location	SBKR1075L 512	SBKR1075L 512	SBKR1150L 538	SBKR1150L 538	SBKR1150L 538	SBKR1300R 594	SBKR1300R 594	SBSA0025R 514	SBSA0025R 514	SBSA0025R 514	SBSA0025R 523	SBSA0025R 523	SBSA0025R 523	SBSA0025R 524	SBSA0025R 524
	Sample	SBKR1075L 512S 032312S004	SBKR1075L 512S 032312S010	SBKR1150L 538S 060712S005	SBKR1150L538S060712S005-split	SBKR1150L 538S 060712S021	SBKR1300R 594S 020912S005	SBKR1300R 594S 020912S020	SBSA0025R 514S 110713S020	SBSA0025R 514D 110713S020	SBSA0025R 514S 110713S026	SBSA0025R 523S 111113S011	SBSA0025R 523S 111113S024	SBSA0025R 523S 111113S052	SBSA0025R 524S 111213S007	SBSA0025R 524S 111213S017
	Depth	0 - 0.4 ft	0.7 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	1.7 - 2.1 ft	0 - 0.5 ft	1 - 2 ft	0.95 - 2 ft	0.95 - 2 ft	2.4 - 2.6 ft	0.5 - 1.1 ft	2.15 - 2.4 ft	4.2 - 5.2 ft	0.3 - 0.7 ft	0.7 - 1.7 ft
	USCS Code	OL	OL	OL	OL	ML	OL	CL	ML	ML	CL	SW	SW	SW	SM	SW
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Split	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result
Styrene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
t-Amyl methyl ether (TAME)	ug/kg	< 250	< 250	< 380	< 1200	< 430	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 12000	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Tetrachloroethylene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Tetrahydrofuran	ug/kg	< 1000	< 1000	< 1300	< 1200	< 1400	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000
Toluene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
trans-1,2-Dichloroethylene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Trichloroethylene	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 50	< 50	< 53	< 50	< 50	< 50	< 63	< 50
Trichlorofluoromethane	ug/kg	< 120	< 230	< 380	< 230	< 430	< 100	< 160	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Vinyl chloride	ug/kg	< 120	< 230	< 380	< 230	< 430	< 99	< 160	< 47	< 46	< 53	< 43	< 40	< 41	< 63	< 45
Xylenes	ug/kg	< 240	< 460	< 750	---	< 850	< 200	< 330	< 100	< 100	< 110	< 100	< 100	< 100	< 130	< 100

	Date \ Time Collected	11/12/2013 8:12 AM	11/12/2013 8:12 AM	11/12/2013 10:47 AM	11/12/2013 10:56 AM
	Location	SBSA0025R 524	SBSA0025R 524	SBSA0025R 525	SBSA0025R 525
	Sample	SBSA0025R 524S 111213S052	SBSA0025R 524D 111213S052	SBSA0025R 525S 111213S022	SBSA0025R 525S 111213S052
	Depth	4.2 - 5.2 ft	4.2 - 5.2 ft	1.45 - 2.2 ft	4.2 - 5.2 ft
	USCS Code	SW	SW	ML	SP
	Saturation Status	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units	Result	Duplicate	Result	Result
Metals					
Arsenic	mg/kg	---	---	---	---
Barium	mg/kg	---	---	---	---
Beryllium	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	mg/kg	---	---	---	---
Chromium (Total)	mg/kg	---	---	---	---
Copper	mg/kg	---	---	---	---
Iron	mg/kg	---	---	---	---
Lead	mg/kg	---	---	---	---
Molybdenum	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	mg/kg	**13**	**12**	**5.3**	**6.6**
Selenium	mg/kg	---	---	---	---
Silver	mg/kg	---	---	---	---
Vanadium	mg/kg	**9.1**	**8.9**	**11**	**7.6**
Zinc	mg/kg	---	---	---	---
PNA					
2-Methylnaphthalene	ug/kg	< 330	< 330	**1100**	< 330
Acenaphthene	ug/kg	< 330	< 330	< 330	< 330
Acenaphthylene	ug/kg	< 330	< 330	< 330	< 330
Anthracene	ug/kg	< 330	< 330	< 330	< 330
Benzo(a)anthracene	ug/kg	< 330	< 330	< 330	< 330
Benzo(a)pyrene	ug/kg	< 330	< 330	< 330	< 330
Benzo(b)fluoranthene	ug/kg	< 330	< 330	< 330	< 330
Benzo(g,h,i)perylene	ug/kg	< 330	< 330	< 330	< 330
Benzo(k)fluoranthene	ug/kg	< 330	< 330	< 330	< 330
Chrysene	ug/kg	< 330	< 330	< 330	< 330
Dibenzo(a,h)anthracene	ug/kg	< 330	< 330	< 330	< 330
Fluoranthene	ug/kg	< 330	< 330	< 330	< 330
Fluorene	ug/kg	< 330	< 330	< 330	< 330
Indeno(1,2,3-c,d)pyrene	ug/kg	< 330	< 330	< 330	< 330
Naphthalene	ug/kg	< 330	< 330	< 330	< 330
Phenanthrene	ug/kg	< 330	< 330	**570**	< 330
Pyrene	ug/kg	< 330	< 330	< 330	< 330
Solids					
Moisture	%	**7.8**	**7.6**	**17**	**11**

	Date \ Time Collected	11/12/2013 8:12 AM	11/12/2013 8:12 AM	11/12/2013 10:47 AM	11/12/2013 10:56 AM
	Location	SBSA0025R 524	SBSA0025R 524	SBSA0025R 525	SBSA0025R 525
	Sample	SBSA0025R 524S 111213S052	SBSA0025R 524D 111213S052	SBSA0025R 525S 111213S022	SBSA0025R 525S 111213S052
	Depth	4.2 - 5.2 ft	4.2 - 5.2 ft	1.45 - 2.2 ft	4.2 - 5.2 ft
	USCS Code	SW	SW	ML	SP
	Saturation Status	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units	Result	Duplicate	Result	Result
Solids	%	---	---	---	---
TPH					
Diesel Range Organics (C10-C20)	mg/kg	---	---	---	---
Diesel Range Organics (C10-C20)	ug/kg	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/kg	---	---	---	---
Gasoline Range Organics (C6-C10)	ug/kg	---	---	---	---
Oil Range Organics (C20-C34)	mg/kg	---	---	---	---
Oil Range Organics (C20-C34)	ug/kg	---	---	---	---
VOC					
1,1,1,2-Tetrachloroethane	ug/kg	< 100	< 100	< 100	< 100
1,1,1-Trichloroethane	ug/kg	< 50	< 50	< 51	< 50
1,1,2,2-Tetrachloroethane	ug/kg	< 50	< 50	< 51	< 50
1,1,2-Trichloroethane	ug/kg	< 50	< 50	< 51	< 50
1,1-Dichloroethane	ug/kg	< 50	< 50	< 51	< 50
1,1-Dichloroethylene	ug/kg	< 50	< 50	< 51	< 50
1,2,3-Trichlorobenzene	ug/kg	< 250	< 250	< 250	< 250
1,2,3-Trichloropropane	ug/kg	< 100	< 100	< 100	< 100
1,2,3-Trimethylbenzene	ug/kg	< 250	< 250	**670**	< 250
1,2,4-Trichlorobenzene	ug/kg	< 250	< 250	< 250	< 250
1,2,4-Trimethylbenzene	ug/kg	< 100	< 100	**1900**	< 100
1,2-Dichlorobenzene	ug/kg	< 100	< 100	< 100	< 100
1,2-Dichloroethane	ug/kg	< 50	< 50	< 51	< 50
1,2-Dichloropropane	ug/kg	< 50	< 50	< 51	< 50
1,3,5-Trimethylbenzene	ug/kg	< 100	< 100	**940**	< 100
1,3-Dichlorobenzene	ug/kg	< 100	< 100	< 100	< 100
1,3-Dichloropropene, cis	ug/kg	< 50	< 50	< 51	< 50
1,3-Dichloropropene, trans	ug/kg	< 50	< 50	< 51	< 50
1,4-Dichloro-2-butene, trans	ug/kg	< 50	< 50	< 51	< 50
1,4-Dichlorobenzene	ug/kg	< 100	< 100	< 100	< 100
2-Butanone (MEK)	ug/kg	< 750	< 750	< 750	< 750
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	< 330	< 330	**1100**	< 330
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500
Acetone	ug/kg	< 1000	< 1000	< 1000	< 1000
Acrylonitrile	ug/kg	< 100	< 100	< 100	< 100

	Date \ Time Collected	11/12/2013 8:12 AM	11/12/2013 8:12 AM	11/12/2013 10:47 AM	11/12/2013 10:56 AM
	Location	SBSA0025R 524	SBSA0025R 524	SBSA0025R 525	SBSA0025R 525
	Sample	SBSA0025R 524S 111213S052	SBSA0025R 524D 111213S052	SBSA0025R 525S 111213S022	SBSA0025R 525S 111213S052
	Depth	4.2 - 5.2 ft	4.2 - 5.2 ft	1.45 - 2.2 ft	4.2 - 5.2 ft
	USCS Code	SW	SW	ML	SP
	Saturation Status	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units	Result	Duplicate	Result	Result
Benzene	ug/kg	< 50	< 50	**360**	**360**
Bromobenzene	ug/kg	< 100	< 100	< 100	< 100
Bromochloromethane	ug/kg	< 100	< 100	< 100	< 100
Bromodichloromethane	ug/kg	< 100	< 100	< 100	< 100
Bromoform	ug/kg	< 100	< 100	< 100	< 100
Bromomethane	ug/kg	< 200	< 200	< 200	< 200
Carbon disulfide	ug/kg	< 250	< 250	< 250	< 250
Carbon tetrachloride	ug/kg	< 50	< 50	< 51	< 50
Chlorobenzene	ug/kg	< 50	< 50	< 51	< 50
Chloroethane	ug/kg	< 250	< 250	< 250	< 250
Chloroform	ug/kg	< 50	< 50	< 51	< 50
Chloromethane	ug/kg	< 250	< 250	< 250	< 250
cis-1,2-Dichloroethylene	ug/kg	< 50	< 50	< 51	< 50
Cyclohexane	ug/kg	< 500	< 500	**4900**	< 500
Dibromochloromethane	ug/kg	< 100	< 100	< 100	< 100
Dibromochloropropane	ug/kg	< 38	< 38	< 51	< 42
Dibromomethane	ug/kg	< 250	< 250	< 250	< 250
Dichlorodifluoromethane	ug/kg	< 250	< 250	< 250	< 250
Diethyl ether	ug/kg	< 200	< 200	< 200	< 200
Di-isopropyl ether (DIPE)	ug/kg	< 250	< 250	< 250	< 250
Ethylbenzene	ug/kg	< 50	< 50	**630**	< 50
Ethylene dibromide	ug/kg	< 38	< 38	< 51	< 42
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 250	< 250	< 250	< 250
Hexachloroethane	ug/kg	< 300	< 300	< 300	< 300
Isopropyl benzene	ug/kg	< 250	< 250	< 250	< 250
m&p-Xylene	ug/kg	< 100	< 100	**3600**	< 100
Methyl Iodide	ug/kg	< 100	< 100	< 100	< 100
Methylene chloride	ug/kg	< 100	< 100	< 100	< 100
Methyl-tert-butyl ether (MTBE)	ug/kg	< 250	< 250	< 250	< 250
Naphthalene	ug/kg	< 330	< 330	< 330	< 330
n-Butylbenzene	ug/kg	< 50	< 50	< 51	< 50
n-Propylbenzene	ug/kg	< 100	< 100	**360**	< 100
o-Xylene	ug/kg	< 50	< 50	**1100**	< 50
p-Isopropyl toluene (p-Cymene)	ug/kg	< 100	< 100	**240**	< 100
sec-Butylbenzene	ug/kg	< 50	< 50	< 51	< 50

	Date \ Time Collected	11/12/2013 8:12 AM	11/12/2013 8:12 AM	11/12/2013 10:47 AM	11/12/2013 10:56 AM
	Location	SBSA0025R 524	SBSA0025R 524	SBSA0025R 525	SBSA0025R 525
	Sample	SBSA0025R 524S 111213S052	SBSA0025R 524D 111213S052	SBSA0025R 525S 111213S022	SBSA0025R 525S 111213S052
	Depth	4.2 - 5.2 ft	4.2 - 5.2 ft	1.45 - 2.2 ft	4.2 - 5.2 ft
	USCS Code	SW	SW	ML	SP
	Saturation Status	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units	Result	Duplicate	Result	Result
Styrene	ug/kg	< 50	< 50	< 51	< 50
t-Amyl methyl ether (TAME)	ug/kg	< 250	< 250	< 250	< 250
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 50	< 50	< 51	< 50
Tetrachloroethylene	ug/kg	< 50	< 50	< 51	< 50
Tetrahydrofuran	ug/kg	< 1000	< 1000	< 1000	< 1000
Toluene	ug/kg	< 100	< 100	< 100	< 100
trans-1,2-Dichloroethylene	ug/kg	< 50	< 50	< 51	< 50
Trichloroethylene	ug/kg	< 50	< 50	< 51	< 50
Trichlorofluoromethane	ug/kg	< 100	< 100	< 100	< 100
Vinyl chloride	ug/kg	< 40	< 40	< 51	< 42
Xylenes	ug/kg	< 100	< 100	**4700**	< 100

Soil Footnotes:
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects new criteria rules, numbered from 299.1 to 299.50 which became effective on December 30, 2013.
MDEQ Operational Memorandum 2, Attachment 5 states that soil samples taken from the saturated zone cannot be accurately compared to criteria developed for unsaturated soils.
Bold values are concentrations detected above the reporting limit.
Shaded values exceed Part 201 Generic Residential Cleanup Criteria.
Shaded values indicate that the laboratory Reporting Limit value exceeds Part 201 Generic Residential Cleanup Criteria.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(C) = The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (Csat). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific Csat or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.
(D) = Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(G) = Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg CaCO3/L, use 400 mg CaCO3/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G)-footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(M) = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(W) = Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(DD) = Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.
--- = not completed/not analyzed.

ft = feet.
ID = insufficient data to develop criterion.
mg/kg = milligrams per kilogram.
NA = a criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NCE = no criteria established.
NLL = hazardous substance is not likely to leach under most soil conditions.
NLV = hazardous substance is not likely to volatilize under most conditions.
PNA = polynuclear aromatic hydrocarbon.
TPH = total petroleum hydrocarbon.
ug/kg = micrograms per kilogram.
USCS = Unified Soil Classification System.
VOC = volatile organic compound.

Unified Soil Classification System (USCS) Code Footnotes:
CL = Lean clay or lean clay with sand or lean clay with gravel or sandy lean clay or sandy lean clay with gravel or gravelly lean clay or gravelly lean clay with sand.
ML = Silt or wilt with sand or silt with gravel or sandy silt or sandy silt with gravel or gravelly silt or gravelly silt with sand.
OL = Organic silts and organic silty clays of low plasticity.
SM = Silty sand or silty sand with gravel.
SP = Poorly graded sand or poorly graded sand with gravel.
SP-SM = Poorly graded sand with silt to poorly graded sand with silt and gravel.
SW = Well graded sand or well graded sand with gravel.

Table 6. NAPL Mobility Locations - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	12/7/2011 10:19 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 10:48 AM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566
	Sample					SBKR0250L 510S 120711S010	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 566S 120513S003
	Depth					0 - 1 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.3 ft
	Dissolved / Total					SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units					Result	Result	Result	Result	Result	Duplicate	Result	Result	Result
Metals														
Molybdenum	mg/l	0.073(B)	3.2(B)(X)	(B)NLV	0.05	---	---	< 0.0050	< 0.0050	---	---	< 0.0050	---	---
PNA														
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
Acenaphthene	ug/l	1300	38	4200(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
Acenaphthylene	ug/l	52	ID	3900(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
Anthracene	ug/l	43(S)	ID	43(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
Benzo(a)anthracene	ug/l	2.1(Q)	(Q)ID	(Q)NLV	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	---
Benzo(a)pyrene	ug/l	5(Q)(A)	(Q)ID	(Q)NLV	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	---
Benzo(b)fluoranthene	ug/l	1.5(Q)(S,AA)	(Q)ID	(Q)ID	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	---
Benzo(g,h,i)perylene	ug/l	1(M);0.26(S)	ID	NLV	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	---
Benzo(k)fluoranthene	ug/l	1(Q)(M);0.8(S)	(Q)NA	(Q)NLV	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	---
Chrysene	ug/l	1.6(Q)(S)	(Q)ID	(Q)ID	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	---
Dibenzo(a,h)anthracene	ug/l	2(Q)(M);0.21	(Q)ID	(Q)NLV	2	---	< 2.9	---	---	< 2.5	< 2.9	---	---	---
Fluoranthene	ug/l	210(S)	1.6	210(S)	1	---	< 1.4	---	---	< 1.2	< 1.4	---	---	< 1.4
Fluorene	ug/l	880	12	2000(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
Indeno(1,2,3-c,d)pyrene	ug/l	2(Q)(M);0.022(S)	(Q)ID	(Q)NLV	2	---	< 2.9	---	---	< 2.5	< 2.9	---	---	---
Naphthalene	ug/l	520	11	31000(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
Phenanthrene	ug/l	52	2(M);1.4	1000(S)	2	---	< 2.9	---	---	< 2.5	< 2.9	---	< 2.9	---
Pyrene	ug/l	140(S)	ID	140(S)	5	---	< 7.1	---	---	< 6.2	< 7.1	---	---	---
VOC														
1,1,1,2-Tetrachloroethane	ug/l	77	ID	15000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,1,1-Trichloroethane	ug/l	200(A)	89	660000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,1,2,2-Tetrachloroethane	ug/l	8.5	78(X)	12000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	170000(S)	32	170000(S)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,1,2-Trichloroethane	ug/l	5(A)	330(X)	17000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,1-Dichloroethane	ug/l	880	740	1e+006	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,1-Dichloroethylene	ug/l	7(I)(A)	130(I)	200(I)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,2,3-Trichlorobenzene	ug/l	NCE	NCE	NCE	5	< 1.0	---	---	---	---	---	---	< 5.0	---
1,2,3-Trichloropropane	ug/l	42	NA	8300	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,2,3-Trimethylbenzene	ug/l	NCE	NCE	NCE	5	---	---	---	---	---	---	---	**6.5**	---
1,2,4-Trichlorobenzene	ug/l	70(A)	99(X)	300000(S)	5	< 1.0	---	---	---	---	---	---	< 5.0	---
1,2,4-Trimethylbenzene	ug/l	63(I)(E)	17(I)	56000(I)(S)	1	< 1.0	---	---	---	---	---	---	**15**	---
1,2-Dichlorobenzene	ug/l	600(A)	13	160000(S)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,2-Dichloroethane	ug/l	5(I)(A)	360(I)(X)	9600(I)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,2-Dichloropropane	ug/l	5(I)(A)	230(I)(X)	16000(I)	1	< 1.0	---	---	---	---	---	---	< 1.0	---

Table 6. NAPL Mobility Locations - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	12/7/2011 10:19 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 10:48 AM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566
	Sample					SBKR0250L 510S 120711S010	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 566S 120513S003
	Depth					0 - 1 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.3 ft
	Dissolved / Total					SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units					Result	Result	Result	Result	Result	Duplicate	Result	Result	Result
1,3,5-Trimethylbenzene	ug/l	72(I)(E)	45(I)	61000(I)(S)	1	< 1.0	---	---	---	---	---	---	**6.8**	---
1,3-Dichlorobenzene	ug/l	6.6	28	18000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,3-Dichloropropene, cis	ug/l	NCE	NCE	NCE	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,3-Dichloropropene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,4-Dichloro-2-butene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	---	---	---	---	---	---	< 1.0	---
1,4-Dichlorobenzene	ug/l	75(A)	17	16000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
2-Butanone (MEK)	ug/l	13000(I)	2200(I)	2.4e+008(I)(S)	25	< 5.0	---	---	---	---	---	---	< 25	---
2-Hexanone	ug/l	1000	ID	4.2e+006	50	< 5.0	---	---	---	---	---	---	< 50	---
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 5.0	---	---	---	---	---	---	**9.6**	---
4-Methyl-2-pentanone (MIBK)	ug/l	1800(I)	(I)ID	2e+007(I)(S)	50	< 5.0	---	---	---	---	---	---	< 50	---
Acetone	ug/l	730(I)	1700(I)	1e+009(I)(D,S)	50	**100**	---	---	---	---	---	---	< 50	---
Acrylonitrile	ug/l	2.6(I)	2(I)(M);1.2	34000(I)	2	< 1.0	---	---	---	---	---	---	< 2.0	---
Benzene	ug/l	5(I)(A)	200(I)(X)	5600(I)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Bromochloromethane	ug/l	NCE	NCE	NCE	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Bromodichloromethane	ug/l	80(A,W)	ID	4800	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Bromoform	ug/l	80(A,W)	ID	470000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Bromomethane	ug/l	10	35	4000	5	< 1.0	---	---	---	---	---	---	< 5.0	---
Carbon disulfide	ug/l	800(I,R)	(I,R)ID	250000(I,R)	5	< 2.5	---	---	---	---	---	---	< 5.0	---
Carbon tetrachloride	ug/l	5(A)	45(X)	370	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Chlorobenzene	ug/l	100(I)(A)	25(I)	210000(I)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Chloroethane	ug/l	430	1100(X)	5.7e+006(S)	5	< 1.0	---	---	---	---	---	---	< 5.0	---
Chloroform	ug/l	80(A,W)	350(X)	28000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Chloromethane	ug/l	260(I)	(I)ID	8600(I)	5	< 1.0	---	---	---	---	---	---	< 5.0	---
cis-1,2-Dichloroethylene	ug/l	70(A)	620	93000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Cyclohexane	ug/l	NCE	NCE	NCE	5	< 5.0	---	---	---	---	---	---	< 5.0	---
Dibromochloromethane	ug/l	80(A,W)	ID	14000	5	< 1.0	---	---	---	---	---	---	< 5.0	---
Dibromochloropropane	ug/l	0.2(A)	ID	220(S)	0.2	< 1.0	---	---	---	---	---	---	< 1.0	---
Dichlorodifluoromethane	ug/l	1700	ID	220000	5	< 1.0	---	---	---	---	---	---	< 5.0	---
Diethyl ether	ug/l	10(E)	ID	6.1e+007(S)	10	< 10	---	---	---	---	---	---	< 10	---
Di-isopropyl ether (DIPE)	ug/l	30	ID	8000(S)	5	< 5.0	---	---	---	---	---	---	< 5.0	---
Ethylbenzene	ug/l	74(I)(E)	18(I)	110000(I)	1	< 1.0	---	---	---	---	---	---	**1.4**	---
Ethylene dibromide	ug/l	0.05(A)	5.7(X)	2400	0.05	< 1.0	---	---	---	---	---	---	< 1.0	---
Ethyl-tert-butyl ether (ETBE)	ug/l	49(E)	ID	2.9e+006	5	< 5.0	---	---	---	---	---	---	< 5.0	---
Hexachloroethane	ug/l	7.3	6.7(X)	27000	5	< 1.0	---	---	---	---	---	---	< 5.0	---
Isopropyl benzene	ug/l	800	28ID	56000(S)	5	< 1.0	---	---	---	---	---	---	< 5.0	---
m&p-Xylene	ug/l	(J)	(J)	(J)	2	< 2.0	---	---	---	---	---	---	**3.6**	---

Table 6. NAPL Mobility Locations - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	12/7/2011 10:19 AM	12/18/2013 3:57 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 4:02 PM	12/18/2013 4:02 PM	12/5/2013 8:55 AM	12/18/2013 4:41 PM	12/5/2013 10:48 AM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		SBKR0250L 510	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 566
	Sample					SBKR0250L 510S 120711S010	SBKR0250L 550S 121813S005	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S014	SBKR0250L 550D 121813S014	SBKR0250L 560S 120513S016	SBKR0250L 560S 121813S016	SBKR0250L 566S 120513S003
	Depth					0 - 1 ft	0 - 0.5 ft	0 - 0.6 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	0.7 - 1.4 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.3 ft
	Dissolved / Total					SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units					Result	Result	Result	Result	Result	Duplicate	Result	Result	Result
Methyl Iodide	ug/l	NCE	NCE	NCE	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Methylene chloride	ug/l	5(A)	1500(X)	220000	5	**5.3**	---	---	---	---	---	---	< 5.0	---
Methyl-tert-butyl ether (MTBE)	ug/l	40(E)	7100(X)	4.7e+007(S)	5	< 5.0	---	---	---	---	---	---	< 5.0	---
Naphthalene	ug/l	520	11	31000(S)	5	< 5.0	---	---	---	---	---	---	**12**	---
n-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	---	---	---	---	---	---	< 1.0	---
n-Propylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	---	---	---	---	---	---	**2.0**	---
o-Xylene	ug/l	(J)	(J)	(J)	1	< 1.0	---	---	---	---	---	---	**2.2**	---
p-Isopropyl toluene (p-Cymene)	ug/l	NCE	NCE	NCE	5	< 2.0	---	---	---	---	---	---	< 5.0	---
sec-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Styrene	ug/l	100(A)	80(X)	170000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
t-Amyl methyl ether (TAME)	ug/l	190(E)	NA	260000	5	< 5.0	---	---	---	---	---	---	< 5.0	---
t-Butyl alcohol	ug/l	3900	NA	1e+009(D,S)	50	< 50	---	---	---	---	---	---	< 50	---
t-Butylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Tetrachloroethylene	ug/l	5(A)	60(X)	25000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Tetrahydrofuran	ug/l	95	11000(X)	6.9e+006	90	< 10	---	---	---	---	---	---	< 90	---
Toluene	ug/l	790(I)(E)	270(I)	530000(I)(S)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
trans-1,2-Dichloroethylene	ug/l	100(A)	1500(X)	85000	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Trichloroethylene	ug/l	5(A)	200(X)	2200	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Trichlorofluoromethane	ug/l	2600	NA	1.1e+006(S)	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Vinyl chloride	ug/l	2(A)	13(X)	1100	1	< 1.0	---	---	---	---	---	---	< 1.0	---
Xylenes	ug/l	280(I)(E)	41(I)	190000(I)(S)	3	< 2.0	---	---	---	---	---	---	**5.8**	---

	Date / Time Collected	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	6/7/2012 9:15 AM	11/7/2013 2:30 PM	11/12/2013 10:32 AM
	Location	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR1150L 538	SBSA0025R 514	SBSA0025R 525
	Sample	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR1150L 538S 060712S005	SBSA0025R 514S 110713S026	SBSA0025R 525S 111213S021
	Depth	0 - 0.3 ft	1.45 - 1.8 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.5 ft	2.4 - 2.6 ft	1.9 - 2.1 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result
Metals								
Molybdenum	mg/l	---	< 0.0050	---	---	< 0.0050	**0.019**	---
PNA								
2-Methylnaphthalene	ug/l	---	---	---	---	< 7.1	---	---
Acenaphthene	ug/l	---	---	---	---	< 7.1	---	---
Acenaphthylene	ug/l	---	---	---	---	< 7.1	---	---
Anthracene	ug/l	---	---	---	---	< 7.1	---	---
Benzo(a)anthracene	ug/l	---	---	---	---	< 1.4	---	---
Benzo(a)pyrene	ug/l	< 1.7	---	---	---	< 1.4	---	---
Benzo(b)fluoranthene	ug/l	---	---	---	---	< 1.4	---	---
Benzo(g,h,i)perylene	ug/l	---	---	---	---	< 1.4	---	---
Benzo(k)fluoranthene	ug/l	---	---	---	---	< 1.4	---	---
Chrysene	ug/l	---	---	---	---	< 1.4	---	---
Dibenzo(a,h)anthracene	ug/l	---	---	---	---	< 2.9	---	---
Fluoranthene	ug/l	< 1.7	---	< 1.0	< 1.0	< 1.4	---	---
Fluorene	ug/l	---	---	---	---	< 7.1	---	---
Indeno(1,2,3-c,d)pyrene	ug/l	---	---	---	---	< 2.9	---	---
Naphthalene	ug/l	---	---	---	---	< 7.1	---	---
Phenanthrene	ug/l	---	---	< 2.0	---	< 2.9	---	---
Pyrene	ug/l	---	---	---	---	< 7.1	---	---
VOC								
1,1,1,2-Tetrachloroethane	ug/l	---	---	---	---	---	---	---
1,1,1-Trichloroethane	ug/l	---	---	---	---	---	---	---
1,1,2,2-Tetrachloroethane	ug/l	---	---	---	---	---	---	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	---	---	---	---	---	---
1,1,2-Trichloroethane	ug/l	---	---	---	---	---	---	---
1,1-Dichloroethane	ug/l	---	---	---	---	---	---	---
1,1-Dichloroethylene	ug/l	---	---	---	---	---	---	---
1,2,3-Trichlorobenzene	ug/l	---	---	---	---	---	---	---
1,2,3-Trichloropropane	ug/l	---	---	---	---	---	---	---
1,2,3-Trimethylbenzene	ug/l	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	ug/l	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ug/l	---	---	---	---	---	---	**43**
1,2-Dichlorobenzene	ug/l	---	---	---	---	---	---	---
1,2-Dichloroethane	ug/l	---	---	---	---	---	---	---
1,2-Dichloropropane	ug/l	---	---	---	---	---	---	---

	Date / Time Collected	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	6/7/2012 9:15 AM	11/7/2013 2:30 PM	11/12/2013 10:32 AM
	Location	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR1150L 538	SBSA0025R 514	SBSA0025R 525
	Sample	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR1150L 538S 060712S005	SBSA0025R 514S 110713S026	SBSA0025R 525S 111213S021
	Depth	0 - 0.3 ft	1.45 - 1.8 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.5 ft	2.4 - 2.6 ft	1.9 - 2.1 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result
1,3,5-Trimethylbenzene	ug/l	---	---	---	---	---	---	---
1,3-Dichlorobenzene	ug/l	---	---	---	---	---	---	---
1,3-Dichloropropene, cis	ug/l	---	---	---	---	---	---	---
1,3-Dichloropropene, trans	ug/l	---	---	---	---	---	---	---
1,4-Dichloro-2-butene, trans	ug/l	---	---	---	---	---	---	---
1,4-Dichlorobenzene	ug/l	---	---	---	---	---	---	---
2-Butanone (MEK)	ug/l	---	---	---	---	---	---	---
2-Hexanone	ug/l	---	---	---	---	---	---	---
2-Methylnaphthalene	ug/l	---	---	---	---	---	---	---
4-Methyl-2-pentanone (MIBK)	ug/l	---	---	---	---	---	---	---
Acetone	ug/l	---	---	---	---	---	---	---
Acrylonitrile	ug/l	---	---	---	---	---	---	---
Benzene	ug/l	---	---	---	---	---	---	**22**
Bromochloromethane	ug/l	---	---	---	---	---	---	---
Bromodichloromethane	ug/l	---	---	---	---	---	---	---
Bromoform	ug/l	---	---	---	---	---	---	---
Bromomethane	ug/l	---	---	---	---	---	---	---
Carbon disulfide	ug/l	---	---	---	---	---	---	---
Carbon tetrachloride	ug/l	---	---	---	---	---	---	---
Chlorobenzene	ug/l	---	---	---	---	---	---	---
Chloroethane	ug/l	---	---	---	---	---	---	---
Chloroform	ug/l	---	---	---	---	---	---	---
Chloromethane	ug/l	---	---	---	---	---	---	---
cis-1,2-Dichloroethylene	ug/l	---	---	---	---	---	---	---
Cyclohexane	ug/l	---	---	---	---	---	---	---
Dibromochloromethane	ug/l	---	---	---	---	---	---	---
Dibromochloropropane	ug/l	---	---	---	---	---	---	---
Dichlorodifluoromethane	ug/l	---	---	---	---	---	---	---
Diethyl ether	ug/l	---	---	---	---	---	---	---
Di-isopropyl ether (DIPE)	ug/l	---	---	---	---	---	---	---
Ethylbenzene	ug/l	---	---	---	---	---	---	**33**
Ethylene dibromide	ug/l	---	---	---	---	---	---	---
Ethyl-tert-butyl ether (ETBE)	ug/l	---	---	---	---	---	---	---
Hexachloroethane	ug/l	---	---	---	---	---	---	---
Isopropyl benzene	ug/l	---	---	---	---	---	---	---
m&p-Xylene	ug/l	---	---	---	---	---	---	**170**

	Date / Time Collected	12/18/2013 4:55 PM	12/5/2013 10:51 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	6/7/2012 9:15 AM	11/7/2013 2:30 PM	11/12/2013 10:32 AM
	Location	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR1150L 538	SBSA0025R 514	SBSA0025R 525
	Sample	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S018	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR1150L 538S 060712S005	SBSA0025R 514S 110713S026	SBSA0025R 525S 111213S021
	Depth	0 - 0.3 ft	1.45 - 1.8 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.5 ft	2.4 - 2.6 ft	1.9 - 2.1 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result
Methyl Iodide	ug/l	---	---	---	---	---	---	---
Methylene chloride	ug/l	---	---	---	---	---	---	---
Methyl-tert-butyl ether (MTBE)	ug/l	---	---	---	---	---	---	---
Naphthalene	ug/l	---	---	---	---	---	---	---
n-Butylbenzene	ug/l	---	---	---	---	---	---	---
n-Propylbenzene	ug/l	---	---	---	---	---	---	---
o-Xylene	ug/l	---	---	---	---	---	---	**60**
p-Isopropyl toluene (p-Cymene)	ug/l	---	---	---	---	---	---	---
sec-Butylbenzene	ug/l	---	---	---	---	---	---	---
Styrene	ug/l	---	---	---	---	---	---	---
t-Amyl methyl ether (TAME)	ug/l	---	---	---	---	---	---	---
t-Butyl alcohol	ug/l	---	---	---	---	---	---	---
t-Butylbenzene	ug/l	---	---	---	---	---	---	---
Tetrachloroethylene	ug/l	---	---	---	---	---	---	---
Tetrahydrofuran	ug/l	---	---	---	---	---	---	---
Toluene	ug/l	---	---	---	---	---	---	---
trans-1,2-Dichloroethylene	ug/l	---	---	---	---	---	---	---
Trichloroethylene	ug/l	---	---	---	---	---	---	---
Trichlorofluoromethane	ug/l	---	---	---	---	---	---	---
Vinyl chloride	ug/l	---	---	---	---	---	---	---
Xylenes	ug/l	---	---	---	---	---	---	**230**

Soil SPLP Footnotes:
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects new criteria rules, numbered from 299.1 to 299.50 which became effective on December 30, 2013.
Bold values are concentrations detected above the reporting limit.
Shaded values exceed Part 201 Generic Residential Cleanup Criteria.
Shaded values indicate that the laboratory Reporting Limit value exceeds Part 201 Generic Residential Cleanup Criteria.
(A) = Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(D) = Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(E) = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value provided in a table available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(M) = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(S) = Criterion defaults to the hazardous substance-specific water solubility limit.
(W) = Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(AA) = Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses.
--- = not completed/not analyzed.
ft = feet.
ID = insufficient data to develop criterion.
mg/l = milligram per liter.
NA = a criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NCE = no criteria established.
NLV = hazardous substance is not likely to volatilize under most conditions.

PNA = polynuclear aromatic hydrocarbon.
SPLP = synthetic precipitation leaching procedure.
ug/l = micrograms per liter.
VOC = volatile organic compound.

Table 7. NAPL Mobility Locations - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	4/11/2014 2:15 PM	6/16/2014 2:10 PM	12/16/2013 11:03 AM	2/7/2014 11:25 AM	4/3/2014 10:55 AM	6/19/2014 3:00 PM	12/16/2013 2:50 PM	2/4/2014 2:45 PM	4/4/2014 11:10 AM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		MWKR0250L 560	MWKR0250L 560	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523
	Sample					MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX	MWSA0025 R523S040414GX
	Depth					1 - 6 ft	1 - 6 ft	1.5 - 6.5 ft	1.5 - 6.5 ft	1.5 - 6.5 ft	1.5 - 6.5 ft	7 - 12 ft	7 - 12 ft	7 - 12 ft
	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Field														
Depth to Water	ft	NCE	NCE	NCE	NCE	**3.48**	**4.25**	**5.72**	**5.24**	**4.36**	**5.39**	**4.60**	**4.24**	**3.23**
Dissolved Oxygen	mg/l	NCE	NCE	NCE	NCE	**0.45**	**0.80**	**0.20**	**0.36**	**0.34**	**0.06**	**0.13**	**0.23**	**0.14**
Oxidation Reduction Potential	millivolts	NCE	NCE	NCE	NCE	**68.4**	**76.9**	**57.5**	-148.9	**219**	-52.1	-54.4	-169.1	-101.5
pH	su	8.5(E)	9	ID	NCE	**7.00**	**7.12**	**6.65**	**6.78**	**6.78**	**6.59**	**7.17**	**7.17**	**7.27**
Specific Conductance	mS/cm	NCE	NCE	NCE	NCE	**0.721**	**0.67**	**0.95**	**0.76**	**0.72**	**0.99**	**0.740**	**0.77**	**0.595**
Temperature	deg c	NCE	NCE	NCE	NCE	**8.40**	**15.4**	**2.9**	**3.08**	**2.71**	**18.7**	**3.5**	**5.18**	**6.2**
Turbidity	ntu	NCE	NCE	NCE	NCE	**5.73**	**0.61**	**11.5**	**14.6**	**8.20**	**6.72**	**15.1**	**18.24**	**6.1**
Metals														
Beryllium	mg/l	0.004(A)	0.02(G)	NLV	0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	0.073(B)	3.2(B)(X)	(B)NLV	0.05	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	0.1(B)(A)	0.11(B)(G)	(B)NLV	0.02	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	0.0045	0.027	NLV	0.004	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
PNA														
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	1300	38	4200(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	52	ID	3900(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	43(S)	ID	43(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	2.1(Q)	(Q)ID	(Q)NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	5(Q)(A)	(Q)ID	(Q)NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	1.5(Q)(S,AA)	(Q)ID	(Q)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	1(M);0.26(S)	ID	NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	1(Q)(M);0.8(S)	(Q)NA	(Q)NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	1.6(Q)(S)	(Q)ID	(Q)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	2(Q)(M);0.21	(Q)ID	(Q)NLV	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	210(S)	1.6	210(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	880	12	2000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	2(Q)(M);0.022(S)	(Q)ID	(Q)NLV	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	520	11	31000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	52	2(M);1.4	1000(S)	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	140(S)	ID	140(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
VOC														
1,1,1,2-Tetrachloroethane	ug/l	77	ID	15000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	200(A)	89	660000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	8.5	78(X)	12000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	170000(S)	32	170000(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 7. NAPL Mobility Locations - Groundwater Analytical Data
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	Sample					MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX	MWSA0025 R523S040414GX
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	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/l	5(A)	330(X)	17000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	880	740	1e+006	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	7(I)(A)	130(I)	200(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	42	NA	8300	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	70(A)	99(X)	300000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	63(I)(E)	17(I)	56000(I)(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	600(A)	13	160000(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	5(I)(A)	360(I)(X)	9600(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	5(I)(A)	230(I)(X)	16000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	72(I)(E)	45(I)	61000(I)(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	6.6	28	18000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	75(A)	17	16000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	13000(I)	2200(I)	2.4e+008(I)(S)	25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	1000	ID	4.2e+006	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	1800(I)	(I)ID	2e+007(I)(S)	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	730(I)	1700(I)	1e+009(I)(D,S)	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	2.6(I)	2(I)(M);1.2	34000(I)	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	5(I)(A)	200(I)(X)	5600(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	18(I)	(I)NA	180000(I)	1	< 1.0	< 1.0	---	---	< 1.0	< 1.0	---	< 1.0	< 1.0
Bromochloromethane	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	80(A,W)	ID	4800	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	80(A,W)	ID	470000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	10	35	4000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	800(I,R)	(I,R)ID	250000(I,R)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	5(A)	45(X)	370	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	ug/l	100(I)(A)	25(I)	210000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	430	1100(X)	5.7e+006(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	80(A,W)	350(X)	28000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	260(I)	(I)ID	8600(I)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	70(A)	620	93000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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	Sample					MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX	MWSA0025 R523S040414GX
	Depth					1 - 6 ft	1 - 6 ft	1.5 - 6.5 ft	1.5 - 6.5 ft	1.5 - 6.5 ft	1.5 - 6.5 ft	7 - 12 ft	7 - 12 ft	7 - 12 ft
	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyclohexane	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	80(A,W)	ID	14000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	0.2(A)	ID	220(S)	0.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	80	NA	ID	5	< 5.0	< 5.0	---	---	< 5.0	< 5.0	---	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	1700	ID	220000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	10(E)	ID	6.1e+007(S)	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	30	ID	8000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	74(I)(E)	18(I)	110000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	0.05(A)	5.7(X)	2400	0.05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	49(E)	ID	2.9e+006	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	7.3	6.7(X)	27000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	800	28ID	56000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	(J)	(J)	(J)	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	5(A)	1500(X)	220000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	40(E)	7100(X)	4.7e+007(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	520	11	31000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	(J)	(J)	(J)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	100(A)	80(X)	170000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	190(E)	NA	260000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	3900	NA	1e+009(D,S)	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	5(A)	60(X)	25000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	95	11000(X)	6.9e+006	90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	790(I)(E)	270(I)	530000(I)(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene	ug/l	100(A)	1500(X)	85000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	ug/l	5(A)	200(X)	2200	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	2600	NA	1.1e+006(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	2(A)	13(X)	1100	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	280(I)(E)	41(I)	190000(I)(S)	3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

	Date / Time Collected	6/23/2014 4:45 PM	12/16/2013 4:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	12/4/2013 11:10 AM	12/4/2013 11:10 AM	12/6/2013 2:35 PM	12/19/2013 9:43 AM
	Location	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 566
	Sample	MWSA0025 R523S062314GX	MWSA0025 R524S121613GX	MWSA0025 R524D121613GX	MWSA0025 R524S020414GX	MWSA0025 R524S040414GX	MWSA0025 R524S062314GX	MWSA0025 R525S121613GX	MWSA0025 R525S020614GX	MWSA0025 R525S040314GX	MWSA0025 R525D040314GX	MWSA0025 R525S061814GX	SBKR0250L 550S 120413G039	SBKR0250L 550D 120413G039	SBKR0250L 560S 120613G040	SBKR0250L 566S 121913G039
	Depth	7 - 12 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	0.5 - 3.88 ft	0.5 - 3.88 ft	0.5 - 4 ft	0.5 - 3.9 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Duplicate	Result	Result
Field																
Depth to Water	ft	**4.30**	**4.82**	**4.82**	**4.48**	**3.45**	**4.54**	**6.50**	**6.20**	**5.21**	**5.21**	**6.18**	**3.66**	**3.66**	**3.68**	**3.68**
Dissolved Oxygen	mg/l	**0.06**	**0.11**	**0.11**	**0.21**	**0.22**	**0.08**	**0.04**	**0.18**	**0.29**	**0.29**	**0.05**	**0.37**	**0.37**	**0.44**	**0.43**
Oxidation Reduction Potential	millivolts	-96.4	-77.1	-77.1	-192.5	-72.2	-93.3	-108.5	**270.3**	-91.7	-91.7	-85.3	-87.0	-87.0	**101.1**	-91.8
pH	su	**7.10**	**7.08**	**7.08**	**6.96**	**7.16**	**7.16**	**7.03**	**7.10**	**7.07**	**7.07**	**7.08**	**7.00**	**7.00**	**7.11**	**6.89**
Specific Conductance	mS/cm	**0.61**	**0.574**	**0.574**	**0.66**	**0.565**	**0.54**	**0.534**	**0.56**	**0.522**	**0.522**	**0.54**	**0.79**	**0.79**	**0.695**	**0.652**
Temperature	deg c	**19.9**	**6.5**	**6.5**	**6.67**	**6.8**	**18.9**	**5.5**	**4.76**	**2.90**	**2.90**	**20.7**	**8.6**	**8.6**	**6.7**	**4.1**
Turbidity	ntu	**9.02**	**20.2**	**20.2**	**4.27**	**3.60**	**7.74**	**19.7**	**16.45**	**9.03**	**9.03**	**8.08**	**8.09**	**8.09**	**1.98**	**3.10**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	---	---
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	---
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	---	---
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	---	---
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 7. NAPL Mobility Locations - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	6/23/2014 4:45 PM	12/16/2013 4:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	12/4/2013 11:10 AM	12/4/2013 11:10 AM	12/6/2013 2:35 PM	12/19/2013 9:43 AM
	Location	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 566
	Sample	MWSA0025 R523S062314GX	MWSA0025 R524S121613GX	MWSA0025 R524D121613GX	MWSA0025 R524S020414GX	MWSA0025 R524S040414GX	MWSA0025 R524S062314GX	MWSA0025 R525S121613GX	MWSA0025 R525S020614GX	MWSA0025 R525S040314GX	MWSA0025 R525D040314GX	MWSA0025 R525S061814GX	SBKR0250L 550S 120413G039	SBKR0250L 550D 120413G039	SBKR0250L 560S 120613G040	SBKR0250L 566S 121913G039
	Depth	7 - 12 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	0.5 - 3.88 ft	0.5 - 3.88 ft	0.5 - 4 ft	0.5 - 3.9 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Duplicate	Result	Result
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**18**	**21**	**24**	**21**	**19**	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	< 1.0	---	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	---	---	---	---
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 7. NAPL Mobility Locations - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	6/23/2014 4:45 PM	12/16/2013 4:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	12/4/2013 11:10 AM	12/4/2013 11:10 AM	12/6/2013 2:35 PM	12/19/2013 9:43 AM
	Location	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 566
	Sample	MWSA0025 R523S06231 4GX	MWSA0025 R524S12161 3GX	MWSA0025 R524D12161 3GX	MWSA0025 R524S02041 4GX	MWSA0025 R524S04041 4GX	MWSA0025 R524S06231 4GX	MWSA0025 R525S12161 3GX	MWSA0025 R525S02061 4GX	MWSA0025 R525S04031 4GX	MWSA0025 R525D04031 4GX	MWSA0025 R525S06181 4GX	SBKR0250L 550S 120413G039	SBKR0250L 550D 120413G039	SBKR0250L 560S 120613G040	SBKR0250L 566S 121913G039
	Depth	7 - 12 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	15 - 20 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	3 - 8 ft	0.5 - 3.88 ft	0.5 - 3.88 ft	0.5 - 4 ft	0.5 - 3.9 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Duplicate	Result	Result
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	---	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	---	---	---	---
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.1**	**1.0**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**3.2**	**2.5**	**2.4**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**	**1.0**	**1.0**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**4.5**	**3.5**	**3.4**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

	Date / Time Collected	5/14/2014 2:35 PM	5/14/2014 2:35 PM
	Location	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 567S 051414G030	SBKR0250L 567S 051414G030
	Depth	1 - 3 ft	1 - 3 ft
	Dissolved / Total	D	T
Analyte	Units	Result	Result
Field			
Depth to Water	ft	---	**3.14**
Dissolved Oxygen	mg/l	---	**3.04**
Oxidation Reduction Potential	millivolts	---	**26.5**
pH	su	---	**6.74**
Specific Conductance	mS/cm	---	**0.870**
Temperature	deg c	---	**11.0**
Turbidity	ntu	---	**4.18**
Metals			
Beryllium	mg/l	< 0.0020	< 0.0010
Molybdenum	mg/l	< 0.0050	< 0.050
Nickel	mg/l	< 0.0050	< 0.020
Vanadium	mg/l	< 0.0050	< 0.0040
PNA			
2-Methylnaphthalene	ug/l	---	< 5.0
Acenaphthene	ug/l	---	< 5.0
Acenaphthylene	ug/l	---	< 5.0
Anthracene	ug/l	---	< 5.0
Benzo(a)anthracene	ug/l	---	< 1.0
Benzo(a)pyrene	ug/l	---	< 1.0
Benzo(b)fluoranthene	ug/l	---	< 1.0
Benzo(g,h,i)perylene	ug/l	---	< 1.0
Benzo(k)fluoranthene	ug/l	---	< 1.0
Chrysene	ug/l	---	< 1.0
Dibenzo(a,h)anthracene	ug/l	---	< 2.0
Fluoranthene	ug/l	---	< 1.0
Fluorene	ug/l	---	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	---	< 2.0
Naphthalene	ug/l	---	< 5.0
Phenanthrene	ug/l	---	< 2.0
Pyrene	ug/l	---	< 5.0
VOC			
1,1,1,2-Tetrachloroethane	ug/l	---	< 1.0
1,1,1-Trichloroethane	ug/l	---	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	---	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	< 1.0

	Date / Time Collected	5/14/2014 2:35 PM	5/14/2014 2:35 PM
	Location	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 567S 051414G030	SBKR0250L 567S 051414G030
	Depth	1 - 3 ft	1 - 3 ft
	Dissolved / Total	D	T
Analyte	Units	Result	Result
1,1,2-Trichloroethane	ug/l	---	< 1.0
1,1-Dichloroethane	ug/l	---	< 1.0
1,1-Dichloroethylene	ug/l	---	< 1.0
1,2,3-Trichlorobenzene	ug/l	---	< 5.0
1,2,3-Trichloropropane	ug/l	---	< 1.0
1,2,3-Trimethylbenzene	ug/l	---	< 5.0
1,2,4-Trichlorobenzene	ug/l	---	< 5.0
1,2,4-Trimethylbenzene	ug/l	---	< 1.0
1,2-Dichlorobenzene	ug/l	---	< 1.0
1,2-Dichloroethane	ug/l	---	< 1.0
1,2-Dichloropropane	ug/l	---	< 1.0
1,3,5-Trimethylbenzene	ug/l	---	< 1.0
1,3-Dichlorobenzene	ug/l	---	< 1.0
1,3-Dichloropropene, cis	ug/l	---	< 1.0
1,3-Dichloropropene, trans	ug/l	---	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	---	< 1.0
1,4-Dichlorobenzene	ug/l	---	< 1.0
2-Butanone (MEK)	ug/l	---	< 25
2-Hexanone	ug/l	---	< 50
2-Methylnaphthalene	ug/l	---	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	---	< 50
Acetone	ug/l	---	< 50
Acrylonitrile	ug/l	---	< 2.0
Benzene	ug/l	---	< 1.0
Bromobenzene	ug/l	---	< 1.0
Bromochloromethane	ug/l	---	< 1.0
Bromodichloromethane	ug/l	---	< 1.0
Bromoform	ug/l	---	< 1.0
Bromomethane	ug/l	---	< 5.0
Carbon disulfide	ug/l	---	< 5.0
Carbon tetrachloride	ug/l	---	< 1.0
Chlorobenzene	ug/l	---	< 1.0
Chloroethane	ug/l	---	< 5.0
Chloroform	ug/l	---	< 1.0
Chloromethane	ug/l	---	< 5.0
cis-1,2-Dichloroethylene	ug/l	---	< 1.0

	Date / Time Collected	5/14/2014 2:35 PM	5/14/2014 2:35 PM
	Location	SBKR0250L 567	SBKR0250L 567
	Sample	SBKR0250L 567S 051414G030	SBKR0250L 567S 051414G030
	Depth	1 - 3 ft	1 - 3 ft
	Dissolved / Total	D	T
Analyte	Units	Result	Result
Cyclohexane	ug/l	---	< 5.0
Dibromochloromethane	ug/l	---	< 5.0
Dibromochloropropane	ug/l	---	< 1.0
Dibromomethane	ug/l	---	< 5.0
Dichlorodifluoromethane	ug/l	---	< 5.0
Diethyl ether	ug/l	---	< 10
Di-isopropyl ether (DIPE)	ug/l	---	< 5.0
Ethylbenzene	ug/l	---	< 1.0
Ethylene dibromide	ug/l	---	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	---	< 5.0
Hexachloroethane	ug/l	---	< 5.0
Isopropyl benzene	ug/l	---	< 5.0
m&p-Xylene	ug/l	---	< 2.0
Methyl Iodide	ug/l	---	< 1.0
Methylene chloride	ug/l	---	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	---	< 5.0
Naphthalene	ug/l	---	< 5.0
n-Butylbenzene	ug/l	---	< 1.0
n-Propylbenzene	ug/l	---	< 1.0
o-Xylene	ug/l	---	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	---	< 5.0
sec-Butylbenzene	ug/l	---	< 1.0
Styrene	ug/l	---	< 1.0
t-Amyl methyl ether (TAME)	ug/l	---	< 5.0
t-Butyl alcohol	ug/l	---	< 50
t-Butylbenzene	ug/l	---	< 1.0
Tetrachloroethylene	ug/l	---	< 1.0
Tetrahydrofuran	ug/l	---	< 90
Toluene	ug/l	---	< 1.0
trans-1,2-Dichloroethylene	ug/l	---	< 1.0
Trichloroethylene	ug/l	---	< 1.0
Trichlorofluoromethane	ug/l	---	< 1.0
Vinyl chloride	ug/l	---	< 1.0
Xylenes	ug/l	---	< 2.0

Groundwater Footnotes:
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects new criteria rules, numbered from 299.1 to 299.50 which became effective on December 30, 2013.
Bold values are concentrations detected above the reporting limit.
Shaded values exceed Part 201 Generic Residential Cleanup Criteria.
Shaded values indicate that the laboratory Reporting Limit value exceeds Part 201 Generic Resedential Cleanup Criteria.
(A) = Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(D) = Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(E) = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value provided in a table available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(G) = Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg CaCO3/L, use 400 mg CaCO3/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G)-footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(M) = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(S) = Criterion defaults to the hazardous substance-specific water solubility limit.
(W) = Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)

(AA) = Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses.
--- = not completed/not analyzed.
D = dissolved (filtered).
deg c = degrees Celsius.
ft = feet.
ID = insufficient data to develop criterion.
mg/l = milligram per liter.
mS/cm = millisiemens per centimeter.
NA = a criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NCE = no criteria established.
NLV = hazardous substance is not likely to volatilize under most conditions.
ntu = nephelometric turbidity unit.
pH = a measure of the acidity or basicity of an aqueous solution.
PNA = polynuclear aromatic hydrocarbon.
su = standard unit.
T = total (unfiltered).
ug/l = micrograms per liter.
VOC = volatile organic compound.

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBKR0000R203A	2012-09-28	Fluoresced Oil
SBKR0000R507	2014-06-24	Fluoresced Oil
SBKR0000R507R1	2014-06-25	Fluoresced Oil
SBKR0225L502	2011-11-30	Fluoresced Oil
SBKR0225L502A	2011-11-30	Fluoresced Oil
SBKR0225L502AA	2011-12-05	Fluoresced Oil
SBKR0225L502AB	2011-12-05	Fluoresced Oil
SBKR0225L502ABA	2012-09-27	Fluoresced Oil
SBKR0225L502B	2011-11-30	Fluoresced Oil
SBKR0225L502C	2011-12-01	Visible Oil
SBKR0225L502E	2011-12-01	Fluoresced Oil
SBKR0225L502F	2011-12-01	Fluoresced Oil
SBKR0225L502G	2011-12-01	Fluoresced Oil
SBKR0225L502J	2011-12-01	Fluoresced Oil
SBKR0225L502M	2011-12-02	Fluoresced Oil
SBKR0225L502N	2011-12-02	Fluoresced Oil
SBKR0225L502O	2011-12-02	Fluoresced Oil
SBKR0225L502P	2011-12-02	Fluoresced Oil
SBKR0225L502Q	2011-12-02	Fluoresced Oil
SBKR0225L502S	2011-12-02	Fluoresced Oil
SBKR0225L502WR1	2014-05-08	Fluoresced Oil
SBKR0225L502Z	2011-12-05	Visible Oil
SBKR0225L502ZR1	2014-05-09	Visible Oil
SBKR0250I504	2011-12-02	Fluoresced Oil
SBKR0250I507	2011-12-02	Fluoresced Oil
SBKR0250I508	2011-12-05	Fluoresced Oil
SBKR0250I510	2011-12-05	Fluoresced Oil
SBKR0250I514	2011-12-06	Fluoresced Oil
SBKR0250I514A	2012-09-27	Visible Oil
SBKR0250L100	2011-06-27	Visible Oil
SBKR0250L114	2011-06-29	Visible Oil
SBKR0250L505	2011-12-06	Fluoresced Oil
SBKR0250L506	2011-12-06	Fluoresced Oil
SBKR0250L508	2011-12-07	Visible Oil
SBKR0250L509	2011-12-07	Fluoresced Oil
SBKR0250L510	2011-12-07	Visible Oil
SBKR0250L511	2011-12-07	Fluoresced Oil
SBKR0250L513	2011-12-07	Fluoresced Oil
SBKR0250L517	2011-12-07	Fluoresced Oil
SBKR0250L531	2012-03-01	Fluoresced Oil
SBKR0250L533	2012-03-01	Fluoresced Oil
SBKR0250L534	2012-03-01	Fluoresced Oil
SBKR0250L538	2012-03-01	Visible Oil
SBKR0250L539	2012-03-02	Visible Oil
SBKR0250L540	2012-03-02	Fluoresced Oil
SBKR0250L541	2012-03-02	Fluoresced Oil
SBKR0250L541A	2012-09-27	Fluoresced Oil
SBKR0250L542	2012-03-02	Fluoresced Oil
SBKR0250L544	2012-03-02	Fluoresced Oil
SBKR0250L545	2012-03-02	Fluoresced Oil

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBKR0250L549	2013-11-22	Fluoresced Oil
SBKR0250L550	2013-11-22	Visible Oil
SBKR0250L552	2013-11-22	Fluoresced Oil
SBKR0250L558	2013-12-06	Visible Oil
SBKR0250L560	2013-12-05	Visible Oil
SBKR0250L562	2013-12-10	Fluoresced Oil
SBKR0250L565	2013-12-06	Visible Oil
SBKR0250L566	2013-12-05	Visible Oil
SBKR0250L567	2013-12-10	Fluoresced Oil
SBKR0275I501	2011-12-07	Fluoresced Oil
SBKR0275I507	2014-01-16	Fluoresced Oil
SBKR0275I512	2014-01-17	Visible Oil
SBKR0275L501	2011-12-08	Fluoresced Oil
SBKR0275L502	2011-12-07	Fluoresced Oil
SBKR0275L507	2011-12-08	Fluoresced Oil
SBKR0275L513	2012-02-08	Fluoresced Oil
SBKR0275R508	2011-12-20	Visible Oil
SBKR0275R516	2014-01-17	Fluoresced Oil
SBKR0275R520	2014-01-17	Fluoresced Oil
SBKR0300I502	2011-12-08	Fluoresced Oil
SBKR0300I504	2012-03-07	Fluoresced Oil
SBKR0300I505	2012-03-07	Visible Oil
SBKR0300I506	2012-03-08	Visible Oil
SBKR0300I508	2014-04-14	Fluoresced Oil
SBKR0300I509	2014-04-14	Fluoresced Oil
SBKR0300I510	2014-04-15	Fluoresced Oil
SBKR0300I511	2014-04-15	Fluoresced Oil
SBKR0300L507	2011-12-09	Fluoresced Oil
SBKR0375I501	2011-12-12	Visible Oil
SBKR0375I501A	2012-09-28	Fluoresced Oil
SBKR0375I503	2011-12-13	Visible Oil
SBKR0375I504	2012-01-06	Fluoresced Oil
SBKR0375I510	2012-01-06	Fluoresced Oil
SBKR0375R501	2011-12-20	Fluoresced Oil
SBKR0375R502	2011-12-20	Fluoresced Oil
SBKR0375R503	2011-12-20	Visible Oil
SBKR0500R504	2011-12-16	Fluoresced Oil
SBKR0550L504	2011-12-15	Visible Oil
SBKR0550L505	2011-12-15	Visible Oil
SBKR0550L509	2011-12-20	Visible Oil
SBKR0650R505	2012-06-21	Fluoresced Oil
SBKR0675I001	2011-11-10	Fluoresced Oil
SBKR0675I002	2011-11-10	Fluoresced Oil
SBKR0675I003	2011-11-10	Fluoresced Oil
SBKR0700I518	2012-06-28	Fluoresced Oil
SBKR0750I501	2012-06-18	Fluoresced Oil
SBKR0775I501	2012-07-09	Visible Oil
SBKR0800I502	2012-07-10	Visible Oil
SBKR0800I504	2012-07-10	Fluoresced Oil
SBKR0800I510	2012-07-13	Visible Oil

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBKR0800L503	2012-02-17	Visible Oil
SBKR0800R507	2014-10-30	Fluoresced Oil
SBKR0825I011	2011-11-15	Fluoresced Oil
SBKR0825I017	2011-11-15	Fluoresced Oil
SBKR0825I020	2011-11-15	Fluoresced Oil
SBKR0825I028	2011-12-02	Fluoresced Oil
SBKR0825I029	2011-12-02	Fluoresced Oil
SBKR0825I501	2012-07-17	Visible Oil
SBKR0825I502	2012-07-17	Visible Oil
SBKR0825I502A	2012-09-28	Fluoresced Oil
SBKR0825I505	2012-07-18	Visible Oil
SBKR0825I506	2012-07-18	Visible Oil
SBKR0825R504	2014-11-03	Fluoresced Oil
SBKR0848L501	2012-01-30	Fluoresced Oil
SBKR0848L502	2012-01-30	Visible Oil
SBKR0848L508	2012-02-01	Fluoresced Oil
SBKR0848L511	2012-02-02	Visible Oil
SBKR0848L514	2012-02-02	Fluoresced Oil
SBKR0848L516	2012-02-03	Fluoresced Oil
SBKR0848L517	2012-02-14	Fluoresced Oil
SBKR0848L518	2012-02-14	Fluoresced Oil
SBKR0848L520	2012-02-14	Fluoresced Oil
SBKR0848L532	2012-03-02	Fluoresced Oil
SBKR0848L536	2012-03-05	Visible Oil
SBKR0897I001	2011-11-28	Fluoresced Oil
SBKR0897I002	2011-11-28	Fluoresced Oil
SBKR0897I004	2011-11-28	Fluoresced Oil
SBKR0897I006	2011-11-28	Fluoresced Oil
SBKR0897I007	2011-11-28	Fluoresced Oil
SBKR0897I008	2011-11-28	Visible Oil
SBKR0897I010	2011-11-29	Fluoresced Oil
SBKR0897I012	2011-11-29	Fluoresced Oil
SBKR0897I013	2011-11-29	Fluoresced Oil
SBKR0897I018	2011-11-29	Fluoresced Oil
SBKR0897I022	2011-11-29	Fluoresced Oil
SBKR0897I027	2011-12-01	Fluoresced Oil
SBKR0900I507	2014-07-23	Visible Oil
SBKR0900I510	2014-11-11	Fluoresced Oil
SBKR0910L010	2011-11-16	Fluoresced Oil
SBKR0910L015	2011-11-17	Fluoresced Oil
SBKR0910L016	2011-11-17	Visible Oil
SBKR0910L017	2011-11-17	Fluoresced Oil
SBKR0910L018	2011-11-18	Fluoresced Oil
SBKR0910L019	2011-11-18	Fluoresced Oil
SBKR0910L022	2011-11-18	Fluoresced Oil
SBKR0910L030	2011-11-18	Fluoresced Oil
SBKR0910L033	2011-11-19	Fluoresced Oil
SBKR0925R505	2012-06-25	Fluoresced Oil
SBKR0950L512	2014-07-24	Visible Oil
SBKR0975I501	2012-10-29	Visible Oil

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBKR0975I502	2012-10-29	Visible Oil
SBKR0975I503	2014-08-06	Fluoresced Oil
SBKR0978I001	2011-11-16	Fluoresced Oil
SBKR0978I003	2011-11-16	Fluoresced Oil
SBKR0978I004	2011-11-16	Fluoresced Oil
SBKR0978I005	2011-11-16	Fluoresced Oil
SBKR0978I006	2011-11-16	Fluoresced Oil
SBKR0978I007	2011-11-16	Fluoresced Oil
SBKR0978I008	2011-11-17	Fluoresced Oil
SBKR0978I011	2011-11-17	Fluoresced Oil
SBKR0978I013	2011-11-17	Fluoresced Oil
SBKR0978I017	2011-11-18	Fluoresced Oil
SBKR0978I019	2011-11-18	Fluoresced Oil
SBKR0978I020	2011-11-18	Fluoresced Oil
SBKR0978I021	2011-11-18	Fluoresced Oil
SBKR0978I022	2011-11-18	Fluoresced Oil
SBKR0978I024	2011-11-18	Fluoresced Oil
SBKR0978I025	2011-11-18	Fluoresced Oil
SBKR0978I026	2011-11-18	Fluoresced Oil
SBKR0978I031	2011-11-19	Fluoresced Oil
SBKR1000I501	2012-11-12	Visible Oil
SBKR1025L502	2012-05-03	Fluoresced Oil
SBKR1037R003	2011-11-28	Fluoresced Oil
SBKR1037R007	2011-11-28	Fluoresced Oil
SBKR1037R008	2011-11-28	Fluoresced Oil
SBKR1037R009	2011-11-28	Fluoresced Oil
SBKR1037R010	2011-11-29	Fluoresced Oil
SBKR1037R011	2011-11-29	Fluoresced Oil
SBKR1037R012	2011-11-29	Fluoresced Oil
SBKR1037R013	2011-11-29	Fluoresced Oil
SBKR1037R014	2011-11-29	Fluoresced Oil
SBKR1037R015	2011-11-29	Fluoresced Oil
SBKR1037R019	2011-11-29	Fluoresced Oil
SBKR1070I001	2011-11-14	Fluoresced Oil
SBKR1070I002	2011-11-14	Fluoresced Oil
SBKR1070I006	2011-11-14	Fluoresced Oil
SBKR1070I007	2011-11-14	Fluoresced Oil
SBKR1070I008	2011-11-14	Fluoresced Oil
SBKR1070I009	2011-11-15	Fluoresced Oil
SBKR1070I010	2011-11-15	Fluoresced Oil
SBKR1070I014	2011-11-15	Fluoresced Oil
SBKR1070I016	2011-11-15	Fluoresced Oil
SBKR1070I020	2011-11-15	Fluoresced Oil
SBKR1070I023	2011-11-16	Fluoresced Oil
SBKR1070I025	2011-11-16	Visible Oil
SBKR1070I026	2011-11-16	Fluoresced Oil
SBKR1070I027	2011-11-16	Visible Oil
SBKR1070I029	2011-11-16	Fluoresced Oil
SBKR1070I031	2011-11-16	Visible Oil
SBKR1075L510	2012-03-23	Fluoresced Oil

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBKR1075L512	2014-02-05	Fluoresced Oil
SBKR1075L521	2012-03-23	Fluoresced Oil
SBKR1082I002	2011-11-14	Fluoresced Oil
SBKR1082I003	2011-11-14	Fluoresced Oil
SBKR1082I004	2011-11-14	Fluoresced Oil
SBKR1082I005	2011-11-14	Fluoresced Oil
SBKR1082I006	2011-11-15	Visible Oil
SBKR1082I008	2011-11-15	Fluoresced Oil
SBKR1100I501	2012-11-12	Visible Oil
SBKR1125I502	2012-11-15	Fluoresced Oil
SBKR1150L522	2012-05-31	Visible Oil
SBKR1150L538	2014-02-06	Visible Oil
SBKR1150L540	2012-06-07	Fluoresced Oil
SBKR1150L545	2012-06-11	Visible Oil
SBKR1150L546	2012-06-11	Fluoresced Oil
SBKR1150L551	2012-06-12	Fluoresced Oil
SBKR1150R506	2012-12-04	Visible Oil
SBKR1175L019	2011-11-10	Fluoresced Oil
SBKR1175L048	2011-11-17	Fluoresced Oil
SBKR1175L049	2011-11-17	Fluoresced Oil
SBKR1175R502	2012-12-10	Fluoresced Oil
SBKR1250I502	2012-12-13	Fluoresced Oil
SBKR1250I510	2012-12-14	Fluoresced Oil
SBKR1250I511	2012-12-14	Fluoresced Oil
SBKR1256L009	2011-11-28	Fluoresced Oil
SBKR1256L010	2011-11-28	Fluoresced Oil
SBKR1256L011	2011-11-28	Fluoresced Oil
SBKR1256L013	2011-11-29	Fluoresced Oil
SBKR1256L014	2011-11-29	Fluoresced Oil
SBKR1256L017	2011-11-29	Fluoresced Oil
SBKR1256L018	2011-11-29	Fluoresced Oil
SBKR1256L019	2011-11-30	Fluoresced Oil
SBKR1256L024	2011-12-01	Visible Oil
SBKR1256L025	2011-12-01	Fluoresced Oil
SBKR1275R502	2012-04-18	Fluoresced Oil
SBKR1300R536	2012-01-26	Fluoresced Oil
SBKR1300R537	2012-01-26	Visible Oil
SBKR1300R539	2012-01-26	Visible Oil
SBKR1300R541	2012-01-27	Visible Oil
SBKR1300R542	2012-01-27	Visible Oil
SBKR1300R563	2012-02-01	Visible Oil
SBKR1300R564	2012-02-01	Fluoresced Oil
SBKR1300R565	2012-02-02	Visible Oil
SBKR1300R566	2012-02-02	Visible Oil
SBKR1300R588	2012-02-09	Fluoresced Oil
SBKR1300R594	2014-02-13	Visible Oil
SBKR1350L001	2011-11-03	Fluoresced Oil
SBKR1350L005	2011-11-03	Visible Oil
SBKR1350L006	2011-11-03	Visible Oil
SBKR1350L007	2011-11-04	Visible Oil

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBKR1350L012	2011-11-04	Fluoresced Oil
SBKR1350L013	2011-11-04	Fluoresced Oil
SBKR1350L019	2011-11-07	Fluoresced Oil
SBKR1350L020	2011-11-07	Fluoresced Oil
SBKR1350L021	2011-11-07	Fluoresced Oil
SBKR1350L023	2011-11-07	Fluoresced Oil
SBKR1350L025	2011-11-08	Visible Oil
SBKR1350L026	2011-11-08	Fluoresced Oil
SBKR1350L036	2011-11-08	Fluoresced Oil
SBKR1350L037	2011-11-08	Fluoresced Oil
SBKR1350L051	2011-11-10	Visible Oil
SBKR1350L052	2011-11-10	Visible Oil
SBKR1350L053	2011-11-10	Visible Oil
SBKR1350L054	2011-11-10	Visible Oil
SBKR1350L062	2011-11-11	Visible Oil
SBKR1375L502	2012-03-12	Fluoresced Oil
SBKR1400I501	2013-04-05	Visible Oil
SBKR1400I502	2013-04-05	Visible Oil
SBKR1497I007	2011-11-28	Fluoresced Oil
SBKR1497I013	2011-11-28	Visible Oil
SBKR1497I016	2011-11-29	Fluoresced Oil
SBKR1575R507	2013-02-11	Visible Oil
SBKR2100R520	2013-03-04	Visible Oil
SBKR2225L503	2013-05-07	Fluoresced Oil
SBKR2225R511	2013-03-01	Visible Oil
SBKR2250R514	2013-03-04	Visible Oil
SBKR2625R510	2013-02-19	Fluoresced Oil
SBKR2675R507	2013-07-10	Fluoresced Oil
SBKR2700R506	2012-03-21	Fluoresced Oil
SBKR2900L506	2013-04-02	Fluoresced Oil
SBKR3525L520	2014-08-20	Fluoresced Oil
SBSA0025R514	2013-11-07	Fluoresced Oil
SBSA0025R516	2013-11-07	Fluoresced Oil
SBSA0025R520	2013-11-11	Fluoresced Oil
SBSA0025R523	2013-11-11	Fluoresced Oil
SBSA0025R524	2013-11-12	Fluoresced Oil
SBSA0025R525	2013-11-12	Visible Oil
SBSA0025R526	2013-11-12	Fluoresced Oil
SBSA0025R541	2013-11-21	Fluoresced Oil
SBSA0025R545	12/18/2013	Fluoresced Oil
SBSA0025R547	12/18/2013	Fluoresced Oil
SBSA0025R550	12/19/2013	Fluoresced Oil
SBSA0025R552	12/19/2013	Fluoresced Oil
SBSA0116	2012-07-18	Fluoresced Oil
SBSA0124	2012-07-19	Fluoresced Oil
SBSA0125	2012-07-20	Fluoresced Oil
SBSA0132	2012-07-20	Visible Oil
SBSA0141	2012-08-02	Fluoresced Oil
SBTC0000R004A	2011-10-10	Fluoresced Oil
SBTC0000R004G	2011-10-11	Fluoresced Oil

Table 8. Soil Borings with NAPL Indicators Across the Spill Area
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Sample Location	Date	Observation
SBTC0000R004J	2011-10-11	Fluoresced Oil
SBTC0000R004O	2011-10-11	Fluoresced Oil
SBTC0000R004P	2011-10-11	Fluoresced Oil
SBTC0025L101D	2011-08-30	Fluoresced Oil
SBTC0025L505	2014-04-04	Fluoresced Oil
SBTC0025R567	2014-04-07	Fluoresced Oil
SBTC0050L120A	2011-10-08	Fluoresced Oil
SBTC0050R105D	2011-08-24	Fluoresced Oil
SBTC0050R106	2011-08-12	Fluoresced Oil
SBTC0050R107E	2011-08-25	Fluoresced Oil
SBTC0050R504	2014-04-03	Visible Oil
SBTC0075L514	2014-02-05	Fluoresced Oil
SBTC0075R509R1	2014-02-17	Fluoresced Oil
SBTC0100L502	2014-01-22	Fluoresced Oil
SBTC0150L065	10/5/2011	Fluoresced Oil
SBTC0150L071	10/6/2011	Fluoresced Oil
SBTC0150L074	10/6/2011	Fluoresced Oil
SBTC0150L090	10/7/2011	Fluoresced Oil
SBTC0150L095	10/7/2011	Fluoresced Oil
SBTC0150L099	2011-10-08	Visible Oil
SBTC0150L101	10/7/2011	Fluoresced Oil
SBTC0150L512	2014-03-11	Fluoresced Oil
SBTC0150L516	2014-03-11	Fluoresced Oil
SBTC0175L090	2011-10-13	Visible Oil
SBTC0175L100	2011-10-14	Visible Oil
SBTC0175L507	2014-03-27	Fluoresced Oil
SBTC0175R051	10/5/2011	Fluoresced Oil
SBTC0175R059	10/6/2011	Fluoresced Oil
SBTC0175R073	10/6/2011	Fluoresced Oil
SBTC0200L006A	10/15/2011	Fluoresced Oil
SBTC0200R003	10/8/2011	Fluoresced Oil
SBTC0200R097	2011-10-13	Visible Oil
SBTC0225R006H	2011-10-18	Visible Oil
SBTC0225R501	2013-11-22	Fluoresced Oil

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	9/28/2012 10:05 AM	9/28/2012 10:10 AM	6/24/2014 11:33 AM	6/24/2014 11:35 AM	6/25/2014 11:15 AM	12/5/2011 3:30 PM	9/27/2012 2:45 PM	11/30/2011 4:05 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0000R 203A	SBKR0000R 203A	SBKR0000R 507	SBKR0000R 507	SBKR0000R 507R1	SBKR0225L 502AB	SBKR0225L 502ABA	SBKR0225L 502B
	Sample						SBKR0000R 203AS 092812S006	SBKR0000R 203AS 092812S017	SBKR0000R 507S 062414S022	SBKR0000R 507S 062414S033	SBKR0000R 507R1S 062514S035	SBKR0225L 502ABS 120511S005	SBKR0225L 502ABAS092 712S004	SBKR0225L 502BS 113011S005
	Depth						0 - 0.6 ft	1.4 - 1.7 ft	2 - 2.2 ft	3 - 3.3 ft	2.2 - 3.5 ft	0 - 0.5 ft	0 - 0.4 ft	0 - 0.5 ft
	USCS Code						OL	ML	ML	ML/SP	ML	OL	OL	OL
	Saturation Status						Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units						Result	Result	Result	Result	Result	Result	Result	Result
Carbon														
Total Organic Carbon	%	NCE	NCE	NCE	NCE	NCE	**7.80**	**6.96**	---	---	---	---	**12.6**	---
Metals														
Beryllium	mg/kg	410	51	250(G)	NLV	0.5	---	---	< 0.50	< 0.50	< 0.56	**0.56**	---	< 0.50
Molybdenum	mg/kg	2600(B)	1.5(B)	64(B)(X)	(B)NLV	1	---	---	**1.4**	< 1.0	**2.7**	**1.7**	---	**2.1**
Nickel	mg/kg	40000(B)	100(B)	110(B)(G)	(B)NLV	1	---	---	**14**	**5.7**	**14**	**24**	---	**24**
Vanadium	mg/kg	750(DD)	72	430	NLV	1	---	---	**13**	**7.8**	**15**	**33**	---	**41**
PNA														
2-Methylnaphthalene	ug/kg	8.1e+006	57000	4200	2.7e+006	330	**233**	**837**	< 330	< 330	< 330	**78**	**77.6**	< 2700
Acenaphthene	ug/kg	4.1e+007	300000	8700	1.9e+008	330	**543**	**1400**	**3300**	**970**	**630**	< 150	**31.4**	< 2700
Acenaphthylene	ug/kg	1.6e+006	5900	ID	1.6e+006	330	**2420**	**17000**	**1400**	**2000**	**1800**	**620**	**274**	< 2700
Anthracene	ug/kg	2.3e+008	41000	ID	1e+009(D)	330	**3520**	**18100**	**2900**	**7000**	**1900**	**270**	**301**	< 2700
Benzo(a)anthracene	ug/kg	20000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	**14400**	**64200**	**9600**	**19000**	**12000**	**2000**	**1460**	**2200**
Benzo(a)pyrene	ug/kg	2000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	**18100**	**83200**	**8000**	**17000**	**9500**	**7300**	**2200**	**2200**
Benzo(b)fluoranthene	ug/kg	20000(Q)	(Q)NLL	(Q)NLL	(Q)ID	330	**12100**	**46800**	**8800**	**19000**	**9700**	**3400**	**1480**	**2100**
Benzo(g,h,i)perylene	ug/kg	2.5e+006	NLL	NLL	NLV	330	**12300**	**44400**	**4300**	**8200**	**4900**	**5700**	**1890**	< 2700
Benzo(k)fluoranthene	ug/kg	200000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	---	---	**3300**	**5900**	**3500**	**4500**	---	< 2700
Chrysene	ug/kg	2e+006(Q)	(Q)NLL	(Q)NLL	(Q)ID	330	---	---	**8200**	**16000**	**10000**	**2500**	---	**3900**
Dibenzo(a,h)anthracene	ug/kg	2000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	---	---	**610**	**2500**	**1700**	< 1500	---	< 2700
Fluoranthene	ug/kg	4.6e+007	730000	5500	1e+009(D)	330	**21000**	**73700**	**22000**	**43000**	**19000**	**2000**	**1890**	**1500**
Fluorene	ug/kg	2.7e+007	390000	5300	5.8e+008	330	**550**	**1800**	**2300**	**2100**	**910**	< 150	**57.1**	< 2700
Indeno(1,2,3-c,d)pyrene	ug/kg	20000(Q)	(Q)NLL	(Q)NLL	(Q)NLV	330	**11800**	**42900**	**4700**	**9500**	**5000**	**1500**	**1470**	< 2700
Naphthalene	ug/kg	1.6e+007	35000	730	250000	330	**407**	**1240**	< 330	< 330	< 330	**87**	**88.0**	< 2700
Phenanthrene	ug/kg	1.6e+006	56000	2100	2.8e+006	330	**7610**	**14600**	**6100**	**11000**	**1700**	**790**	**640**	< 2700
Pyrene	ug/kg	2.9e+007	480000	ID	1e+009(D)	330	**25000**	**108000**	**22000**	**34000**	**26000**	**4600**	**2350**	**4200**
Solids														
Moisture	%	NCE	NCE	NCE	NCE	NCE	---	---	**63**	**23**	**65**	**68**	---	**64**
TPH														
Diesel Range Organics (C10-C20)	mg/kg	NCE	NCE	NCE	NCE	10	---	---	---	---	---	**3200**	---	**20000**
Gasoline Range Organics (C6-C10)	mg/kg	NCE	NCE	NCE	NCE	10	---	---	---	---	---	< 4.0	---	< 4.0
Oil Range Organics (C20-C34)	mg/kg	NCE	NCE	NCE	NCE	20	---	---	---	---	---	**14000**	---	**69000**
VOC														
1,1,1,2-Tetrachloroethane	ug/kg	480000(C)	1500	ID	6200	100	---	---	---	---	---	< 490	---	< 380
1,1,1-Trichloroethane	ug/kg	5e+008(C)	4000	1800	250000	50	---	---	---	---	---	< 490	---	< 380
1,1,2,2-Tetrachloroethane	ug/kg	53000	170	1600(X)	4300	50	---	---	---	---	---	< 490	---	< 380

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	9/28/2012 10:05 AM	9/28/2012 10:10 AM	6/24/2014 11:33 AM	6/24/2014 11:35 AM	6/25/2014 11:15 AM	12/5/2011 3:30 PM	9/27/2012 2:45 PM	11/30/2011 4:05 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0000R 203A	SBKR0000R 203A	SBKR0000R 507	SBKR0000R 507	SBKR0000R 507R1	SBKR0225L 502AB	SBKR0225L 502ABA	SBKR0225L 502B
	Sample						SBKR0000R 203AS 092812S006	SBKR0000R 203AS 092812S017	SBKR0000R 507S 062414S022	SBKR0000R 507S 062414S033	SBKR0000R 507R1S 062514S035	SBKR0225L 502ABS 120511S005	SBKR0225L 502ABAS092 712S004	SBKR0225L 502BS 113011S005
	Depth						0 - 0.6 ft	1.4 - 1.7 ft	2 - 2.2 ft	3 - 3.3 ft	2.2 - 3.5 ft	0 - 0.5 ft	0 - 0.4 ft	0 - 0.5 ft
	USCS Code						OL	ML	ML	ML/SP	ML	OL	OL	OL
	Saturation Status						Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units						Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	180000	100	6600(X)	4600	50	---	---	---	---	---	< 490	---	< 380
1,1-Dichloroethane	ug/kg	2.7e+007(C)	18000	15000	230000	50	---	---	---	---	---	< 490	---	< 380
1,1-Dichloroethylene	ug/kg	200000(I)	140(I)	2600(I)	62(I)	50	---	---	---	---	---	< 490	---	< 380
1,2,3-Trichlorobenzene	ug/kg	NCE	NCE	NCE	NCE	250	---	---	---	---	---	< 490	---	< 380
1,2,3-Trichloropropane	ug/kg	1.3e+006(C)	840	NA	4000	100	---	---	---	---	---	< 490	---	< 380
1,2,3-Trimethylbenzene	ug/kg	NCE	NCE	NCE	NCE	250	---	---	---	---	---	< 490	---	< 380
1,2,4-Trichlorobenzene	ug/kg	990000(DD)	4200	5900(X)	9.6e+006(C)	330	---	---	---	---	---	< 490	---	< 380
1,2,4-Trimethylbenzene	ug/kg	3.2e+007(C)	2100(I)	570(I)	4.3e+006(C)	100	---	---	---	---	---	< 490	---	< 380
1,2-Dichlorobenzene	ug/kg	1.9e+007(C)	14000	280	1.1e+007(C)	100	---	---	---	---	---	< 490	---	< 380
1,2-Dichloroethane	ug/kg	91000(I)	100(I)	7200(I)(X)	2100(I)	50	---	---	---	---	---	< 490	---	< 380
1,2-Dichloropropane	ug/kg	140000(I)	100(I)	4600(I)(X)	4000(I)	50	---	---	---	---	---	< 490	---	< 380
1,3,5-Trimethylbenzene	ug/kg	3.2e+007(C)	1800(I)	1100(I)	2.6e+006(C)	100	---	---	---	---	---	< 490	---	< 380
1,3-Dichlorobenzene	ug/kg	200000(C)	170	680	26000	100	---	---	---	---	---	< 490	---	< 380
1,3-Dichloropropene, cis	ug/kg	NCE	NCE	NCE	NCE	50	---	---	---	---	---	< 490	---	< 380
1,3-Dichloropropene, trans	ug/kg	NCE	NCE	NCE	NCE	50	---	---	---	---	---	< 490	---	< 380
1,4-Dichloro-2-butene, trans	ug/kg	NCE	NCE	NCE	NCE	50	---	---	---	---	---	< 490	---	< 380
1,4-Dichlorobenzene	ug/kg	400000	1700	360	19000	100	---	---	---	---	---	< 490	---	< 380
2-Butanone (MEK)	ug/kg	1.2e+008(C,DD)	260000(I)	44000(I)	5.4e+007(C)	750	---	---	---	---	---	< 1600	---	< 1300
2-Hexanone	ug/kg	3.2e+007(C)	20000	ID	990000	2500	---	---	---	---	---	< 2500	---	< 2500
2-Methylnaphthalene	ug/kg	8.1e+006	57000	4200	2.7e+006	330	---	---	---	---	---	< 1600	---	< 1300
4-Methyl-2-pentanone (MIBK)	ug/kg	5.6e+007(C)	36000(I)	(I)ID	3.7e+007(C)	2500	---	---	---	---	---	< 2500	---	< 2500
Acetone	ug/kg	2.3e+007(I)	15000(I)	34000(I)	2.9e+008(C)	1000	---	---	---	---	---	< 4100	---	< 3200
Acrylonitrile	ug/kg	16000(I)	100(I)(M);52	100(I)(M);40	6600(I)	100	---	---	---	---	---	< 490	---	< 380
Benzene	ug/kg	180000(I)	100(I)	4000(I)(X)	1600(I)	50	---	---	---	---	---	< 490	---	< 380
Bromobenzene	ug/kg	540000(I)	550(I)	(I)NA	310000(I)	100	---	---	---	---	---	< 490	---	< 380
Bromochloromethane	ug/kg	NCE	NCE	NCE	NCE	100	---	---	---	---	---	< 490	---	< 380
Bromodichloromethane	ug/kg	110000	1600(W)	ID	1200	100	---	---	---	---	---	< 490	---	< 380
Bromoform	ug/kg	820000	1600(W)	ID	150000	100	---	---	---	---	---	< 490	---	< 380
Bromomethane	ug/kg	320000	200	700	860	200	---	---	---	---	---	< 490	---	< 380
Carbon disulfide	ug/kg	7.2e+006(C,DD)	16000(I,R)	(I,R)ID	76000(I,R)	250	---	---	---	---	---	< 490	---	< 380
Carbon tetrachloride	ug/kg	96000	100	900(X)	190	50	---	---	---	---	---	< 490	---	< 380
Chlorobenzene	ug/kg	4.3e+006(C)	2000(I)	500(I)	120000(I)	50	---	---	---	---	---	< 490	---	< 380
Chloroethane	ug/kg	2.6e+006(C)	8600	22000(X)	2.9e+006(C)	250	---	---	---	---	---	< 1600	---	< 1300
Chloroform	ug/kg	1.2e+006	1600(W)	7000	7200	50	---	---	---	---	---	< 490	---	< 380
Chloromethane	ug/kg	1.6e+006(C)	5200(I)	(I)ID	2300(I)	250	---	---	---	---	---	< 490	---	< 380

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	9/28/2012 10:05 AM	9/28/2012 10:10 AM	6/24/2014 11:33 AM	6/24/2014 11:35 AM	6/25/2014 11:15 AM	12/5/2011 3:30 PM	9/27/2012 2:45 PM	11/30/2011 4:05 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0000R 203A	SBKR0000R 203A	SBKR0000R 507	SBKR0000R 507	SBKR0000R 507R1	SBKR0225L 502AB	SBKR0225L 502ABA	SBKR0225L 502B
	Sample						SBKR0000R 203AS 092812S006	SBKR0000R 203AS 092812S017	SBKR0000R 507S 062414S022	SBKR0000R 507S 062414S033	SBKR0000R 507R1S 062514S035	SBKR0225L 502ABS 120511S005	SBKR0225L 502ABAS092 712S004	SBKR0225L 502BS 113011S005
	Depth						0 - 0.6 ft	1.4 - 1.7 ft	2 - 2.2 ft	3 - 3.3 ft	2.2 - 3.5 ft	0 - 0.5 ft	0 - 0.4 ft	0 - 0.5 ft
	USCS Code						OL	ML	ML	ML/SP	ML	OL	OL	OL
	Saturation Status						Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units						Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	2.5e+006(C)	1400	12000	22000	50	---	---	---	---	---	< 490	---	< 380
Cyclohexane	ug/kg	NCE	NCE	NCE	NCE	500	---	---	---	---	---	< 500	---	< 500
Dibromochloromethane	ug/kg	110000	1600(W)	ID	3900	100	---	---	---	---	---	< 490	---	< 380
Dibromochloropropane	ug/kg	4400(C)	10(M);4	ID	220(C)	10	---	---	---	---	---	< 490	---	< 380
Dibromomethane	ug/kg	2.5e+006(C)	1600	NA	ID	250	---	---	---	---	---	< 490	---	< 380
Dichlorodifluoromethane	ug/kg	5.2e+007(C)	95000	ID	900000	250	---	---	---	---	---	< 490	---	< 380
Diethyl ether	ug/kg	1.1e+008(C)	200	ID	2.8e+007(C)	200	---	---	---	---	---	< 490	---	< 380
Di-isopropyl ether (DIPE)	ug/kg	920000(C)	600	ID	670000(C)	250	---	---	---	---	---	< 490	---	< 380
Ethylbenzene	ug/kg	2.2e+007(C)	1500(I)	360(I)	87000(I)	50	---	---	---	---	---	< 490	---	< 380
Ethylene dibromide	ug/kg	92	20(M);1	110(X)	670	20	---	---	---	---	---	< 490	---	< 380
Ethyl-tert-butyl ether (ETBE)	ug/kg	ID	980	ID	540000	250	---	---	---	---	---	< 490	---	< 380
Hexachloroethane	ug/kg	230000	430	1800(X)	40000	300	---	---	---	---	---	< 490	---	< 380
Isopropyl benzene	ug/kg	2.5e+007(C)	91000	3200	400000(C)	250	---	---	---	---	---	< 490	---	< 380
m&p-Xylene	ug/kg	(J)	(J)	(J)	(J)	100	---	---	---	---	---	< 970	---	< 760
Methyl Iodide	ug/kg	NCE	NCE	NCE	NCE	100	---	---	---	---	---	< 490	---	< 380
Methylene chloride	ug/kg	1.3e+006	100	30000(X)	45000	100	---	---	---	---	---	< 490	---	< 380
Methyl-tert-butyl ether (MTBE)	ug/kg	1.5e+006	800	140000(X)	9.9e+006(C)	250	---	---	---	---	---	< 490	---	< 380
Naphthalene	ug/kg	1.6e+007	35000	730	250000	330	---	---	---	---	---	< 1600	---	< 1300
n-Butylbenzene	ug/kg	2.5e+006	1600	ID	ID	50	---	---	---	---	---	< 490	---	< 380
n-Propylbenzene	ug/kg	2.5e+006(I)	1600(I)	(I)ID	(I)ID	100	---	---	---	---	---	< 490	---	< 380
o-Xylene	ug/kg	(J)	(J)	(J)	(J)	50	---	---	---	---	---	< 490	---	< 380
p-Isopropyl toluene (p-Cymene)	ug/kg	NCE	NCE	NCE	NCE	100	---	---	---	---	---	< 490	---	< 380
sec-Butylbenzene	ug/kg	2.5e+006	1600	ID	ID	50	---	---	---	---	---	< 490	---	< 380
Styrene	ug/kg	400000	2700	2100(X)	250000	50	---	---	---	---	---	< 490	---	< 380
t-Amyl methyl ether (TAME)	ug/kg	2.9e+007(C)	3900	NA	58000	250	---	---	---	---	---	< 490	---	< 380
t-Butyl alcohol	ug/kg	1.2e+008(C)	78000	NA	3.1e+008(C)	2500	---	---	---	---	---	< 2500	---	< 2500
t-Butylbenzene	ug/kg	2.5e+006(I)	1600(I)	(I)ID	(I)ID	50	---	---	---	---	---	< 490	---	< 380
Tetrachloroethylene	ug/kg	200000(C)	100	1200(X)	11000	50	---	---	---	---	---	< 490	---	< 380
Tetrahydrofuran	ug/kg	2.9e+006	1900	220000(X)	1.3e+006	1000	---	---	---	---	---	< 1600	---	< 1300
Toluene	ug/kg	5e+007(C)	16000(I)	5400(I)	330000(C)	100	---	---	---	---	---	< 490	---	< 380

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	Part 201 Generic Residential Cleanup Criteria				Target Detection Limits - Soil	9/28/2012 10:05 AM	9/28/2012 10:10 AM	6/24/2014 11:33 AM	6/24/2014 11:35 AM	6/25/2014 11:15 AM	12/5/2011 3:30 PM	9/27/2012 2:45 PM	11/30/2011 4:05 PM
	Location	Direct Contact Criteria	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria		SBKR0000R 203A	SBKR0000R 203A	SBKR0000R 507	SBKR0000R 507	SBKR0000R 507R1	SBKR0225L 502AB	SBKR0225L 502ABA	SBKR0225L 502B
	Sample						SBKR0000R 203AS 092812S006	SBKR0000R 203AS 092812S017	SBKR0000R 507S 062414S022	SBKR0000R 507S 062414S033	SBKR0000R 507R1S 062514S035	SBKR0225L 502ABS 120511S005	SBKR0225L 502ABAS092 712S004	SBKR0225L 502BS 113011S005
	Depth						0 - 0.6 ft	1.4 - 1.7 ft	2 - 2.2 ft	3 - 3.3 ft	2.2 - 3.5 ft	0 - 0.5 ft	0 - 0.4 ft	0 - 0.5 ft
	USCS Code						OL	ML	ML	ML/SP	ML	OL	OL	OL
	Saturation Status						Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated
Analyte	Units						Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	NCE	NCE	NCE	NCE	NCE	---	---	---	---	---	< 490	---	< 380
trans-1,2-Dichloroethylene	ug/kg	3.8e+006(C)	2000	30000(X)	23000	50	---	---	---	---	---	< 490	---	< 380
Trichloroethylene	ug/kg	500000(C,DD)	100	4000(X)	1000	50	---	---	---	---	---	< 490	---	< 380
Trichlorofluoromethane	ug/kg	7.9e+007(C)	52000	NA	2.8e+006(C)	100	---	---	---	---	---	< 490	---	< 380
Vinyl chloride	ug/kg	3800	40	260(X)	270	40	---	---	---	---	---	< 490	---	< 380
Xylenes	ug/kg	4.1e+008(C)	5600(I)	820(I)	6.3e+006(C)	150	---	---	---	---	---	< 970	---	< 760

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/1/2011 1:50 PM	12/2/2011 1:45 PM	12/2/2011 2:35 PM	12/2/2011 2:55 PM	5/8/2014 1:45 PM	12/5/2011 2:47 PM	12/2/2011 1:45 PM	12/2/2011 3:40 PM	12/5/2011 11:20 AM	12/6/2011 9:55 AM	9/27/2012 5:05 PM	9/27/2012 5:10 PM	12/6/2011 3:30 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM
	Location	SBKR0225L 502F	SBKR0225L 502O	SBKR0225L 502Q	SBKR0225L 502S	SBKR0225L 502WR1	SBKR0225L 502Z	SBKR0250I5 04	SBKR0250I5 07	SBKR0250I5 08	SBKR0250I5 14	SBKR0250I5 14A	SBKR0250I5 14A	SBKR0250L 506	SBKR0250L 508	SBKR0250L 509
	Sample	SBKR0225L 502FS 120111S010	SBKR0225L 502OS 120211S006	SBKR0225L 502QS 120211S010	SBKR0225L 502S S120211S005	SBKR0225L502WR1S050814S005	SBKR0225L 502ZS 120511S007	SBKR0250I 504S 120211S003	SBKR0250I 507S 120211S006	SBKR0250I 508S 120511S005	SBKR0250I 514S 120611S005	SBKR0250I 514AS 092712S005	SBKR0250I 514AS 092712S015	SBKR0250L 506S 120611S010	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010
	Depth	0.5 - 1 ft	0 - 0.6 ft	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.7 ft	0 - 0.3 ft	0.3 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.9 - 1.45 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft
	USCS Code	OL	OL	OL	OL	OL/CL	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL
	Saturation Status	Saturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Carbon																
Total Organic Carbon	%	---	---	---	---	---	---	---	---	---	---	**5.59**	**4.84**	---	---	---
Metals																
Beryllium	mg/kg	**1.3**	**0.50**	**0.62**	< 0.50	---	**0.59**	**0.51**	< 0.50	< 0.50	< 0.50	---	---	< 0.50	< 0.64	< 0.50
Molybdenum	mg/kg	< 2.4	**1.6**	**1.3**	< 1.0	---	**1.6**	< 1.0	**1.1**	**1.5**	**1.0**	---	---	**1.4**	**1.4**	**1.7**
Nickel	mg/kg	**35**	**22**	**24**	**14**	---	**27**	**21**	**22**	**24**	**23**	---	---	**33**	**15**	**20**
Vanadium	mg/kg	**51**	**27**	**25**	**19**	---	**35**	**20**	**19**	**27**	**24**	---	---	**24**	**20**	**24**
PNA																
2-Methylnaphthalene	ug/kg	< 290	< 1100	< 540	< 130	< 330	< 4800	< 1100	< 1100	< 3500	< 1200	**114**	**156**	**680**	**1100**	< 1100
Acenaphthene	ug/kg	< 290	< 1100	< 540	< 130	< 330	< 4800	< 1100	< 1100	< 3500	< 1200	**86.9**	**268**	< 1200	< 330	< 1100
Acenaphthylene	ug/kg	< 290	< 1100	**580**	**480**	< 330	< 4800	< 1100	< 1100	< 3500	**3300**	**678**	**217**	< 1200	< 330	< 1100
Anthracene	ug/kg	**230**	< 1100	**600**	**410**	< 330	< 4800	< 1100	< 1100	**3900**	< 1200	**931**	**643**	< 1200	< 330	< 1100
Benzo(a)anthracene	ug/kg	**1200**	**2100**	**3700**	**1600**	**1700**	**4600**	**5700**	**7600**	**13000**	**5300**	**5240**	**1900**	**850**	**660**	**1200**
Benzo(a)pyrene	ug/kg	**2200**	**2400**	**4000**	**2100**	**2300**	**4000**	**5700**	**7100**	**6400**	**9200**	**6150**	**2040**	**5100**	**660**	**4700**
Benzo(b)fluoranthene	ug/kg	**2500**	**1700**	**3000**	**3600**	**2300**	**3200**	**4500**	**6200**	**8200**	**11000**	**4550**	**1630**	**1100**	**760**	**1600**
Benzo(g,h,i)perylene	ug/kg	**1200**	**1000**	**2100**	**700**	**1600**	< 4800	**1900**	**2800**	**5300**	**5600**	**3750**	**1240**	< 1200	< 330	**3900**
Benzo(k)fluoranthene	ug/kg	**1500**	**1800**	**3200**	**1100**	**970**	< 4800	**6000**	**6800**	**11000**	**5000**	---	---	**3300**	**710**	**3000**
Chrysene	ug/kg	**2000**	**2600**	**3200**	**2100**	**2000**	**4500**	**3800**	**5600**	**15000**	**6100**	---	---	**930**	**730**	**2200**
Dibenzo(a,h)anthracene	ug/kg	< 290	< 1100	< 540	< 130	**600**	< 4800	< 1100	< 1100	< 3500	< 1200	---	---	< 1200	< 330	< 1100
Fluoranthene	ug/kg	**1300**	**2000**	**4900**	**1800**	**2100**	**3400**	**6600**	**9400**	**8700**	**7100**	**7420**	**2640**	**800**	**740**	< 1100
Fluorene	ug/kg	< 290	< 1100	< 540	< 130	< 330	< 4800	< 1100	< 1100	< 3500	< 1200	**131**	**298**	< 1200	< 330	< 1100
Indeno(1,2,3-c,d)pyrene	ug/kg	**420**	< 1100	**1800**	**380**	**1700**	< 4800	**1900**	**2200**	< 3500	**2100**	**3840**	**1210**	**1100**	< 330	< 1100
Naphthalene	ug/kg	< 290	< 1100	< 540	**77**	< 330	< 4800	< 1100	< 1100	< 3500	< 1200	**187**	**190**	< 1200	< 330	< 1100
Phenanthrene	ug/kg	**630**	**860**	**2000**	**560**	**730**	**3100**	**2300**	**3900**	**3900**	**2200**	**2250**	**1860**	**950**	**1000**	< 1100
Pyrene	ug/kg	**1800**	**2700**	**5300**	**2900**	**2600**	**6400**	**7800**	**11000**	**10000**	**8400**	**8160**	**3000**	**1200**	**1100**	**1400**
Solids																
Moisture	%	**59**	**58**	**55**	**64**	**51**	**59**	**56**	**58**	**44**	**61**	---	---	**60**	**71**	**56**
TPH																
Diesel Range Organics (C10-C20)	mg/kg	**3900**	**4200**	**200**	**2300**	---	**14000**	**2500**	**2000**	**3900**	**5600**	---	---	**3500**	**1700**	**7900**
Gasoline Range Organics (C6-C10)	mg/kg	< 6.0	< 4.0	< 4.0	< 4.0	---	**24**	< 4.0	< 4.0	**13**	< 4.0	---	---	**16**	**30**	**31**
Oil Range Organics (C20-C34)	mg/kg	**15000**	**20000**	**1500**	**11000**	---	**46000**	**12000**	**9100**	**18000**	**20000**	---	---	**11000**	**5800**	**23000**
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
1,1,1-Trichloroethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,1,2,2-Tetrachloroethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/1/2011 1:50 PM	12/2/2011 1:45 PM	12/2/2011 2:35 PM	12/2/2011 2:55 PM	5/8/2014 1:45 PM	12/5/2011 2:47 PM	12/2/2011 1:45 PM	12/2/2011 3:40 PM	12/5/2011 11:20 AM	12/6/2011 9:55 AM	9/27/2012 5:05 PM	9/27/2012 5:10 PM	12/6/2011 3:30 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM
	Location	SBKR0225L 502F	SBKR0225L 502O	SBKR0225L 502Q	SBKR0225L 502S	SBKR0225L 502WR1	SBKR0225L 502Z	SBKR0250I5 04	SBKR0250I5 07	SBKR0250I5 08	SBKR0250I5 14	SBKR0250I5 14A	SBKR0250I5 14A	SBKR0250L 506	SBKR0250L 508	SBKR0250L 509
	Sample	SBKR0225L 502FS 120111S010	SBKR0225L 502OS 120211S006	SBKR0225L 502QS 120211S010	SBKR0225L 502S S120211S005	SBKR0225L502WR1S050814S005	SBKR0225L 502ZS 120511S007	SBKR0250I 504S 120211S003	SBKR0250I 507S 120211S006	SBKR0250I 508S 120511S005	SBKR0250I 514S 120611S005	SBKR0250I 514AS 092712S005	SBKR0250I 514AS 092712S015	SBKR0250L 506S 120611S010	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010
	Depth	0.5 - 1 ft	0 - 0.6 ft	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.7 ft	0 - 0.3 ft	0.3 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.9 - 1.45 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft
	USCS Code	OL	OL	OL	OL	OL/CL	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL
	Saturation Status	Saturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,1-Dichloroethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,1-Dichloroethylene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,2,3-Trichlorobenzene	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
1,2,3-Trichloropropane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
1,2,3-Trimethylbenzene	ug/kg	< 750	< 270	< 250	< 380	---	**790**	< 250	< 280	< 250	< 250	---	---	< 250	**940**	< 250
1,2,4-Trichlorobenzene	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
1,2,4-Trimethylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	**970**	< 240	< 280	< 140	< 100	---	---	**250**	**2600**	**680**
1,2-Dichlorobenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
1,2-Dichloroethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,2-Dichloropropane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,3,5-Trimethylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	**920**	< 240	< 280	< 140	< 100	---	---	**160**	**1400**	**580**
1,3-Dichlorobenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
1,3-Dichloropropene, cis	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,3-Dichloropropene, trans	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,4-Dichloro-2-butene, trans	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
1,4-Dichlorobenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
2-Butanone (MEK)	ug/kg	< 2500	< 910	< 770	< 1300	---	< 950	< 880	< 1000	< 750	< 750	---	---	< 750	< 2000	< 800
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500	---	---	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	< 2500	< 910	< 770	< 1300	---	< 950	< 800	< 920	< 460	< 330	---	---	< 330	**4300**	**1100**
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500	---	---	< 2500	< 2500	< 2500
Acetone	ug/kg	< 6300	< 2300	< 1900	< 4400	---	< 2400	< 2000	< 2300	< 1600	< 1000	---	---	< 1000	< 5100	< 2000
Acrylonitrile	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Benzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Bromobenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Bromochloromethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Bromodichloromethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Bromoform	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Bromomethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 200	< 200	---	---	< 200	< 610	< 240
Carbon disulfide	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
Carbon tetrachloride	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Chlorobenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Chloroethane	ug/kg	< 2500	< 910	< 770	< 1300	---	< 950	< 800	< 920	< 460	< 250	---	---	< 250	< 2000	< 800
Chloroform	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Chloromethane	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 800	< 920	< 250	< 250	---	---	< 250	< 610	< 250

	Date \ Time Collected	12/1/2011 1:50 PM	12/2/2011 1:45 PM	12/2/2011 2:35 PM	12/2/2011 2:55 PM	5/8/2014 1:45 PM	12/5/2011 2:47 PM	12/2/2011 1:45 PM	12/2/2011 3:40 PM	12/5/2011 11:20 AM	12/6/2011 9:55 AM	9/27/2012 5:05 PM	9/27/2012 5:10 PM	12/6/2011 3:30 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM
	Location	SBKR0225L 502F	SBKR0225L 502O	SBKR0225L 502Q	SBKR0225L 502S	SBKR0225L 502WR1	SBKR0225L 502Z	SBKR0250I5 04	SBKR0250I5 07	SBKR0250I5 08	SBKR0250I5 14	SBKR0250I5 14A	SBKR0250I5 14A	SBKR0250L 506	SBKR0250L 508	SBKR0250L 509
	Sample	SBKR0225L 502FS 120111S010	SBKR0225L 502OS 120211S006	SBKR0225L 502QS 120211S010	SBKR0225L 502S S120211S005	SBKR0225L502WR1S050814S005	SBKR0225L 502ZS 120511S007	SBKR0250I 504S 120211S003	SBKR0250I 507S 120211S006	SBKR0250I 508S 120511S005	SBKR0250I 514S 120611S005	SBKR0250I 514AS 092712S005	SBKR0250I 514AS 092712S015	SBKR0250L 506S 120611S010	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010
	Depth	0.5 - 1 ft	0 - 0.6 ft	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.7 ft	0 - 0.3 ft	0.3 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.9 - 1.45 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft
	USCS Code	OL	OL	OL	OL	OL/CL	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL
	Saturation Status	Saturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Cyclohexane	ug/kg	< 750	< 500	< 500	< 500	---	**520**	< 500	< 500	< 500	< 500	---	---	< 500	< 610	< 500
Dibromochloromethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Dibromochloropropane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Dibromomethane	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
Dichlorodifluoromethane	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
Diethyl ether	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 200	< 200	---	---	< 200	< 610	< 240
Di-isopropyl ether (DIPE)	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
Ethylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Ethylene dibromide	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
Hexachloroethane	ug/kg	< 750	< 300	< 300	< 380	---	< 300	< 300	< 300	< 300	< 300	---	---	< 300	< 610	< 300
Isopropyl benzene	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
m&p-Xylene	ug/kg	< 1500	< 540	< 460	< 760	---	**600**	< 480	< 550	< 270	< 150	---	---	< 150	< 1200	< 480
Methyl Iodide	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Methylene chloride	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Methyl-tert-butyl ether (MTBE)	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
Naphthalene	ug/kg	< 2500	< 910	< 770	< 1300	---	< 950	< 800	< 920	< 460	< 330	---	---	< 330	< 2000	< 800
n-Butylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	**82**	< 610	< 240
n-Propylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	**680**	< 240
o-Xylene	ug/kg	< 750	< 270	< 230	< 380	---	**390**	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
p-Isopropyl toluene (p-Cymene)	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
sec-Butylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	**320**	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Styrene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
t-Amyl methyl ether (TAME)	ug/kg	< 750	< 270	< 250	< 380	---	< 290	< 250	< 280	< 250	< 250	---	---	< 250	< 610	< 250
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500	---	---	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Tetrachloroethylene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Tetrahydrofuran	ug/kg	< 3800	< 1000	< 1000	< 1300	---	< 1000	< 1000	< 1000	**2500**	< 1000	---	---	< 1000	< 2000	< 1000
Toluene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/1/2011 1:50 PM	12/2/2011 1:45 PM	12/2/2011 2:35 PM	12/2/2011 2:55 PM	5/8/2014 1:45 PM	12/5/2011 2:47 PM	12/2/2011 1:45 PM	12/2/2011 3:40 PM	12/5/2011 11:20 AM	12/6/2011 9:55 AM	9/27/2012 5:05 PM	9/27/2012 5:10 PM	12/6/2011 3:30 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM
	Location	SBKR0225L 502F	SBKR0225L 502O	SBKR0225L 502Q	SBKR0225L 502S	SBKR0225L 502WR1	SBKR0225L 502Z	SBKR0250I5 04	SBKR0250I5 07	SBKR0250I5 08	SBKR0250I5 14	SBKR0250I5 14A	SBKR0250I5 14A	SBKR0250L 506	SBKR0250L 508	SBKR0250L 509
	Sample	SBKR0225L 502FS 120111S010	SBKR0225L 502OS 120211S006	SBKR0225L 502QS 120211S010	SBKR0225L 502S S120211S005	SBKR0225L502WR1S050814S005	SBKR0225L 502ZS 120511S007	SBKR0250I 504S 120211S003	SBKR0250I 507S 120211S006	SBKR0250I 508S 120511S005	SBKR0250I 514S 120611S005	SBKR0250I 514AS 092712S005	SBKR0250I 514AS 092712S015	SBKR0250L 506S 120611S010	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010
	Depth	0.5 - 1 ft	0 - 0.6 ft	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.7 ft	0 - 0.3 ft	0.3 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.9 - 1.45 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft
	USCS Code	OL	OL	OL	OL	OL/CL	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL
	Saturation Status	Saturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
trans-1,2-Dichloroethylene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Trichloroethylene	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Trichlorofluoromethane	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 100	---	---	< 100	< 610	< 240
Vinyl chloride	ug/kg	< 750	< 270	< 230	< 380	---	< 290	< 240	< 280	< 140	< 76	---	---	< 75	< 610	< 240
Xylenes	ug/kg	< 1500	< 540	< 460	< 760	---	**990**	< 480	< 550	< 270	< 150	---	---	< 150	< 1200	< 480

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/7/2011 10:19 AM	12/7/2011 11:40 AM	3/1/2012 11:15 AM	3/1/2012 5:15 PM	3/2/2012 9:45 AM	3/2/2012 10:45 AM	3/2/2012 11:05 AM	9/27/2012 4:25 PM	3/2/2012 11:35 AM	3/2/2012 11:45 AM	3/2/2012 1:40 PM	3/2/2012 1:50 PM	11/22/2013 8:09 AM	11/22/2013 8:11 AM	12/18/2013 3:30 PM
	Location	SBKR0250L 510	SBKR0250L 513	SBKR0250L 531	SBKR0250L 538	SBKR0250L 539	SBKR0250L 540	SBKR0250L 541	SBKR0250L 541A	SBKR0250L 542	SBKR0250L 542	SBKR0250L 544	SBKR0250L 544	SBKR0250L 549	SBKR0250L 549	SBKR0250L 549
	Sample	SBKR0250L 510S 120711S010	SBKR0250L 513S 120711S005	SBKR0250L 531S 030112S005	SBKR0250L 538S 030112S006	SBKR0250L 539S 030212S004	SBKR0250L 540S 030212S005	SBKR0250L 541S 030212S006	SBKR0250L 541AS 092712S005	SBKR0250L 542S 030212S006	SBKR0250L 542S 030212S020	SBKR0250L 544S 030212S005	SBKR0250L 544S 030212S013	SBKR0250L 549S 112213S004	SBKR0250L 549S 112213S010	SBKR0250L 549S 121813S004
	Depth	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.6 ft	1.5 - 2 ft	0 - 0.5 ft	0.9 - 1.3 ft	0 - 0.4 ft	0.75 - 1 ft	0 - 0.4 ft
	USCS Code	ML	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL	OL-PT	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Carbon																
Total Organic Carbon	%	---	---	---	---	---	---	---	**8.93**	---	---	---	---	---	---	---
Metals																
Beryllium	mg/kg	< 0.50	**0.51**	< 0.50	**0.52**	< 0.50	**0.61**	**0.54**	---	**0.55**	< 0.50	< 0.50	< 0.50	**0.60**	**0.57**	---
Molybdenum	mg/kg	**1.6**	< 1.0	**1.9**	**1.3**	**1.1**	**1.6**	**1.6**	---	**1.2**	< 1.0	< 1.0	< 1.0	**1.2**	**1.8**	---
Nickel	mg/kg	**24**	**31**	**38**	**33**	**24**	**42**	**36**	---	**29**	**9.2**	**15**	**8.0**	**35**	**17**	---
Vanadium	mg/kg	**22**	**18**	**31**	**22**	**23**	**25**	**27**	---	**21**	**13**	**12**	**5.6**	**25**	**23**	---
PNA																
2-Methylnaphthalene	ug/kg	< 1200	< 330	< 1300	< 1400	< 1200	< 2700	< 1200	**228**	< 570	< 330	< 790	< 330	< 330	< 330	< 330
Acenaphthene	ug/kg	< 1200	< 330	< 1300	< 1400	< 1200	< 2700	< 1200	**153**	< 570	< 330	< 790	< 330	< 330	< 330	< 330
Acenaphthylene	ug/kg	< 1200	**730**	< 1300	**1700**	< 1200	< 2700	< 1200	**1100**	**760**	**720**	< 790	**460**	**520**	**450**	**590**
Anthracene	ug/kg	< 1200	**480**	< 1300	< 1400	< 1200	< 2700	< 1200	**1700**	**1100**	**1600**	< 790	**810**	**570**	**460**	**590**
Benzo(a)anthracene	ug/kg	< 1200	**3000**	**4400**	**4100**	**3200**	**5200**	**8400**	**6890**	**6600**	**6300**	**2900**	**4000**	**3000**	**3100**	**2900**
Benzo(a)pyrene	ug/kg	< 1200	**7900**	**4800**	**5000**	**4400**	**6600**	**8800**	**7990**	**6600**	**6100**	**3200**	**3600**	**4800**	**5000**	**3400**
Benzo(b)fluoranthene	ug/kg	< 1200	**5700**	**6300**	**6400**	**5200**	**5500**	**11000**	**6120**	**6100**	**7700**	**3600**	**5000**	**5400**	**4800**	**3700**
Benzo(g,h,i)perylene	ug/kg	< 1200	**5700**	**2000**	< 1400	< 1200	< 2700	**2800**	**5240**	**3800**	**2400**	**820**	**1300**	**3200**	**3000**	**2000**
Benzo(k)fluoranthene	ug/kg	< 1200	**4600**	**2000**	**2600**	**1200**	< 2700	**3800**	---	**3700**	**2600**	**830**	**1700**	**1800**	**1700**	**1100**
Chrysene	ug/kg	**1300**	**2800**	**4800**	**5400**	**3400**	**4900**	**7200**	---	**7600**	**5200**	**1900**	**3400**	**3200**	**3000**	**2800**
Dibenzo(a,h)anthracene	ug/kg	< 1200	**6100**	< 1300	< 1400	< 1200	< 2700	**1500**	---	**860**	< 330	**940**	< 330	**830**	**700**	**530**
Fluoranthene	ug/kg	< 1200	**4000**	**7300**	**7300**	**5000**	**8300**	**11000**	**11500**	**9000**	**8900**	**4400**	**5700**	**4200**	**3400**	**4000**
Fluorene	ug/kg	< 1200	< 330	< 1300	< 1400	< 1200	< 2700	< 1200	**278**	< 570	**380**	< 790	< 330	< 330	< 330	< 330
Indeno(1,2,3-c,d)pyrene	ug/kg	< 1200	**2100**	**1800**	< 1400	< 1200	< 2700	**2200**	**5080**	**3200**	**2100**	**1000**	**1200**	**3000**	**2800**	**2000**
Naphthalene	ug/kg	< 1200	< 330	< 1300	< 1400	< 1200	< 2700	< 1200	**368**	< 570	< 330	< 790	< 330	< 330	< 330	< 330
Phenanthrene	ug/kg	< 1200	**1400**	< 1300	**2700**	**1400**	< 2700	**3300**	**4620**	**2300**	**4000**	**1200**	**2200**	**1300**	**770**	**1500**
Pyrene	ug/kg	**1500**	**6700**	**7400**	**7700**	**4700**	**5900**	**11000**	**11900**	**7400**	**10000**	**3500**	**6700**	**4500**	**4600**	**4000**
Solids																
Moisture	%	**61**	**64**	**63**	**65**	**60**	**64**	**59**	---	**57**	**48**	**42**	**34**	**60**	**68**	**64**
TPH																
Diesel Range Organics (C10-C20)	mg/kg	**3000**	**620**	**2900**	**4600**	**3900**	**8600**	**2200**	---	**160**	**69**	**390**	**88**	---	---	---
Gasoline Range Organics (C6-C10)	mg/kg	**35**	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	---	< 4.0	< 4.0	< 4.0	< 4.0	---	---	---
Oil Range Organics (C20-C34)	mg/kg	**11000**	**4400**	**12000**	**19000**	**21000**	**37000**	**13000**	---	**1800**	**690**	**4700**	**750**	---	---	---
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
1,1,1-Trichloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,1,2,2-Tetrachloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---

	Date \ Time Collected	12/7/2011 10:19 AM	12/7/2011 11:40 AM	3/1/2012 11:15 AM	3/1/2012 5:15 PM	3/2/2012 9:45 AM	3/2/2012 10:45 AM	3/2/2012 11:05 AM	9/27/2012 4:25 PM	3/2/2012 11:35 AM	3/2/2012 11:45 AM	3/2/2012 1:40 PM	3/2/2012 1:50 PM	11/22/2013 8:09 AM	11/22/2013 8:11 AM	12/18/2013 3:30 PM
	Location	SBKR0250L 510	SBKR0250L 513	SBKR0250L 531	SBKR0250L 538	SBKR0250L 539	SBKR0250L 540	SBKR0250L 541	SBKR0250L 541A	SBKR0250L 542	SBKR0250L 542	SBKR0250L 544	SBKR0250L 544	SBKR0250L 549	SBKR0250L 549	SBKR0250L 549
	Sample	SBKR0250L 510S 120711S010	SBKR0250L 513S 120711S005	SBKR0250L 531S 030112S005	SBKR0250L 538S 030112S006	SBKR0250L 539S 030212S004	SBKR0250L 540S 030212S005	SBKR0250L 541S 030212S006	SBKR0250L 541AS 092712S005	SBKR0250L 542S 030212S006	SBKR0250L 542S 030212S020	SBKR0250L 544S 030212S005	SBKR0250L 544S 030212S013	SBKR0250L 549S 112213S004	SBKR0250L 549S 112213S010	SBKR0250L 549S 121813S004
	Depth	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.6 ft	1.5 - 2 ft	0 - 0.5 ft	0.9 - 1.3 ft	0 - 0.4 ft	0.75 - 1 ft	0 - 0.4 ft
	USCS Code	ML	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL	OL-PT	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,1-Dichloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,1-Dichloroethylene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,2,3-Trichlorobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
1,2,3-Trichloropropane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
1,2,3-Trimethylbenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
1,2,4-Trichlorobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
1,2,4-Trimethylbenzene	ug/kg	**600**	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
1,2-Dichlorobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
1,2-Dichloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,2-Dichloropropane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,3,5-Trimethylbenzene	ug/kg	**500**	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
1,3-Dichlorobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
1,3-Dichloropropene, cis	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,3-Dichloropropene, trans	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,4-Dichloro-2-butene, trans	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
1,4-Dichlorobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
2-Butanone (MEK)	ug/kg	< 1100	< 1300	< 1200	< 1400	< 1000	< 1300	< 960	---	< 850	< 750	< 750	< 750	< 1200	< 2000	---
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---
2-Methylnaphthalene	ug/kg	**1400**	< 1300	< 1200	< 1400	< 1000	< 1300	< 960	---	< 850	< 560	< 440	< 330	< 1200	< 2000	---
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---
Acetone	ug/kg	< 2600	< 3200	< 3100	< 3400	< 2500	< 3200	< 2400	---	< 2100	< 1400	< 1100	< 1000	< 3000	< 4900	---
Acrylonitrile	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Benzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Bromobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Bromochloromethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Bromodichloromethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Bromoform	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Bromomethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 200	< 200	< 200	< 360	< 590	---
Carbon disulfide	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
Carbon tetrachloride	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Chlorobenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Chloroethane	ug/kg	< 1100	< 1300	< 1200	< 1400	< 1000	< 1300	< 960	---	< 850	< 560	< 440	< 310	< 1200	< 2000	---
Chloroform	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Chloromethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/7/2011 10:19 AM	12/7/2011 11:40 AM	3/1/2012 11:15 AM	3/1/2012 5:15 PM	3/2/2012 9:45 AM	3/2/2012 10:45 AM	3/2/2012 11:05 AM	9/27/2012 4:25 PM	3/2/2012 11:35 AM	3/2/2012 11:45 AM	3/2/2012 1:40 PM	3/2/2012 1:50 PM	11/22/2013 8:09 AM	11/22/2013 8:11 AM	12/18/2013 3:30 PM
	Location	SBKR0250L 510	SBKR0250L 513	SBKR0250L 531	SBKR0250L 538	SBKR0250L 539	SBKR0250L 540	SBKR0250L 541	SBKR0250L 541A	SBKR0250L 542	SBKR0250L 542	SBKR0250L 544	SBKR0250L 544	SBKR0250L 549	SBKR0250L 549	SBKR0250L 549
	Sample	SBKR0250L 510S 120711S010	SBKR0250L 513S 120711S005	SBKR0250L 531S 030112S005	SBKR0250L 538S 030112S006	SBKR0250L 539S 030212S004	SBKR0250L 540S 030212S005	SBKR0250L 541S 030212S006	SBKR0250L 541AS 092712S005	SBKR0250L 542S 030212S006	SBKR0250L 542S 030212S020	SBKR0250L 544S 030212S005	SBKR0250L 544S 030212S013	SBKR0250L 549S 112213S004	SBKR0250L 549S 112213S010	SBKR0250L 549S 121813S004
	Depth	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.6 ft	1.5 - 2 ft	0 - 0.5 ft	0.9 - 1.3 ft	0 - 0.4 ft	0.75 - 1 ft	0 - 0.4 ft
	USCS Code	ML	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL	OL-PT	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Cyclohexane	ug/kg	< 500	< 500	< 500	< 500	< 500	< 500	< 500	---	< 500	< 500	< 500	< 500	< 500	< 590	---
Dibromochloromethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Dibromochloropropane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Dibromomethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
Dichlorodifluoromethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
Diethyl ether	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 200	< 200	< 200	< 360	< 590	---
Di-isopropyl ether (DIPE)	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
Ethylbenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Ethylene dibromide	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
Hexachloroethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 300	---	< 300	< 300	< 300	< 300	< 360	< 590	---
Isopropyl benzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
m&p-Xylene	ug/kg	< 630	< 760	< 730	< 810	< 610	< 770	< 580	---	< 510	< 330	< 270	< 180	< 720	< 1200	---
Methyl Iodide	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Methylene chloride	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 1200	< 2000	---
Methyl-tert-butyl ether (MTBE)	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
Naphthalene	ug/kg	< 1100	< 1300	< 1200	< 1400	< 1000	< 1300	< 960	---	< 850	< 560	< 440	< 330	< 1200	< 2000	---
n-Butylbenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
n-Propylbenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
o-Xylene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
p-Isopropyl toluene (p-Cymene)	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
sec-Butylbenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Styrene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
t-Amyl methyl ether (TAME)	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 250	< 250	< 250	< 360	< 590	---
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---
t-Butylbenzene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Tetrachloroethylene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Tetrahydrofuran	ug/kg	< 1100	< 1300	< 1200	< 1400	< 1000	< 1300	< 1000	---	< 1000	< 1000	< 1000	< 1000	< 1200	< 2000	---
Toluene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/7/2011 10:19 AM	12/7/2011 11:40 AM	3/1/2012 11:15 AM	3/1/2012 5:15 PM	3/2/2012 9:45 AM	3/2/2012 10:45 AM	3/2/2012 11:05 AM	9/27/2012 4:25 PM	3/2/2012 11:35 AM	3/2/2012 11:45 AM	3/2/2012 1:40 PM	3/2/2012 1:50 PM	11/22/2013 8:09 AM	11/22/2013 8:11 AM	12/18/2013 3:30 PM
	Location	SBKR0250L 510	SBKR0250L 513	SBKR0250L 531	SBKR0250L 538	SBKR0250L 539	SBKR0250L 540	SBKR0250L 541	SBKR0250L 541A	SBKR0250L 542	SBKR0250L 542	SBKR0250L 544	SBKR0250L 544	SBKR0250L 549	SBKR0250L 549	SBKR0250L 549
	Sample	SBKR0250L 510S 120711S010	SBKR0250L 513S 120711S005	SBKR0250L 531S 030112S005	SBKR0250L 538S 030112S006	SBKR0250L 539S 030212S004	SBKR0250L 540S 030212S005	SBKR0250L 541S 030212S006	SBKR0250L 541AS 092712S005	SBKR0250L 542S 030212S006	SBKR0250L 542S 030212S020	SBKR0250L 544S 030212S005	SBKR0250L 544S 030212S013	SBKR0250L 549S 112213S004	SBKR0250L 549S 112213S010	SBKR0250L 549S 121813S004
	Depth	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.6 ft	1.5 - 2 ft	0 - 0.5 ft	0.9 - 1.3 ft	0 - 0.4 ft	0.75 - 1 ft	0 - 0.4 ft
	USCS Code	ML	OL	OL	OL	OL	OL	OL	OL	OL	ML	OL	OL-PT	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
trans-1,2-Dichloroethylene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Trichloroethylene	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Trichlorofluoromethane	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 100	< 360	< 590	---
Vinyl chloride	ug/kg	< 320	< 380	< 370	< 410	< 300	< 380	< 290	---	< 260	< 170	< 130	< 92	< 360	< 590	---
Xylenes	ug/kg	< 630	< 760	< 730	< 810	< 610	< 770	< 580	---	< 510	< 330	< 270	< 180	< 720	< 1200	---

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/18/2013 3:35 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 3:57 PM	12/18/2013 4:41 PM	12/5/2013 8:55 AM	12/10/2013 10:00 AM	12/10/2013 10:06 AM	12/18/2013 4:55 PM	12/5/2013 10:48 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	12/7/2011 11:50 AM	1/17/2014 10:25 AM	12/20/2011 10:15 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 562	SBKR0250L 562	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0275I501	SBKR0275I512	SBKR0275R508
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S005	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S016	SBKR0250L 562S 121013S004	SBKR0250L 562S 121013S023	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0275I 501S 120711S002	SBKR0275I 512S 011714S009	SBKR0275R 508S 122011S005
	Depth	0.75 - 1 ft	0 - 0.6 ft	0.7 - 1.4 ft	0 - 0.5 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.35 ft	1.3 - 2.3 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.2 ft	0.65 - 0.9 ft	0 - 0.5 ft
	USCS Code	ML	OL	ML	OL	ML	ML	OL	ML	OL	OL	OL	ML	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Carbon																
Total Organic Carbon	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Metals																
Beryllium	mg/kg	---	**0.85**	**0.73**	---	---	< 0.50	---	---	---	**0.56**	**0.54**	**0.62**	**0.63**	< 0.50	< 0.50
Molybdenum	mg/kg	---	**2.2**	**1.7**	---	---	**2.2**	---	---	---	**1.5**	**1.3**	**1.4**	**1.4**	**1.3**	**1.5**
Nickel	mg/kg	---	**38**	**29**	---	---	**12**	---	---	---	**33**	**31**	**23**	**32**	**17**	**31**
Vanadium	mg/kg	---	**28**	**24**	---	---	**17**	---	---	---	**26**	**25**	**24**	**32**	**18**	**18**
PNA																
2-Methylnaphthalene	ug/kg	< 330	< 2600	< 330	< 1100	**590**	**2200**	< 330	< 4800	< 330	< 330	< 330	< 330	< 990	**460**	< 1100
Acenaphthene	ug/kg	< 330	< 2600	< 330	< 1100	< 330	**440**	< 330	< 4800	< 330	< 330	< 330	< 330	< 990	< 330	< 1100
Acenaphthylene	ug/kg	**690**	< 2600	**740**	< 1100	< 330	< 330	**390**	< 4800	**640**	**770**	**910**	**580**	< 990	< 330	< 1100
Anthracene	ug/kg	**860**	< 2600	**930**	< 1100	< 330	**700**	**600**	< 4800	**580**	**850**	**910**	**930**	< 990	**640**	< 1100
Benzo(a)anthracene	ug/kg	**5000**	**7300**	**4100**	**3500**	< 330	**330**	**3000**	**7500**	**2900**	**4000**	**4500**	**3700**	**3800**	**2300**	**2000**
Benzo(a)pyrene	ug/kg	**5400**	**9100**	**6500**	**4400**	< 330	< 330	**3400**	**6900**	**3600**	**4400**	**4900**	**4200**	**3300**	**2400**	**2200**
Benzo(b)fluoranthene	ug/kg	**5800**	**9500**	**6800**	**4500**	< 330	< 330	**3200**	**7300**	**3800**	**4700**	**5500**	**4500**	**3900**	**2800**	**2600**
Benzo(g,h,i)perylene	ug/kg	**3400**	**5800**	**4100**	**3200**	< 330	< 330	**2100**	< 4800	**1900**	**1400**	**3100**	**2700**	**1200**	**1500**	**1300**
Benzo(k)fluoranthene	ug/kg	**1600**	**3500**	**2500**	**1500**	< 330	< 330	**1000**	< 4800	**1300**	**2100**	**1800**	**1300**	**2800**	**1000**	< 1100
Chrysene	ug/kg	**4800**	**6500**	**4300**	**4600**	< 330	**800**	**2900**	**5900**	**3200**	**4000**	**4400**	**3900**	**3100**	**2300**	**2700**
Dibenzo(a,h)anthracene	ug/kg	**910**	< 2600	**1100**	< 1100	< 330	< 330	**480**	< 4800	**480**	**490**	**840**	**680**	< 990	**380**	< 1100
Fluoranthene	ug/kg	**5500**	**8700**	**5600**	**5300**	< 330	**370**	**3400**	**8600**	**4000**	**5600**	**6200**	**5600**	**3900**	**4300**	**2500**
Fluorene	ug/kg	< 330	< 2600	**340**	< 1100	< 330	**980**	< 330	< 4800	< 330	< 330	< 330	< 330	< 990	**360**	< 1100
Indeno(1,2,3-c,d)pyrene	ug/kg	**3300**	**6500**	**3900**	**2700**	< 330	< 330	**1900**	< 4800	**1900**	**2200**	**3000**	**2600**	< 990	**1600**	< 1100
Naphthalene	ug/kg	< 330	< 2600	< 330	< 1100	< 330	**770**	< 330	< 4800	< 330	< 330	< 330	< 330	< 990	< 330	< 1100
Phenanthrene	ug/kg	**1300**	**3600**	**2100**	**1900**	**660**	**3100**	**1100**	< 4800	**1200**	**1700**	**2200**	**2100**	**1800**	**2200**	< 1100
Pyrene	ug/kg	**6400**	**11000**	**6200**	**5100**	**340**	**770**	**4800**	**9100**	**4300**	**5900**	**6500**	**5800**	**4600**	**4800**	**3100**
Solids																
Moisture	%	**66**	**62**	**69**	**59**	**49**	**44**	**62**	**61**	**65**	**61**	**64**	**61**	**51**	**60**	**57**
TPH																
Diesel Range Organics (C10-C20)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	**6900**	---	**4500**
Gasoline Range Organics (C6-C10)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	< 4.0	---	< 4.0
Oil Range Organics (C20-C34)	mg/kg	---	---	---	---	---	---	---	---	---	---	---	---	**22000**	---	**15000**
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,1,1-Trichloroethane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,1,2,2-Tetrachloroethane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/18/2013 3:35 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 3:57 PM	12/18/2013 4:41 PM	12/5/2013 8:55 AM	12/10/2013 10:00 AM	12/10/2013 10:06 AM	12/18/2013 4:55 PM	12/5/2013 10:48 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	12/7/2011 11:50 AM	1/17/2014 10:25 AM	12/20/2011 10:15 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 562	SBKR0250L 562	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0275I501	SBKR0275I512	SBKR0275R508
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S005	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S016	SBKR0250L 562S 121013S004	SBKR0250L 562S 121013S023	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0275I 501S 120711S002	SBKR0275I 512S 011714S009	SBKR0275R 508S 122011S005
	Depth	0.75 - 1 ft	0 - 0.6 ft	0.7 - 1.4 ft	0 - 0.5 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.35 ft	1.3 - 2.3 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.2 ft	0.65 - 0.9 ft	0 - 0.5 ft
	USCS Code	ML	OL	ML	OL	ML	ML	OL	ML	OL	OL	OL	ML	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,1-Dichloroethane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,1-Dichloroethylene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,2,3-Trichlorobenzene	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
1,2,3-Trichloropropane	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,2,3-Trimethylbenzene	ug/kg	---	< 410	< 640	---	**980**	**1400**	---	---	---	< 380	< 450	< 370	< 250	**430**	< 260
1,2,4-Trichlorobenzene	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
1,2,4-Trimethylbenzene	ug/kg	---	< 410	< 640	---	**2800**	**3000**	---	---	---	< 380	< 450	< 370	< 190	**800**	< 260
1,2-Dichlorobenzene	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,2-Dichloroethane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,2-Dichloropropane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,3,5-Trimethylbenzene	ug/kg	---	< 410	< 640	---	**1400**	**2400**	---	---	---	< 380	< 450	< 370	< 190	**670**	< 260
1,3-Dichlorobenzene	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,3-Dichloropropene, cis	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,3-Dichloropropene, trans	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,4-Dichloro-2-butene, trans	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
1,4-Dichlorobenzene	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
2-Butanone (MEK)	ug/kg	---	< 1400	< 2100	---	< 750	< 750	---	---	---	< 1300	< 1500	< 1200	< 750	< 1200	< 870
2-Hexanone	ug/kg	---	< 2500	< 2500	---	< 2500	< 2500	---	---	---	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	---	< 1400	< 2100	---	**4100**	**4900**	---	---	---	< 1300	< 1500	< 1200	< 640	**3300**	< 870
4-Methyl-2-pentanone (MIBK)	ug/kg	---	< 2500	< 2500	---	< 2500	< 2500	---	---	---	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
Acetone	ug/kg	---	< 3400	< 5300	---	< 1000	< 1300	---	---	---	< 3200	< 3800	< 3100	< 1600	< 3000	< 2200
Acrylonitrile	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Benzene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Bromobenzene	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Bromochloromethane	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Bromodichloromethane	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Bromoform	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Bromomethane	ug/kg	---	< 410	< 640	---	< 200	< 200	---	---	---	< 380	< 450	< 370	< 200	< 360	< 260
Carbon disulfide	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
Carbon tetrachloride	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Chlorobenzene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Chloroethane	ug/kg	---	< 1400	< 2100	---	< 260	< 500	---	---	---	< 1300	< 1500	< 1200	< 640	< 1200	< 870
Chloroform	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Chloromethane	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 1200	< 260

	Date \ Time Collected	12/18/2013 3:35 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 3:57 PM	12/18/2013 4:41 PM	12/5/2013 8:55 AM	12/10/2013 10:00 AM	12/10/2013 10:06 AM	12/18/2013 4:55 PM	12/5/2013 10:48 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	12/7/2011 11:50 AM	1/17/2014 10:25 AM	12/20/2011 10:15 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 562	SBKR0250L 562	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0275I501	SBKR0275I512	SBKR0275R508
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S005	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S016	SBKR0250L 562S 121013S004	SBKR0250L 562S 121013S023	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0275I 501S 120711S002	SBKR0275I 512S 011714S009	SBKR0275R 508S 122011S005
	Depth	0.75 - 1 ft	0 - 0.6 ft	0.7 - 1.4 ft	0 - 0.5 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.35 ft	1.3 - 2.3 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.2 ft	0.65 - 0.9 ft	0 - 0.5 ft
	USCS Code	ML	OL	ML	OL	ML	ML	OL	ML	OL	OL	OL	ML	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Cyclohexane	ug/kg	---	< 500	< 640	---	**510**	**530**	---	---	---	< 500	< 500	< 500	< 500	< 500	< 500
Dibromochloromethane	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Dibromochloropropane	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Dibromomethane	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
Dichlorodifluoromethane	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
Diethyl ether	ug/kg	---	< 410	< 640	---	< 200	< 200	---	---	---	< 380	< 450	< 370	< 200	< 360	< 260
Di-isopropyl ether (DIPE)	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
Ethylbenzene	ug/kg	---	< 410	< 640	---	**130**	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Ethylene dibromide	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Ethyl-tert-butyl ether (ETBE)	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
Hexachloroethane	ug/kg	---	< 410	< 640	---	< 300	< 300	---	---	---	< 380	< 450	< 370	< 300	< 360	< 300
Isopropyl benzene	ug/kg	---	< 410	< 640	---	**310**	**370**	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
m&p-Xylene	ug/kg	---	< 820	< 1300	---	**290**	< 300	---	---	---	< 760	< 900	< 750	< 380	< 710	< 520
Methyl Iodide	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Methylene chloride	ug/kg	---	< 1400	< 2100	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Methyl-tert-butyl ether (MTBE)	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
Naphthalene	ug/kg	---	< 1400	< 2100	---	**1200**	**1500**	---	---	---	< 1300	< 1500	< 1200	< 640	< 1200	< 870
n-Butylbenzene	ug/kg	---	< 410	< 640	---	**430**	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
n-Propylbenzene	ug/kg	---	< 410	< 640	---	**480**	**460**	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
o-Xylene	ug/kg	---	< 410	< 640	---	**160**	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
p-Isopropyl toluene (p-Cymene)	ug/kg	---	< 410	< 640	---	**440**	**620**	---	---	---	< 380	< 450	< 370	< 190	**480**	< 260
sec-Butylbenzene	ug/kg	---	< 410	< 640	---	**470**	< 150	---	---	---	< 380	< 450	< 370	< 190	**380**	< 260
Styrene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
t-Amyl methyl ether (TAME)	ug/kg	---	< 410	< 640	---	< 250	< 250	---	---	---	< 380	< 450	< 370	< 250	< 360	< 260
t-Butyl alcohol	ug/kg	---	< 2500	< 2500	---	< 2500	< 2500	---	---	---	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Tetrachloroethylene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Tetrahydrofuran	ug/kg	---	< 1400	< 2100	---	< 1000	< 1000	---	---	---	< 1300	< 1500	< 1200	< 1000	< 1200	< 1000
Toluene	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/18/2013 3:35 PM	11/22/2013 10:09 AM	11/22/2013 10:12 AM	12/18/2013 3:57 PM	12/18/2013 4:41 PM	12/5/2013 8:55 AM	12/10/2013 10:00 AM	12/10/2013 10:06 AM	12/18/2013 4:55 PM	12/5/2013 10:48 AM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	12/7/2011 11:50 AM	1/17/2014 10:25 AM	12/20/2011 10:15 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 560	SBKR0250L 562	SBKR0250L 562	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0275I501	SBKR0275I512	SBKR0275R508
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 112213S006	SBKR0250L 550S 112213S014	SBKR0250L 550S 121813S005	SBKR0250L 560S 121813S016	SBKR0250L 560S 120513S016	SBKR0250L 562S 121013S004	SBKR0250L 562S 121013S023	SBKR0250L 566S 121813S003	SBKR0250L 566S 120513S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0275I 501S 120711S002	SBKR0275I 512S 011714S009	SBKR0275R 508S 122011S005
	Depth	0.75 - 1 ft	0 - 0.6 ft	0.7 - 1.4 ft	0 - 0.5 ft	1.2 - 1.6 ft	1.2 - 1.6 ft	0 - 0.35 ft	1.3 - 2.3 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.2 ft	0.65 - 0.9 ft	0 - 0.5 ft
	USCS Code	ML	OL	ML	OL	ML	ML	OL	ML	OL	OL	OL	ML	OL	ML	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	---	< 410	< 640	---	**130**	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
trans-1,2-Dichloroethylene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Trichloroethylene	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Trichlorofluoromethane	ug/kg	---	< 410	< 640	---	< 100	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Vinyl chloride	ug/kg	---	< 410	< 640	---	< 77	< 150	---	---	---	< 380	< 450	< 370	< 190	< 360	< 260
Xylenes	ug/kg	---	< 820	< 1300	---	**450**	< 300	---	---	---	< 760	< 900	< 750	< 380	< 710	< 520

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/8/2011 1:10 PM	3/7/2012 3:25 PM	12/12/2011 2:55 PM	12/13/2011 2:30 PM	12/13/2011 2:35 PM	1/6/2012 1:45 PM	6/18/2012 4:08 PM	2/17/2012 4:05 PM	7/17/2012 3:05 PM	7/17/2012 4:00 PM	9/28/2012 11:05 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/28/2011 2:25 PM	11/28/2011 2:35 PM
	Location	SBKR0300I502	SBKR0300I504	SBKR0375I501	SBKR0375I503	SBKR0375I503	SBKR0375I504	SBKR0750I501	SBKR0800L503	SBKR0825I501	SBKR0825I502	SBKR0825I502A	SBKR0897I001	SBKR0897I002	SBKR0897I007	SBKR0897I007
	Sample	SBKR0300I 502S 120811S010	SBKR0300I 504S 030712S003	SBKR0375I 501S 121211S004	SBKR0375I 503S 121311S005	SBKR0375I 503S 121311S014	SBKR0375I 504S 010612S010	SBKR0750I 501S 061812S003	SBKR0800L 503S 021712S005	SBKR0825I 501S 071712S003	SBKR0825I 502S 071712S004	SBKR0825I 502AS 092812S004	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 007S 112811S005	SBKR0897I 007S 112811S010
	Depth	0 - 1 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.5 ft	0.9 - 1.4 ft	0.5 - 1 ft	0 - 0.3 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.5 - 1 ft
	USCS Code	OL	OL	OL	ML	SP-SM	SW	OL	OL	OL	OL	ML	OL	OL	OL	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Carbon																
Total Organic Carbon	%	---	---	---	---	---	---	---	---	---	---	**9.73**	---	---	---	---
Metals																
Beryllium	mg/kg	< 0.50	< 0.50	< 0.65	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	---	< 0.50	< 0.58	< 0.50	< 0.50
Molybdenum	mg/kg	< 1.0	< 1.0	< 1.3	**1.4**	< 1.0	< 1.0	< 1.0	**1.0**	< 1.0	**1.4**	---	**1.6**	**1.8**	**1.4**	**1.2**
Nickel	mg/kg	**5.0**	**9.6**	**18**	**14**	**5.7**	**4.7**	**19**	**13**	**20**	**19**	---	**23**	**23**	**22**	**24**
Vanadium	mg/kg	**7.1**	**13**	**19**	**23**	**5.4**	**4.3**	**18**	**17**	**14**	**19**	---	**24**	**28**	**20**	**14**
PNA																
2-Methylnaphthalene	ug/kg	< 620	< 1900	< 3500	< 890	< 330	< 330	< 330	< 1400	< 330	**2800**	**207**	**1400**	< 1200	< 1100	< 330
Acenaphthene	ug/kg	< 620	< 1900	< 3500	< 890	< 330	< 330	< 330	< 1400	< 330	**590**	**116**	< 1000	< 1200	< 1100	**440**
Acenaphthylene	ug/kg	< 620	< 1900	< 3500	**2300**	**430**	< 330	**410**	< 1400	**690**	**820**	**568**	< 1000	< 1200	< 1100	**540**
Anthracene	ug/kg	< 620	< 1900	< 3500	**1900**	**770**	**1900**	**690**	< 1400	**840**	**4800**	**695**	< 1000	< 1200	< 1100	**660**
Benzo(a)anthracene	ug/kg	**800**	**2200**	< 3500	**4600**	**2800**	**3100**	**3500**	**2400**	**4200**	**4500**	**2530**	**1300**	**1900**	**2100**	**2700**
Benzo(a)pyrene	ug/kg	**2800**	**2500**	**14000**	**5900**	**2600**	**2900**	**4200**	**2100**	**6300**	**17000**	**3280**	**1300**	**1800**	**2200**	**2800**
Benzo(b)fluoranthene	ug/kg	**1200**	**4900**	< 3500	**5900**	**3400**	**3600**	**6300**	**2800**	**5500**	**6400**	**2690**	**1400**	**1800**	**1800**	**3900**
Benzo(g,h,i)perylene	ug/kg	**2300**	< 1900	< 3500	**3700**	**770**	**1800**	**790**	**2400**	**1300**	< 4400	**2290**	< 1000	< 1200	< 1100	**1000**
Benzo(k)fluoranthene	ug/kg	**1600**	< 1900	< 3500	**3300**	**1100**	**1300**	**1900**	< 1400	**6200**	**5300**	---	**1100**	**1500**	**2200**	**1200**
Chrysene	ug/kg	**1000**	**3200**	< 3500	**3700**	**2300**	**2700**	**3300**	**2300**	**4400**	**7300**	---	**1700**	**1900**	**1900**	**2100**
Dibenzo(a,h)anthracene	ug/kg	< 620	< 1900	< 3500	**4000**	**480**	< 330	< 330	< 1400	< 690	< 4400	---	< 1000	< 1200	< 1100	**680**
Fluoranthene	ug/kg	**790**	**3300**	< 3500	**7900**	**4500**	**7800**	**5000**	**3000**	**4800**	**3300**	**3970**	**1400**	**2400**	**2700**	**3300**
Fluorene	ug/kg	< 620	< 1900	< 3500	< 890	< 330	**390**	< 330	< 1400	< 330	**2600**	**166**	< 1000	< 1200	< 1100	< 330
Indeno(1,2,3-c,d)pyrene	ug/kg	**630**	< 1900	< 3500	**1400**	**680**	**1600**	**700**	**1800**	**1200**	< 4400	**2150**	< 1000	< 1200	< 1100	**860**
Naphthalene	ug/kg	< 620	< 1900	< 3500	< 890	< 330	< 330	< 330	< 1400	< 330	**660**	**138**	< 1000	< 1200	< 1100	**380**
Phenanthrene	ug/kg	< 620	< 1900	< 3500	**4900**	**1600**	**4100**	**2100**	**3400**	**1900**	**7000**	**1530**	**1800**	**1500**	< 1100	**1200**
Pyrene	ug/kg	**1300**	**3800**	< 3500	**7000**	**6100**	**5800**	**8800**	**3500**	**6500**	**7900**	**4570**	**2100**	**2700**	**3100**	**3600**
Solids																
Moisture	%	**21**	**51**	**72**	**45**	**37**	**36**	**54**	**64**	**29**	**56**	---	**53**	**62**	**57**	**63**
TPH																
Diesel Range Organics (C10-C20)	mg/kg	**3800**	**6500**	**9200**	**5000**	**52**	**51**	**990**	**4500**	**900**	**18000**	---	**5300**	**5700**	**1800**	**150**
Gasoline Range Organics (C6-C10)	mg/kg	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	---	< 4.0	---	---	---	**13**	**17**	< 4.0	< 4.0
Oil Range Organics (C20-C34)	mg/kg	**13000**	**23000**	**35000**	**13000**	**410**	**440**	**8000**	**15000**	**9000**	**74000**	---	**18000**	**21000**	**9400**	**1400**
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,1,1-Trichloroethane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,1,2,2-Tetrachloroethane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360

	Date \ Time Collected	12/8/2011 1:10 PM	3/7/2012 3:25 PM	12/12/2011 2:55 PM	12/13/2011 2:30 PM	12/13/2011 2:35 PM	1/6/2012 1:45 PM	6/18/2012 4:08 PM	2/17/2012 4:05 PM	7/17/2012 3:05 PM	7/17/2012 4:00 PM	9/28/2012 11:05 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/28/2011 2:25 PM	11/28/2011 2:35 PM
	Location	SBKR0300I502	SBKR0300I504	SBKR0375I501	SBKR0375I503	SBKR0375I503	SBKR0375I504	SBKR0750I501	SBKR0800L503	SBKR0825I501	SBKR0825I502	SBKR0825I502A	SBKR0897I001	SBKR0897I002	SBKR0897I007	SBKR0897I007
	Sample	SBKR0300I 502S 120811S010	SBKR0300I 504S 030712S003	SBKR0375I 501S 121211S004	SBKR0375I 503S 121311S005	SBKR0375I 503S 121311S014	SBKR0375I 504S 010612S010	SBKR0750I 501S 061812S003	SBKR0800L 503S 021712S005	SBKR0825I 501S 071712S003	SBKR0825I 502S 071712S004	SBKR0825I 502AS 092812S004	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 007S 112811S005	SBKR0897I 007S 112811S010
	Depth	0 - 1 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.5 ft	0.9 - 1.4 ft	0.5 - 1 ft	0 - 0.3 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.5 - 1 ft
	USCS Code	OL	OL	OL	ML	SP-SM	SW	OL	OL	OL	OL	ML	OL	OL	OL	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,1-Dichloroethane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,1-Dichloroethylene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,2,3-Trichlorobenzene	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
1,2,3-Trichloropropane	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,2,3-Trimethylbenzene	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	**560**	**1300**	< 250	< 360
1,2,4-Trichlorobenzene	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
1,2,4-Trimethylbenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	**890**	**2200**	< 250	< 360
1,2-Dichlorobenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,2-Dichloroethane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,2-Dichloropropane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,3,5-Trimethylbenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	**360**	**780**	< 250	< 360
1,3-Dichlorobenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,3-Dichloropropene, cis	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,3-Dichloropropene, trans	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,4-Dichloro-2-butene, trans	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
1,4-Dichlorobenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
2-Butanone (MEK)	ug/kg	< 750	< 750	< 2200	< 750	< 750	< 750	< 750	< 1300	< 750	< 800	---	< 750	< 1100	< 850	< 1200
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	< 330	< 630	< 2200	< 490	< 340	< 330	< 730	< 1300	< 350	**1700**	---	**4800**	**12000**	< 850	< 1200
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500
Acetone	ug/kg	< 1000	< 1600	< 10000	< 2200	< 1000	< 1000	< 1800	< 3200	< 1000	< 2000	---	< 1900	< 2800	< 2100	< 3000
Acrylonitrile	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Benzene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Bromobenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Bromochloromethane	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Bromodichloromethane	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Bromoform	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Bromomethane	ug/kg	< 200	< 200	< 670	< 200	< 200	< 200	< 220	< 380	< 200	< 240	---	< 220	< 340	< 250	< 360
Carbon disulfide	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
Carbon tetrachloride	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Chlorobenzene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Chloroethane	ug/kg	< 250	< 630	< 2200	< 490	< 340	< 330	< 730	< 1300	< 350	< 800	---	< 740	< 1100	< 850	< 1200
Chloroform	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Chloromethane	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 1500	< 3400	< 250	< 360

	Date \ Time Collected	12/8/2011 1:10 PM	3/7/2012 3:25 PM	12/12/2011 2:55 PM	12/13/2011 2:30 PM	12/13/2011 2:35 PM	1/6/2012 1:45 PM	6/18/2012 4:08 PM	2/17/2012 4:05 PM	7/17/2012 3:05 PM	7/17/2012 4:00 PM	9/28/2012 11:05 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/28/2011 2:25 PM	11/28/2011 2:35 PM
	Location	SBKR0300I502	SBKR0300I504	SBKR0375I501	SBKR0375I503	SBKR0375I503	SBKR0375I504	SBKR0750I501	SBKR0800L503	SBKR0825I501	SBKR0825I502	SBKR0825I502A	SBKR0897I001	SBKR0897I002	SBKR0897I007	SBKR0897I007
	Sample	SBKR0300I 502S 120811S010	SBKR0300I 504S 030712S003	SBKR0375I 501S 121211S004	SBKR0375I 503S 121311S005	SBKR0375I 503S 121311S014	SBKR0375I 504S 010612S010	SBKR0750I 501S 061812S003	SBKR0800L 503S 021712S005	SBKR0825I 501S 071712S003	SBKR0825I 502S 071712S004	SBKR0825I 502AS 092812S004	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 007S 112811S005	SBKR0897I 007S 112811S010
	Depth	0 - 1 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.5 ft	0.9 - 1.4 ft	0.5 - 1 ft	0 - 0.3 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.5 - 1 ft
	USCS Code	OL	OL	OL	ML	SP-SM	SW	OL	OL	OL	OL	ML	OL	OL	OL	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Cyclohexane	ug/kg	< 500	< 500	< 670	< 500	< 500	< 500	< 500	< 500	< 500	< 500	---	< 500	< 500	< 500	< 500
Dibromochloromethane	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Dibromochloropropane	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Dibromomethane	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
Dichlorodifluoromethane	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
Diethyl ether	ug/kg	< 200	< 200	< 670	< 200	< 200	< 200	< 220	< 380	< 200	< 240	---	< 220	< 340	< 250	< 360
Di-isopropyl ether (DIPE)	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
Ethylbenzene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Ethylene dibromide	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
Hexachloroethane	ug/kg	< 300	< 300	< 670	< 300	< 300	< 300	< 300	< 380	< 300	< 300	---	< 300	< 340	< 300	< 360
Isopropyl benzene	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
m&p-Xylene	ug/kg	< 120	< 380	< 1300	< 290	< 210	< 200	< 440	< 760	< 210	< 480	---	< 450	< 680	< 510	< 720
Methyl Iodide	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Methylene chloride	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Methyl-tert-butyl ether (MTBE)	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
Naphthalene	ug/kg	< 330	< 630	< 2200	< 490	< 340	< 330	< 730	< 1300	< 350	< 800	---	**1100**	**2600**	< 850	< 1200
n-Butylbenzene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
n-Propylbenzene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
o-Xylene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
p-Isopropyl toluene (p-Cymene)	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
sec-Butylbenzene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Styrene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
t-Amyl methyl ether (TAME)	ug/kg	< 250	< 250	< 670	< 250	< 250	< 250	< 250	< 380	< 250	< 250	---	< 250	< 340	< 250	< 360
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	---	< 2500	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Tetrachloroethylene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	**790**	< 340	< 250	< 360
Tetrahydrofuran	ug/kg	< 1000	< 1000	< 2200	< 1000	< 1000	< 1000	< 1000	< 1300	< 1000	< 1000	---	< 1000	< 1100	< 1000	< 1200
Toluene	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	12/8/2011 1:10 PM	3/7/2012 3:25 PM	12/12/2011 2:55 PM	12/13/2011 2:30 PM	12/13/2011 2:35 PM	1/6/2012 1:45 PM	6/18/2012 4:08 PM	2/17/2012 4:05 PM	7/17/2012 3:05 PM	7/17/2012 4:00 PM	9/28/2012 11:05 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/28/2011 2:25 PM	11/28/2011 2:35 PM
	Location	SBKR0300I502	SBKR0300I504	SBKR0375I501	SBKR0375I503	SBKR0375I503	SBKR0375I504	SBKR0750I501	SBKR0800L503	SBKR0825I501	SBKR0825I502	SBKR0825I502A	SBKR0897I001	SBKR0897I002	SBKR0897I007	SBKR0897I007
	Sample	SBKR0300I 502S 120811S010	SBKR0300I 504S 030712S003	SBKR0375I 501S 121211S004	SBKR0375I 503S 121311S005	SBKR0375I 503S 121311S014	SBKR0375I 504S 010612S010	SBKR0750I 501S 061812S003	SBKR0800L 503S 021712S005	SBKR0825I 501S 071712S003	SBKR0825I 502S 071712S004	SBKR0825I 502AS 092812S004	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 007S 112811S005	SBKR0897I 007S 112811S010
	Depth	0 - 1 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.5 ft	0.9 - 1.4 ft	0.5 - 1 ft	0 - 0.3 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.4 ft	0 - 0.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.5 - 1 ft
	USCS Code	OL	OL	OL	ML	SP-SM	SW	OL	OL	OL	OL	ML	OL	OL	OL	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	---	---	---	---
trans-1,2-Dichloroethylene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Trichloroethylene	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Trichlorofluoromethane	ug/kg	< 100	< 190	< 670	< 150	< 100	< 100	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Vinyl chloride	ug/kg	< 58	< 190	< 670	< 150	< 100	< 99	< 220	< 380	< 110	< 240	---	< 220	< 340	< 250	< 360
Xylenes	ug/kg	< 120	< 380	< 1300	< 290	< 210	< 200	< 440	< 760	< 210	< 480	---	< 450	< 680	< 510	< 720

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/29/2011 12:00 PM	11/11/2014 7:35 AM	11/16/2011 11:25 AM	11/16/2011 2:45 PM	11/15/2011 10:50 AM	6/7/2012 9:15 AM	6/11/2012 11:47 AM	11/28/2011 3:55 PM	11/3/2011 3:15 PM	11/3/2011 4:00 PM	11/7/2011 2:40 PM	11/7/2011 3:00 PM	11/8/2011 10:10 AM	11/8/2011 10:35 AM	11/10/2011 12:40 PM
	Location	SBKR0897I013	SBKR0900I510	SBKR1070I025	SBKR1070I031	SBKR1082I006	SBKR1150L538	SBKR1150L545	SBKR1256L011	SBKR1350L005	SBKR1350L006	SBKR1350L019	SBKR1350L020	SBKR1350L025	SBKR1350L026	SBKR1350L051
	Sample	SBKR0897I 013S 112911S005	SBKR0900I 510S 111114S005	SBKR1070I 025S 111611S006	SBKR1070I 031S 111611S009	SBKR1082I 006S 111511S006	SBKR1150L 538S 060712S005	SBKR1150L 545S 061112S005	SBKR1256L 011S 112811S009	SBKR1350L 005S 110311S030	SBKR1350L 006S 110311S030	SBKR1350L 019S 110711S010	SBKR1350L 020S 110711S010	SBKR1350L 025S 110811S020	SBKR1350L 026S 110811S010	SBKR1350L 051S 111011S012
	Depth	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.9 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft	2 - 3 ft	2 - 3 ft	0 - 1 ft	0 - 1 ft	1 - 2 ft	0 - 1 ft	0.2 - 1.2 ft
	USCS Code	OL	OL	OL	OL	OL	OL	OL	OL	ML	ML	ML	ML	ML	ML	ML
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Carbon																
Total Organic Carbon	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Metals																
Beryllium	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.57**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Molybdenum	mg/kg	**1.6**	**1.3**	**2.4**	**2.0**	**1.7**	**2.1**	**1.3**	**1.2**	**1.3**	**1.1**	**1.2**	< 1.0	< 1.0	< 1.0	**1.2**
Nickel	mg/kg	**19**	**17**	**27**	**18**	**20**	**24**	**22**	**22**	**13**	**13**	**17**	**17**	**9.4**	**12**	**14**
Vanadium	mg/kg	**27**	**33**	**42**	**26**	**28**	**39**	**27**	**28**	**27**	**25**	**27**	**24**	**18**	**19**	**24**
PNA																
2-Methylnaphthalene	ug/kg	**2400**	< 1500	< 3600	**4200**	< 1700	< 2700	**840**	< 2200	**3000**	< 1000	**1600**	< 1500	**4700**	< 800	**3500**
Acenaphthene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 330	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Acenaphthylene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 330	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Anthracene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 1200	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Benzo(a)anthracene	ug/kg	< 1300	< 1500	< 3600	< 2200	**2700**	< 2700	< 1200	**3200**	< 1000	< 1000	< 1500	< 1500	**8100**	**3600**	**7100**
Benzo(a)pyrene	ug/kg	< 1300	**3000**	< 3600	< 2200	**4900**	< 2700	< 1200	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	**4500**
Benzo(b)fluoranthene	ug/kg	< 1300	**2500**	< 3600	< 2200	**8600**	< 2700	**1400**	**3900**	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Benzo(g,h,i)perylene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 1200	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Benzo(k)fluoranthene	ug/kg	**1500**	**1700**	< 3600	< 2200	**5400**	< 2700	< 1200	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Chrysene	ug/kg	**2300**	< 1500	< 3600	< 2200	**9200**	**4700**	**2300**	**6100**	< 1000	< 1000	< 1500	< 1500	< 1900	**2900**	**5300**
Dibenzo(a,h)anthracene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 1200	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Fluoranthene	ug/kg	**1400**	< 1500	< 3600	< 2200	**6700**	< 2700	< 1200	**7300**	< 1000	< 1000	< 1500	< 1500	< 1900	**2700**	**5100**
Fluorene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 330	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	**4700**
Indeno(1,2,3-c,d)pyrene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 1200	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Naphthalene	ug/kg	< 1300	< 1500	< 3600	< 2200	< 1700	< 2700	< 330	< 2200	< 1000	< 1000	< 1500	< 1500	< 1900	< 800	< 1700
Phenanthrene	ug/kg	**3800**	< 1500	**4400**	**4400**	**6200**	**5200**	**2800**	**7400**	**3700**	**2200**	**3100**	**2400**	**6500**	**2300**	**5700**
Pyrene	ug/kg	**2400**	< 1500	**3900**	< 2200	**8600**	**2800**	**1800**	**7300**	**4800**	< 1000	< 1500	**1600**	**5400**	**2500**	**4800**
Solids																
Moisture	%	**62**	**37**	**50**	**54**	**41**	**64**	**60**	**56**	**52**	**52**	**37**	**36**	**48**	**40**	**43**
TPH																
Diesel Range Organics (C10-C20)	mg/kg	**12000**	---	**16000**	**9800**	**11000**	**9300**	**6200**	**7000**	**3800**	**2900**	**7100**	**6000**	**7500**	**2500**	**5800**
Gasoline Range Organics (C6-C10)	mg/kg	**15**	---	< 4.0	< 4.0	< 4.0	---	---	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	**9.9**	< 4.0	< 4.0
Oil Range Organics (C20-C34)	mg/kg	**38000**	---	**61000**	**31000**	**45000**	**49000**	**25000**	**26000**	**11000**	**11000**	**23000**	**22000**	**22000**	**8700**	**18000**
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
1,1,1-Trichloroethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,1,2,2-Tetrachloroethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130

	Date \ Time Collected	11/29/2011 12:00 PM	11/11/2014 7:35 AM	11/16/2011 11:25 AM	11/16/2011 2:45 PM	11/15/2011 10:50 AM	6/7/2012 9:15 AM	6/11/2012 11:47 AM	11/28/2011 3:55 PM	11/3/2011 3:15 PM	11/3/2011 4:00 PM	11/7/2011 2:40 PM	11/7/2011 3:00 PM	11/8/2011 10:10 AM	11/8/2011 10:35 AM	11/10/2011 12:40 PM
	Location	SBKR0897I013	SBKR0900I510	SBKR1070I025	SBKR1070I031	SBKR1082I006	SBKR1150L538	SBKR1150L545	SBKR1256L011	SBKR1350L005	SBKR1350L006	SBKR1350L019	SBKR1350L020	SBKR1350L025	SBKR1350L026	SBKR1350L051
	Sample	SBKR0897I 013S 112911S005	SBKR0900I 510S 111114S005	SBKR1070I 025S 111611S006	SBKR1070I 031S 111611S009	SBKR1082I 006S 111511S006	SBKR1150L 538S 060712S005	SBKR1150L 545S 061112S005	SBKR1256L 011S 112811S009	SBKR1350L 005S 110311S030	SBKR1350L 006S 110311S030	SBKR1350L 019S 110711S010	SBKR1350L 020S 110711S010	SBKR1350L 025S 110811S020	SBKR1350L 026S 110811S010	SBKR1350L 051S 111011S012
	Depth	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.9 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft	2 - 3 ft	2 - 3 ft	0 - 1 ft	0 - 1 ft	1 - 2 ft	0 - 1 ft	0.2 - 1.2 ft
	USCS Code	OL	OL	OL	OL	OL	OL	OL	OL	ML	ML	ML	ML	ML	ML	ML
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,1-Dichloroethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,1-Dichloroethylene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,2,3-Trichlorobenzene	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
1,2,3-Trichloropropane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
1,2,3-Trimethylbenzene	ug/kg	**1100**	< 250	**970**	**1000**	< 250	< 380	< 300	< 250	**420**	< 250	< 250	< 250	**280**	< 250	< 250
1,2,4-Trichlorobenzene	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
1,2,4-Trimethylbenzene	ug/kg	**2400**	< 120	**1700**	**1700**	< 120	< 380	< 300	< 240	**650**	**230**	**260**	**190**	**380**	< 100	< 130
1,2-Dichlorobenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
1,2-Dichloroethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,2-Dichloropropane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,3,5-Trimethylbenzene	ug/kg	**1000**	< 120	**620**	**620**	< 120	< 380	< 300	< 240	**260**	< 200	< 100	< 100	**160**	< 100	< 130
1,3-Dichlorobenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
1,3-Dichloropropene, cis	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,3-Dichloropropene, trans	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,4-Dichloro-2-butene, trans	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
1,4-Dichlorobenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
2-Butanone (MEK)	ug/kg	< 1100	< 750	< 750	< 750	< 750	< 1300	< 1000	< 800	< 750	< 750	< 750	< 750	< 750	< 750	< 750
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	**13000**	< 400	**4500**	**4800**	< 410	**1400**	< 1000	< 800	**5700**	**1600**	**2200**	**1100**	**3200**	< 330	< 440
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
Acetone	ug/kg	< 2800	< 1000	< 1500	< 1800	< 1000	< 3100	< 2500	< 2000	< 1600	< 1600	< 1000	< 1000	< 1000	< 1000	< 1100
Acrylonitrile	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Benzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Bromobenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Bromochloromethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Bromodichloromethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Bromoform	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Bromomethane	ug/kg	< 330	< 200	< 200	< 220	< 200	< 380	< 300	< 240	< 200	< 200	< 200	< 200	< 200	< 200	< 200
Carbon disulfide	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Carbon tetrachloride	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Chlorobenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Chloroethane	ug/kg	< 1100	< 400	< 600	< 730	< 410	< 1300	< 1000	< 800	< 650	< 660	< 340	< 330	< 250	< 250	< 440
Chloroform	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Chloromethane	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 330	< 330	< 520	< 500	< 250	< 250	< 250

	Date \ Time Collected	11/29/2011 12:00 PM	11/11/2014 7:35 AM	11/16/2011 11:25 AM	11/16/2011 2:45 PM	11/15/2011 10:50 AM	6/7/2012 9:15 AM	6/11/2012 11:47 AM	11/28/2011 3:55 PM	11/3/2011 3:15 PM	11/3/2011 4:00 PM	11/7/2011 2:40 PM	11/7/2011 3:00 PM	11/8/2011 10:10 AM	11/8/2011 10:35 AM	11/10/2011 12:40 PM
	Location	SBKR0897I013	SBKR0900I510	SBKR1070I025	SBKR1070I031	SBKR1082I006	SBKR1150L538	SBKR1150L545	SBKR1256L011	SBKR1350L005	SBKR1350L006	SBKR1350L019	SBKR1350L020	SBKR1350L025	SBKR1350L026	SBKR1350L051
	Sample	SBKR0897I 013S 112911S005	SBKR0900I 510S 111114S005	SBKR1070I 025S 111611S006	SBKR1070I 031S 111611S009	SBKR1082I 006S 111511S006	SBKR1150L 538S 060712S005	SBKR1150L 545S 061112S005	SBKR1256L 011S 112811S009	SBKR1350L 005S 110311S030	SBKR1350L 006S 110311S030	SBKR1350L 019S 110711S010	SBKR1350L 020S 110711S010	SBKR1350L 025S 110811S020	SBKR1350L 026S 110811S010	SBKR1350L 051S 111011S012
	Depth	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.9 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft	2 - 3 ft	2 - 3 ft	0 - 1 ft	0 - 1 ft	1 - 2 ft	0 - 1 ft	0.2 - 1.2 ft
	USCS Code	OL	OL	OL	OL	OL	OL	OL	OL	ML	ML	ML	ML	ML	ML	ML
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Cyclohexane	ug/kg	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
Dibromochloromethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Dibromochloropropane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Dibromomethane	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Dichlorodifluoromethane	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Diethyl ether	ug/kg	< 330	< 200	< 200	< 220	< 200	< 380	< 300	< 240	< 200	< 200	< 200	< 200	< 200	< 200	< 200
Di-isopropyl ether (DIPE)	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Ethylbenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Ethylene dibromide	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Hexachloroethane	ug/kg	< 330	< 300	< 300	< 300	< 300	< 380	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 300	< 300
Isopropyl benzene	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
m&p-Xylene	ug/kg	**1300**	< 240	< 360	< 440	< 240	< 750	< 600	< 480	< 390	< 390	< 210	< 200	< 120	< 100	< 260
Methyl Iodide	ug/kg	< 780	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Methylene chloride	ug/kg	< 440	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	**150**	< 170	< 100	< 100	< 130
Methyl-tert-butyl ether (MTBE)	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
Naphthalene	ug/kg	**2100**	< 400	**1400**	**1200**	< 410	< 1300	< 1000	< 800	**1200**	< 660	**430**	< 330	**820**	< 330	< 440
n-Butylbenzene	ug/kg	**910**	< 120	< 180	**730**	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
n-Propylbenzene	ug/kg	**480**	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
o-Xylene	ug/kg	**610**	< 120	**180**	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	**100**	< 50	< 130
p-Isopropyl toluene (p-Cymene)	ug/kg	**550**	< 120	**230**	**320**	< 120	< 380	< 300	< 240	**230**	< 200	< 100	< 100	< 100	< 100	< 130
sec-Butylbenzene	ug/kg	**770**	< 120	**180**	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	**99**	< 50	< 130
Styrene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
t-Amyl methyl ether (TAME)	ug/kg	< 330	< 250	< 250	< 250	< 250	< 380	< 300	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Tetrachloroethylene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Tetrahydrofuran	ug/kg	< 1100	< 1000	< 1000	< 1000	< 1000	< 1300	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000
Toluene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/29/2011 12:00 PM	11/11/2014 7:35 AM	11/16/2011 11:25 AM	11/16/2011 2:45 PM	11/15/2011 10:50 AM	6/7/2012 9:15 AM	6/11/2012 11:47 AM	11/28/2011 3:55 PM	11/3/2011 3:15 PM	11/3/2011 4:00 PM	11/7/2011 2:40 PM	11/7/2011 3:00 PM	11/8/2011 10:10 AM	11/8/2011 10:35 AM	11/10/2011 12:40 PM
	Location	SBKR0897I013	SBKR0900I510	SBKR1070I025	SBKR1070I031	SBKR1082I006	SBKR1150L538	SBKR1150L545	SBKR1256L011	SBKR1350L005	SBKR1350L006	SBKR1350L019	SBKR1350L020	SBKR1350L025	SBKR1350L026	SBKR1350L051
	Sample	SBKR0897I 013S 112911S005	SBKR0900I 510S 111114S005	SBKR1070I 025S 111611S006	SBKR1070I 031S 111611S009	SBKR1082I 006S 111511S006	SBKR1150L 538S 060712S005	SBKR1150L 545S 061112S005	SBKR1256L 011S 112811S009	SBKR1350L 005S 110311S030	SBKR1350L 006S 110311S030	SBKR1350L 019S 110711S010	SBKR1350L 020S 110711S010	SBKR1350L 025S 110811S020	SBKR1350L 026S 110811S010	SBKR1350L 051S 111011S012
	Depth	0 - 0.5 ft	0 - 0.5 ft	0 - 0.6 ft	0 - 0.9 ft	0 - 0.6 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft	2 - 3 ft	2 - 3 ft	0 - 1 ft	0 - 1 ft	1 - 2 ft	0 - 1 ft	0.2 - 1.2 ft
	USCS Code	OL	OL	OL	OL	OL	OL	OL	OL	ML	ML	ML	ML	ML	ML	ML
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	---	---	---	---	---	< 380	< 300	---	---	---	---	---	---	---	---
trans-1,2-Dichloroethylene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Trichloroethylene	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Trichlorofluoromethane	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 100	< 100	< 130
Vinyl chloride	ug/kg	< 330	< 120	< 180	< 220	< 120	< 380	< 300	< 240	< 200	< 200	< 100	< 100	< 58	< 50	< 130
Xylenes	ug/kg	**1900**	< 240	**180**	< 440	< 240	< 750	< 600	< 480	< 390	< 390	< 210	< 200	**100**	< 100	< 260

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/10/2011 1:45 PM	3/12/2012 1:25 PM	11/28/2011 3:50 PM	11/29/2011 11:20 AM	2/11/2013 3:24 PM	2/11/2013 3:29 PM	2/11/2013 3:29 PM	3/4/2013 4:47 PM	5/7/2013 2:25 PM	3/1/2013 11:25 AM	3/4/2013 8:40 AM	4/2/2013 11:12 AM	11/12/2013 10:47 AM	12/19/2013 8:45 AM	10/7/2011 10:05 AM
	Location	SBKR1350L 053	SBKR1375L 502	SBKR1497I0 13	SBKR1497I0 16	SBKR1575R 507	SBKR1575R 507	SBKR1575R 507	SBKR2100R 520	SBKR2225L 503	SBKR2225R 511	SBKR2250R 514	SBKR2900L 506	SBSA0025R 525	SBSA0025R 545	SBTC0175R 073
	Sample	SBKR1350L 053S 111011S005	SBKR1375L 502S 031212S016	SBKR1497I 013S 112811S005	SBKR1497I 016S 112911S003	SBKR1575R 507S 021113S005	SBKR1575R 507S 021113S020	SBKR1575R 507S 021113S020	SBKR2100R 520S 030413S022	SBKR2225L 503S 050713S033	SBKR2225R 511S 030113S005	SBKR2250R 514S 030413S034	SBKR2900L 506S 040213S034	SBSA0025R 525S111213 S022	SBSA0025R 545S121913 S018	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	1.1 - 1.6 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.5 ft	1.6 - 2 ft	1.6 - 2 ft	1.8 - 2.2 ft	2.7 - 3.3 ft	0 - 0.5 ft	2.9 - 3.4 ft	2.9 - 3.35 ft	1.45 - 2.2 ft	1.4 - 1.75 ft	0 - 1 ft
	USCS Code	ML	GW-GM	OL	OL	ML	SM	SM	SP	ML	SP-SM	SM	ML	ML	PT	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Carbon																
Total Organic Carbon	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Metals																
Beryllium	mg/kg	< 0.50	**0.70**	< 0.50	< 0.50	< 0.84	< 0.71	---	< 1.1	< 1.3	< 0.81	< 0.96	< 1.2	< 0.50	< 0.50	< 0.50
Molybdenum	mg/kg	**1.1**	**1.9**	**2.4**	< 1.0	**4.3**	< 1.0	---	< 1.3	< 1.7	< 1.0	< 1.2	< 1.5	< 1.0	**2.9**	**1.2**
Nickel	mg/kg	**15**	**22**	**23**	**12**	**31**	**6.5**	---	**26**	**23**	**9.6**	**16**	**24**	**5.3**	**7.6**	**12**
Vanadium	mg/kg	**24**	**57**	**49**	**14**	**19**	**7.3**	---	**16**	**16**	**14**	**9.6**	**23**	**11**	**10**	**21**
PNA																
2-Methylnaphthalene	ug/kg	**600**	< 330	**6300**	< 950	< 330	**40000**	**76900**	< 330	**2100**	< 330	< 330	< 1400	**1100**	< 330	< 330
Acenaphthene	ug/kg	< 330	< 330	< 1700	< 950	< 330	**100000**	**206000**	< 330	**3900**	< 330	**610**	< 1400	< 330	< 330	< 330
Acenaphthylene	ug/kg	< 330	**510**	< 1700	< 950	**600**	**260000**	**397000**	**1400**	**5300**	< 330	**1700**	**2700**	< 330	< 330	< 330
Anthracene	ug/kg	< 330	**400**	< 1700	< 950	**830**	**1500000**	**1460000**	**1100**	**12000**	**640**	**3000**	**4400**	< 330	< 330	< 330
Benzo(a)anthracene	ug/kg	< 3400	**2300**	**2200**	**1200**	**4000**	**690000**	**732000**	**7900**	**22000**	**2400**	**11000**	**14000**	< 330	< 330	< 330
Benzo(a)pyrene	ug/kg	< 3400	**3200**	< 1700	**4500**	**5400**	**650000**	**628000**	**7700**	**24000**	**2600**	**11000**	**14000**	< 330	< 330	< 330
Benzo(b)fluoranthene	ug/kg	< 3400	**3500**	**4100**	**2100**	**9600**	**570000**	**308000**	**9000**	**18000**	**3400**	**14000**	**15000**	< 330	< 330	< 330
Benzo(g,h,i)perylene	ug/kg	< 3400	**810**	< 1700	< 950	**2100**	**110000**	**296000**	**1800**	**13000**	**1200**	**2200**	**8700**	< 330	< 330	< 330
Benzo(k)fluoranthene	ug/kg	< 3400	**1700**	< 1700	**3100**	**5300**	**340000**	---	**4400**	**8200**	**1400**	**7200**	**3600**	< 330	< 330	< 330
Chrysene	ug/kg	< 3400	**1900**	**7300**	**1700**	**6700**	**900000**	---	**7900**	**19000**	**2600**	**11000**	**14000**	< 330	< 330	< 330
Dibenzo(a,h)anthracene	ug/kg	< 3400	< 330	< 1700	< 950	**590**	**34000**	---	**650**	**2400**	**340**	**880**	**3700**	< 330	< 330	< 330
Fluoranthene	ug/kg	**1500**	**4300**	**6400**	**1500**	**10000**	**1800000**	**1740000**	**3400**	**31000**	**5800**	**20000**	**19000**	< 330	< 330	< 330
Fluorene	ug/kg	< 330	< 330	**2400**	< 950	< 330	**190000**	**326000**	**340**	**4600**	< 330	**700**	< 1400	< 330	< 330	< 330
Indeno(1,2,3-c,d)pyrene	ug/kg	< 3400	**850**	< 1700	< 950	**1700**	**93000**	**273000**	**1600**	**14000**	**1200**	**2500**	**5600**	< 330	< 330	< 330
Naphthalene	ug/kg	< 330	< 330	< 1700	< 950	< 330	**50000**	**41200**	< 330	< 1200	< 330	**460**	< 1400	< 330	< 330	< 330
Phenanthrene	ug/kg	**2800**	**1100**	**7100**	< 950	**4400**	**490000**	**1020000**	**1400**	**16000**	**2300**	**7800**	**8200**	**570**	< 330	< 330
Pyrene	ug/kg	**9100**	**4600**	**7100**	**2000**	**8800**	**2600000**	**2580000**	**13000**	**40000**	**3800**	**18000**	**23000**	< 330	< 330	< 330
Solids																
Moisture	%	**44**	**23**	**43**	**50**	**42**	**31**	---	**53**	**62**	**38**	**51**	**65**	**17**	**67**	**37**
TPH																
Diesel Range Organics (C10-C20)	mg/kg	**8300**	**13**	**9300**	**3000**	< 170	**15000**	---	**260**	**1200**	**67**	**300**	**1000**	---	---	**460**
Gasoline Range Organics (C6-C10)	mg/kg	< 4.0	---	< 4.0	< 4.0	---	---	---	---	---	---	---	---	---	---	**210**
Oil Range Organics (C20-C34)	mg/kg	**27000**	**260**	**31000**	**15000**	**2900**	**58000**	---	**3200**	**8100**	**580**	**3000**	**10000**	---	---	**1100**
VOC																
1,1,1,2-Tetrachloroethane	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
1,1,1-Trichloroethane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,1,2,2-Tetrachloroethane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/10/2011 1:45 PM	3/12/2012 1:25 PM	11/28/2011 3:50 PM	11/29/2011 11:20 AM	2/11/2013 3:24 PM	2/11/2013 3:29 PM	2/11/2013 3:29 PM	3/4/2013 4:47 PM	5/7/2013 2:25 PM	3/1/2013 11:25 AM	3/4/2013 8:40 AM	4/2/2013 11:12 AM	11/12/2013 10:47 AM	12/19/2013 8:45 AM	10/7/2011 10:05 AM
	Location	SBKR1350L 053	SBKR1375L 502	SBKR1497I0 13	SBKR1497I0 16	SBKR1575R 507	SBKR1575R 507	SBKR1575R 507	SBKR2100R 520	SBKR2225L 503	SBKR2225R 511	SBKR2250R 514	SBKR2900L 506	SBSA0025R 525	SBSA0025R 545	SBTC0175R 073
	Sample	SBKR1350L 053S 111011S005	SBKR1375L 502S 031212S016	SBKR1497I 013S 112811S005	SBKR1497I 016S 112911S003	SBKR1575R 507S 021113S005	SBKR1575R 507S 021113S020	SBKR1575R 507S 021113S020	SBKR2100R 520S 030413S022	SBKR2225L 503S 050713S033	SBKR2225R 511S 030113S005	SBKR2250R 514S 030413S034	SBKR2900L 506S 040213S034	SBSA0025R 525S111213 S022	SBSA0025R 545S121913 S018	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	1.1 - 1.6 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.5 ft	1.6 - 2 ft	1.6 - 2 ft	1.8 - 2.2 ft	2.7 - 3.3 ft	0 - 0.5 ft	2.9 - 3.4 ft	2.9 - 3.35 ft	1.45 - 2.2 ft	1.4 - 1.75 ft	0 - 1 ft
	USCS Code	ML	GW-GM	OL	OL	ML	SM	SM	SP	ML	SP-SM	SM	ML	ML	PT	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,2-Trichloroethane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,1-Dichloroethane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,1-Dichloroethylene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,2,3-Trichlorobenzene	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
1,2,3-Trichloropropane	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
1,2,3-Trimethylbenzene	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	**670**	**1300**	**1100**
1,2,4-Trichlorobenzene	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
1,2,4-Trimethylbenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	**1900**	**2400**	**4600**
1,2-Dichlorobenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
1,2-Dichloroethane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,2-Dichloropropane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,3,5-Trimethylbenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	**940**	**1100**	**2200**
1,3-Dichlorobenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
1,3-Dichloropropene, cis	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,3-Dichloropropene, trans	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,4-Dichloro-2-butene, trans	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
1,4-Dichlorobenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
2-Butanone (MEK)	ug/kg	< 750	< 750	< 750	< 750	---	---	---	---	---	---	---	---	< 750	< 2000	< 750
2-Hexanone	ug/kg	< 2500	< 2500	< 2500	< 2500	---	---	---	---	---	---	---	---	< 2500	< 2500	< 2500
2-Methylnaphthalene	ug/kg	< 460	< 330	**650**	< 600	---	---	---	---	---	---	---	---	**1100**	< 2000	**1500**
4-Methyl-2-pentanone (MIBK)	ug/kg	< 2500	< 2500	< 2500	< 2500	---	---	---	---	---	---	---	---	< 2500	< 2500	< 2500
Acetone	ug/kg	< 1100	< 1000	< 1100	< 1500	---	---	---	---	---	---	---	---	< 1000	< 4900	< 1000
Acrylonitrile	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Benzene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	**360**	< 590	< 100
Bromobenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Bromochloromethane	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Bromodichloromethane	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Bromoform	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Bromomethane	ug/kg	< 200	< 200	< 200	< 200	---	---	---	---	---	---	---	---	< 200	< 590	< 200
Carbon disulfide	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
Carbon tetrachloride	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Chlorobenzene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Chloroethane	ug/kg	< 460	< 250	< 440	< 600	---	---	---	---	---	---	---	---	< 250	< 2000	< 350
Chloroform	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Chloromethane	ug/kg	< 250	< 250	< 440	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250

	Date \ Time Collected	11/10/2011 1:45 PM	3/12/2012 1:25 PM	11/28/2011 3:50 PM	11/29/2011 11:20 AM	2/11/2013 3:24 PM	2/11/2013 3:29 PM	2/11/2013 3:29 PM	3/4/2013 4:47 PM	5/7/2013 2:25 PM	3/1/2013 11:25 AM	3/4/2013 8:40 AM	4/2/2013 11:12 AM	11/12/2013 10:47 AM	12/19/2013 8:45 AM	10/7/2011 10:05 AM
	Location	SBKR1350L 053	SBKR1375L 502	SBKR1497I0 13	SBKR1497I0 16	SBKR1575R 507	SBKR1575R 507	SBKR1575R 507	SBKR2100R 520	SBKR2225L 503	SBKR2225R 511	SBKR2250R 514	SBKR2900L 506	SBSA0025R 525	SBSA0025R 545	SBTC0175R 073
	Sample	SBKR1350L 053S 111011S005	SBKR1375L 502S 031212S016	SBKR1497I 013S 112811S005	SBKR1497I 016S 112911S003	SBKR1575R 507S 021113S005	SBKR1575R 507S 021113S020	SBKR1575R 507S 021113S020	SBKR2100R 520S 030413S022	SBKR2225L 503S 050713S033	SBKR2225R 511S 030113S005	SBKR2250R 514S 030413S034	SBKR2900L 506S 040213S034	SBSA0025R 525S111213 S022	SBSA0025R 545S121913 S018	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	1.1 - 1.6 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.5 ft	1.6 - 2 ft	1.6 - 2 ft	1.8 - 2.2 ft	2.7 - 3.3 ft	0 - 0.5 ft	2.9 - 3.4 ft	2.9 - 3.35 ft	1.45 - 2.2 ft	1.4 - 1.75 ft	0 - 1 ft
	USCS Code	ML	GW-GM	OL	OL	ML	SM	SM	SP	ML	SP-SM	SM	ML	ML	PT	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethylene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Cyclohexane	ug/kg	< 500	< 500	< 500	< 500	---	---	---	---	---	---	---	---	**4900**	< 590	**12000**
Dibromochloromethane	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Dibromochloropropane	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Dibromomethane	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
Dichlorodifluoromethane	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
Diethyl ether	ug/kg	< 200	< 200	< 200	< 200	---	---	---	---	---	---	---	---	< 200	< 590	< 200
Di-isopropyl ether (DIPE)	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
Ethylbenzene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	**630**	< 590	**1600**
Ethylene dibromide	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Ethyl-tert-butyl ether (ETBE)	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
Hexachloroethane	ug/kg	< 300	< 300	< 300	< 300	---	---	---	---	---	---	---	---	< 300	< 590	< 300
Isopropyl benzene	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	**600**
m&p-Xylene	ug/kg	< 270	< 120	< 270	< 360	---	---	---	---	---	---	---	---	**3600**	**3100**	**2300**
Methyl Iodide	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Methylene chloride	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Methyl-tert-butyl ether (MTBE)	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
Naphthalene	ug/kg	< 460	< 330	< 440	< 600	---	---	---	---	---	---	---	---	< 330	< 2000	**760**
n-Butylbenzene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
n-Propylbenzene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	**360**	< 590	**1000**
o-Xylene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	**1100**	**1200**	**370**
p-Isopropyl toluene (p-Cymene)	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	**240**	< 590	**550**
sec-Butylbenzene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	**480**
Styrene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
t-Amyl methyl ether (TAME)	ug/kg	< 250	< 250	< 250	< 250	---	---	---	---	---	---	---	---	< 250	< 590	< 250
t-Butyl alcohol	ug/kg	< 2500	< 2500	< 2500	< 2500	---	---	---	---	---	---	---	---	< 2500	< 2500	< 2500
t-Butylbenzene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Tetrachloroethylene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Tetrahydrofuran	ug/kg	< 1000	< 1000	< 1000	< 1000	---	---	---	---	---	---	---	---	< 1000	< 2000	< 1000
Toluene	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100

Table 9. Spill Area Wide NAPL Indicators - Soil Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date \ Time Collected	11/10/2011 1:45 PM	3/12/2012 1:25 PM	11/28/2011 3:50 PM	11/29/2011 11:20 AM	2/11/2013 3:24 PM	2/11/2013 3:29 PM	2/11/2013 3:29 PM	3/4/2013 4:47 PM	5/7/2013 2:25 PM	3/1/2013 11:25 AM	3/4/2013 8:40 AM	4/2/2013 11:12 AM	11/12/2013 10:47 AM	12/19/2013 8:45 AM	10/7/2011 10:05 AM
	Location	SBKR1350L 053	SBKR1375L 502	SBKR1497I0 13	SBKR1497I0 16	SBKR1575R 507	SBKR1575R 507	SBKR1575R 507	SBKR2100R 520	SBKR2225L 503	SBKR2225R 511	SBKR2250R 514	SBKR2900L 506	SBSA0025R 525	SBSA0025R 545	SBTC0175R 073
	Sample	SBKR1350L 053S 111011S005	SBKR1375L 502S 031212S016	SBKR1497I 013S 112811S005	SBKR1497I 016S 112911S003	SBKR1575R 507S 021113S005	SBKR1575R 507S 021113S020	SBKR1575R 507S 021113S020	SBKR2100R 520S 030413S022	SBKR2225L 503S 050713S033	SBKR2225R 511S 030113S005	SBKR2250R 514S 030413S034	SBKR2900L 506S 040213S034	SBSA0025R 525S111213 S022	SBSA0025R 545S121913 S018	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	1.1 - 1.6 ft	0 - 0.5 ft	0 - 0.3 ft	0 - 0.5 ft	1.6 - 2 ft	1.6 - 2 ft	1.8 - 2.2 ft	2.7 - 3.3 ft	0 - 0.5 ft	2.9 - 3.4 ft	2.9 - 3.35 ft	1.45 - 2.2 ft	1.4 - 1.75 ft	0 - 1 ft
	USCS Code	ML	GW-GM	OL	OL	ML	SM	SM	SP	ML	SP-SM	SM	ML	ML	PT	OL
	Saturation Status	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated	Saturated	Unsaturated	Unsaturated	Unsaturated
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Total BTEX	ug/kg	---	< 100	---	---	---	---	---	---	---	---	---	---	**990**	---	---
trans-1,2-Dichloroethylene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Trichloroethylene	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Trichlorofluoromethane	ug/kg	< 140	< 100	< 130	< 180	---	---	---	---	---	---	---	---	< 100	< 590	< 100
Vinyl chloride	ug/kg	< 140	< 62	< 130	< 180	---	---	---	---	---	---	---	---	< 51	< 590	< 100
Xylenes	ug/kg	< 270	< 120	< 270	< 360	---	---	---	---	---	---	---	---	**4700**	**4300**	**2700**

Soil Footnotes:
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects new criteria rules, numbered from 299.1 to 299.50 which became effective on December 30, 2013.
MDEQ Operational Memorandum 2, Attachment 5 states that soil samples taken from the saturated zone cannot be accurately compared to criteria developed for unsaturated soils.
Bold values are concentrations detected above the reporting limit.
Shaded values exceed Part 201 Generic Residential Cleanup Criteria.
Shaded values indicate that the laboratory Reporting Limit value exceeds Part 201 Generic Residential Cleanup Criteria.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(C) = The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (C_{sat}). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific C_{sat} or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.
(D) = Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(G) = Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg $CaCO_3$/L, use 400 mg $CaCO_3$/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G)-footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(M) = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(W) = Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(DD) = Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

--- = not completed/not analyzed.
ft = feet.
ID = insufficient data to develop criterion.
mg/kg = milligrams per kilogram.
NA = a criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NCE = no criteria established.
NLL = hazardous substance is not likely to leach under most soil conditions.
NLV = hazardous substance is not likely to volatilize under most conditions.
PNA = polynuclear aromatic hydrocarbon.
TPH = total petroleum hydrocarbon.
ug/kg = micrograms per kilogram.
USCS = Unified Soil Classification System.
VOC = volatile organic compound.

Unified Soil Classification System (USCS) Code Footnotes:
CL = Lean clay or lean clay with sand or lean clay with gravel or sandy lean clay or sandy lean clay with gravel or gravelly
GW-GM = Well graded gravel or well graded gravel with sand (GW) to silty gravel or silty gravel with sand (GM).
ML = Silt or silt with sand or silt with gravel or sandy silt or sandy silt with gravel or gravelly silt or gravelly silt with sand.
ML/SP = Sample collected over interval containing both ML and SP soil types.
OL = Organic silts or organic silty clays of low plasticity.
OL/CL = Sample collected over interval containing both OL and CL soil types.
OL-PT = Organic silts or organic silty clays of low plasticity (OL) to peat, humus, swamp soils with high organic contents (PT).
PT = Peat, humus, swamp soils with high organic contents.
SM = Silty sand or silty sand with gravel.
SP = Poorly graded sand or poorly graded sand with gravel.
SP-SM = Poorly graded sand or poorly graded sand with gravel (SP) to silty sand or silty sand with gravel (SM).
SW = Well graded sand or well graded sand with gravel.

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	12/1/2011 11:15 AM	12/1/2011 1:20 PM	12/1/2011 2:30 PM	5/8/2014 1:45 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM	12/7/2011 10:19 AM	12/7/2011 1:15 PM	12/18/2013 3:30 PM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		SBKR0225L 502C	SBKR0225L 502E	SBKR0225L 502G	SBKR0225L 502WR1	SBKR0250L 508	SBKR0250L 509	SBKR0250L 510	SBKR0250L 517	SBKR0250L 549
	Sample					SBKR0225L 502CS 120111S010	SBKR0225L 502ES 120111S010	SBKR0225L 502GS 120111S010	SBKR0225L 502WR1S05 0814S005	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010	SBKR0250L 510S 120711S010	SBKR0250L 517S 120711S007	SBKR0250L 549S 121813S004
	Depth					0.5 - 1 ft	0.5 - 1 ft	0.5 - 1 ft	0 - 0.5 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 0.7 ft	0 - 0.4 ft
	Dissolved / Total					SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals														
Molybdenum	mg/l	0.073(B)	3.2(B)(X)	(B)NLV	0.05	---	---	---	---	---	---	---	---	---
Vanadium	mg/l	0.0045	0.027	NLV	0.004	---	---	---	---	---	---	---	---	---
PNA														
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
Acenaphthene	ug/l	1300	38	4200(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
Acenaphthylene	ug/l	52	ID	3900(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
Anthracene	ug/l	43(S)	ID	43(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
Benzo(a)anthracene	ug/l	2.1(Q)	(Q)ID	(Q)NLV	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Benzo(a)pyrene	ug/l	5(Q)(A)	(Q)ID	(Q)NLV	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Benzo(b)fluoranthene	ug/l	1.5(Q)(S,AA)	(Q)ID	(Q)ID	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Benzo(g,h,i)perylene	ug/l	1(M);0.26(S)	ID	NLV	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Benzo(k)fluoranthene	ug/l	1(Q)(M);0.8(S)	(Q)NA	(Q)NLV	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Chrysene	ug/l	1.6(Q)(S)	(Q)ID	(Q)ID	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Dibenzo(a,h)anthracene	ug/l	2(Q)(M);0.21	(Q)ID	(Q)NLV	2	< 2.4	< 2.2	< 2.4	< 2.0	---	---	---	---	< 2.9
Fluoranthene	ug/l	210(S)	1.6	210(S)	1	< 1.2	< 1.1	< 1.2	< 1.0	---	---	---	---	< 1.4
Fluorene	ug/l	880	12	2000(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
Indeno(1,2,3-c,d)pyrene	ug/l	2(Q)(M);0.022(S)	(Q)ID	(Q)NLV	2	< 2.4	< 2.2	< 2.4	< 2.0	---	---	---	---	< 2.9
Naphthalene	ug/l	520	11	31000(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
Phenanthrene	ug/l	52	2(M);1.4	1000(S)	2	< 2.4	< 2.2	< 2.4	< 2.0	---	---	---	---	< 2.9
Pyrene	ug/l	140(S)	ID	140(S)	5	< 6.1	< 5.4	< 6.0	< 5.0	---	---	---	---	< 7.1
VOC														
1,1,1,2-Tetrachloroethane	ug/l	77	ID	15000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,1,1-Trichloroethane	ug/l	200(A)	89	660000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,1,2,2-Tetrachloroethane	ug/l	8.5	78(X)	12000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	170000(S)	32	170000(S)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,1,2-Trichloroethane	ug/l	5(A)	330(X)	17000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,1-Dichloroethane	ug/l	880	740	1e+006	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,1-Dichloroethylene	ug/l	7(I)(A)	130(I)	200(I)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,2,3-Trichlorobenzene	ug/l	NCE	NCE	NCE	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,2,3-Trichloropropane	ug/l	42	NA	8300	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,2,3-Trimethylbenzene	ug/l	NCE	NCE	NCE	5	---	---	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	ug/l	70(A)	99(X)	300000(S)	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,2,4-Trimethylbenzene	ug/l	63(I)(E)	17(I)	56000(I)(S)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,2-Dichlorobenzene	ug/l	600(A)	13	160000(S)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,2-Dichloroethane	ug/l	5(I)(A)	360(I)(X)	9600(I)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	12/1/2011 11:15 AM	12/1/2011 1:20 PM	12/1/2011 2:30 PM	5/8/2014 1:45 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM	12/7/2011 10:19 AM	12/7/2011 1:15 PM	12/18/2013 3:30 PM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		SBKR0225L 502C	SBKR0225L 502E	SBKR0225L 502G	SBKR0225L 502WR1	SBKR0250L 508	SBKR0250L 509	SBKR0250L 510	SBKR0250L 517	SBKR0250L 549
	Sample					SBKR0225L 502CS 120111S010	SBKR0225L 502ES 120111S010	SBKR0225L 502GS 120111S010	SBKR0225L 502WR1S05 0814S005	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010	SBKR0250L 510S 120711S010	SBKR0250L 517S 120711S007	SBKR0250L 549S 121813S004
	Depth					0.5 - 1 ft	0.5 - 1 ft	0.5 - 1 ft	0 - 0.5 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 0.7 ft	0 - 0.4 ft
	Dissolved / Total					SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloropropane	ug/l	5(I)(A)	230(I)(X)	16000(I)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,3,5-Trimethylbenzene	ug/l	72(I)(E)	45(I)	61000(I)(S)	1	**4.2**	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,3-Dichlorobenzene	ug/l	6.6	28	18000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,3-Dichloropropene, cis	ug/l	NCE	NCE	NCE	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,3-Dichloropropene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,4-Dichloro-2-butene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
1,4-Dichlorobenzene	ug/l	75(A)	17	16000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
2-Butanone (MEK)	ug/l	13000(I)	2200(I)	2.4e+008(I)(S)	25	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
2-Hexanone	ug/l	1000	ID	4.2e+006	50	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
4-Methyl-2-pentanone (MIBK)	ug/l	1800(I)	(I)ID	2e+007(I)(S)	50	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
Acetone	ug/l	730(I)	1700(I)	1e+009(I)(D,S)	50	< 20	---	**79**	---	**26**	**340**	**100**	**700**	---
Acrylonitrile	ug/l	2.6(I)	2(I)(M);1.2	34000(I)	2	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Benzene	ug/l	5(I)(A)	200(I)(X)	5600(I)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Bromobenzene	ug/l	18(I)	(I)NA	180000(I)	1	---	---	---	---	---	---	---	---	---
Bromochloromethane	ug/l	NCE	NCE	NCE	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Bromodichloromethane	ug/l	80(A,W)	ID	4800	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Bromoform	ug/l	80(A,W)	ID	470000	1	< 1.0	---	**1.9**	---	< 1.0	---	< 1.0	< 1.0	---
Bromomethane	ug/l	10	35	4000	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Carbon disulfide	ug/l	800(I,R)	(I,R)ID	250000(I,R)	5	< 2.5	---	< 2.5	---	< 2.5	---	< 2.5	< 2.5	---
Carbon tetrachloride	ug/l	5(A)	45(X)	370	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Chlorobenzene	ug/l	100(I)(A)	25(I)	210000(I)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Chloroethane	ug/l	430	1100(X)	5.7e+006(S)	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Chloroform	ug/l	80(A,W)	350(X)	28000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Chloromethane	ug/l	260(I)	(I)ID	8600(I)	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
cis-1,2-Dichloroethylene	ug/l	70(A)	620	93000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Cyclohexane	ug/l	NCE	NCE	NCE	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
Dibromochloromethane	ug/l	80(A,W)	ID	14000	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Dibromochloropropane	ug/l	0.2(A)	ID	220(S)	0.2	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Dibromomethane	ug/l	80	NA	ID	5	---	---	---	---	---	---	---	---	---
Dichlorodifluoromethane	ug/l	1700	ID	220000	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Diethyl ether	ug/l	10(E)	ID	6.1e+007(S)	10	< 10	---	< 10	---	< 10	---	< 10	< 10	---
Di-isopropyl ether (DIPE)	ug/l	30	ID	8000(S)	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
Ethylbenzene	ug/l	74(I)(E)	18(I)	110000(I)	1	< 1.0	---	< 1.0	---	**1.4**	---	< 1.0	**1.1**	---
Ethylene dibromide	ug/l	0.05(A)	5.7(X)	2400	0.05	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Ethyl-tert-butyl ether (ETBE)	ug/l	49(E)	ID	2.9e+006	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	12/1/2011 11:15 AM	12/1/2011 1:20 PM	12/1/2011 2:30 PM	5/8/2014 1:45 PM	12/7/2011 9:35 AM	12/7/2011 10:00 AM	12/7/2011 10:19 AM	12/7/2011 1:15 PM	12/18/2013 3:30 PM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		SBKR0225L 502C	SBKR0225L 502E	SBKR0225L 502G	SBKR0225L 502WR1	SBKR0250L 508	SBKR0250L 509	SBKR0250L 510	SBKR0250L 517	SBKR0250L 549
	Sample					SBKR0225L 502CS 120111S010	SBKR0225L 502ES 120111S010	SBKR0225L 502GS 120111S010	SBKR0225L 502WR1S05 0814S005	SBKR0250L 508S 120711S010	SBKR0250L 509S 120711S010	SBKR0250L 510S 120711S010	SBKR0250L 517S 120711S007	SBKR0250L 549S 121813S004
	Depth					0.5 - 1 ft	0.5 - 1 ft	0.5 - 1 ft	0 - 0.5 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 0.7 ft	0 - 0.4 ft
	Dissolved / Total					SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Hexachloroethane	ug/l	7.3	6.7(X)	27000	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Isopropyl benzene	ug/l	800	28ID	56000(S)	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
m&p-Xylene	ug/l	(J)	(J)	(J)	2	< 2.0	---	< 2.0	---	**2.2**	---	< 2.0	< 2.0	---
Methyl Iodide	ug/l	NCE	NCE	NCE	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Methylene chloride	ug/l	5(A)	1500(X)	220000	5	**5.3**	---	< 5.0	---	**8.4**	---	**5.3**	< 5.0	---
Methyl-tert-butyl ether (MTBE)	ug/l	40(E)	7100(X)	4.7e+007(S)	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
Naphthalene	ug/l	520	11	31000(S)	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
n-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
n-Propylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
o-Xylene	ug/l	(J)	(J)	(J)	1	**1.1**	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
p-Isopropyl toluene (p-Cymene)	ug/l	NCE	NCE	NCE	5	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	---
sec-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Styrene	ug/l	100(A)	80(X)	170000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
t-Amyl methyl ether (TAME)	ug/l	190(E)	NA	260000	5	< 5.0	---	< 5.0	---	< 5.0	---	< 5.0	< 5.0	---
t-Butyl alcohol	ug/l	3900	NA	1e+009(D,S)	50	< 50	---	< 50	---	< 50	---	< 50	< 50	---
t-Butylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Tetrachloroethylene	ug/l	5(A)	60(X)	25000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Tetrahydrofuran	ug/l	95	11000(X)	6.9e+006	90	< 10	---	< 10	---	< 10	---	< 10	< 10	---
Toluene	ug/l	790(I)(E)	270(I)	530000(I)(S)	1	**3.3**	---	**23**	---	< 1.0	---	< 1.0	**3.0**	---
Total BTEX	ug/l	NCE	NCE	NCE		**3.3**	---	**23**	---	**1.4**	---	< 1.0	**4.1**	---
trans-1,2-Dichloroethylene	ug/l	100(A)	1500(X)	85000	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Trichloroethylene	ug/l	5(A)	200(X)	2200	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Trichlorofluoromethane	ug/l	2600	NA	1.1e+006(S)	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Vinyl chloride	ug/l	2(A)	13(X)	1100	1	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	---
Xylenes	ug/l	280(I)(E)	41(I)	190000(I)(S)	3	**1.1**	---	< 2.0	---	**2.2**	---	< 2.0	< 2.0	---

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/18/2013 3:35 PM	12/18/2013 3:57 PM	12/18/2013 4:02 PM	12/18/2013 4:41 PM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	4/14/2014 1:30 PM	4/14/2014 2:55 PM	4/15/2014 11:10 AM	4/15/2014 1:15 PM	10/30/2014 9:53 AM	10/30/2014 10:00 AM	11/3/2014 7:55 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0300I5 08	SBKR0300I5 09	SBKR0300I5 10	SBKR0300I5 11	SBKR0800R 507	SBKR0800R 507	SBKR0825R 504
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 121813S005	SBKR0250L 550S 121813S014	SBKR0250L 560S 121813S016	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0300I 508S 041414S003	SBKR0300I 509S 041414S003	SBKR0300I 510S 041514S003	SBKR0300I 511S 041514S005	SBKR0800R 507S 103014S004	SBKR0800R 507S 103014S016	SBKR0825R 504S 110314S004
	Depth	0.75 - 1 ft	0 - 0.5 ft	0.7 - 1.4 ft	1.2 - 1.6 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.3 ft	0 - 0.25 ft	0 - 0.3 ft	0 - 0.45 ft	0 - 0.4 ft	0.9 - 1.6 ft	0 - 0.4 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals																
Molybdenum	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vanadium	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PNA																
2-Methylnaphthalene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)anthracene	ug/l	< 1.2	< 1.4	< 1.2	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	ug/l	< 1.2	< 1.4	< 1.2	---	---	< 1.7	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	ug/l	< 1.2	< 1.4	< 1.2	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	ug/l	< 1.2	< 1.4	< 1.2	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	ug/l	< 1.2	< 1.4	< 1.2	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene	ug/l	< 1.2	< 1.4	< 1.2	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzo(a,h)anthracene	ug/l	< 2.5	< 2.9	< 2.5	---	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	ug/l	< 1.2	< 1.4	< 1.2	---	< 1.4	< 1.7	< 1.0	< 1.0	---	---	---	---	---	---	---
Fluorene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.5	< 2.9	< 2.5	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	ug/l	< 2.5	< 2.9	< 2.5	< 2.9	---	---	< 2.0	---	---	---	---	---	---	---	---
Pyrene	ug/l	< 6.2	< 7.1	< 6.2	---	---	---	---	---	---	---	---	---	---	---	---
VOC																
1,1,1,2-Tetrachloroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	---	---	---	**6.5**	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	**12**
1,2,4-Trichlorobenzene	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	---	---	---	**15**	---	---	---	---	**3.4**	**1.0**	< 1.0	< 1.0	< 1.0	< 1.0	**26**
1,2-Dichlorobenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/18/2013 3:35 PM	12/18/2013 3:57 PM	12/18/2013 4:02 PM	12/18/2013 4:41 PM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	4/14/2014 1:30 PM	4/14/2014 2:55 PM	4/15/2014 11:10 AM	4/15/2014 1:15 PM	10/30/2014 9:53 AM	10/30/2014 10:00 AM	11/3/2014 7:55 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0300I5 08	SBKR0300I5 09	SBKR0300I5 10	SBKR0300I5 11	SBKR0800R 507	SBKR0800R 507	SBKR0825R 504
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 121813S005	SBKR0250L 550S 121813S014	SBKR0250L 560S 121813S016	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0300I 508S 041414S003	SBKR0300I 509S 041414S003	SBKR0300I 510S 041514S003	SBKR0300I 511S 041514S005	SBKR0800R 507S 103014S004	SBKR0800R 507S 103014S016	SBKR0825R 504S 110314S004
	Depth	0.75 - 1 ft	0 - 0.5 ft	0.7 - 1.4 ft	1.2 - 1.6 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.3 ft	0 - 0.25 ft	0 - 0.3 ft	0 - 0.45 ft	0 - 0.4 ft	0.9 - 1.6 ft	0 - 0.4 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloropropane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	---	---	---	**6.8**	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**8.5**
1,3-Dichlorobenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	---	---	---	< 25	---	---	---	---	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	---	---	---	< 50	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	---	---	---	**9.6**	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	**5.7**
4-Methyl-2-pentanone (MIBK)	ug/l	---	---	---	< 50	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	---	---	---	< 50	---	---	---	---	< 50	**56**	< 50	**260**	**130**	< 50	**93**
Acrylonitrile	ug/l	---	---	---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	**1.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	---	---	---	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	---	---	---	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	---	---	---	< 10	---	---	---	---	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	---	---	---	**1.4**	---	---	---	---	**2.0**	**2.4**	< 1.0	< 1.0	< 1.0	< 1.0	**2.1**
Ethylene dibromide	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/18/2013 3:35 PM	12/18/2013 3:57 PM	12/18/2013 4:02 PM	12/18/2013 4:41 PM	12/5/2013 10:48 AM	12/18/2013 4:55 PM	12/10/2013 3:40 PM	12/10/2013 3:47 PM	4/14/2014 1:30 PM	4/14/2014 2:55 PM	4/15/2014 11:10 AM	4/15/2014 1:15 PM	10/30/2014 9:53 AM	10/30/2014 10:00 AM	11/3/2014 7:55 AM
	Location	SBKR0250L 549	SBKR0250L 550	SBKR0250L 550	SBKR0250L 560	SBKR0250L 566	SBKR0250L 566	SBKR0250L 567	SBKR0250L 567	SBKR0300I5 08	SBKR0300I5 09	SBKR0300I5 10	SBKR0300I5 11	SBKR0800R 507	SBKR0800R 507	SBKR0825R 504
	Sample	SBKR0250L 549S 121813S010	SBKR0250L 550S 121813S005	SBKR0250L 550S 121813S014	SBKR0250L 560S 121813S016	SBKR0250L 566S 120513S003	SBKR0250L 566S 121813S003	SBKR0250L 567S 121013S005	SBKR0250L 567S 121013S012	SBKR0300I 508S 041414S003	SBKR0300I 509S 041414S003	SBKR0300I 510S 041514S003	SBKR0300I 511S 041514S005	SBKR0800R 507S 103014S004	SBKR0800R 507S 103014S016	SBKR0825R 504S 110314S004
	Depth	0.75 - 1 ft	0 - 0.5 ft	0.7 - 1.4 ft	1.2 - 1.6 ft	0 - 0.3 ft	0 - 0.3 ft	0 - 0.5 ft	0.7 - 1.2 ft	0 - 0.3 ft	0 - 0.25 ft	0 - 0.3 ft	0 - 0.45 ft	0 - 0.4 ft	0.9 - 1.6 ft	0 - 0.4 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Hexachloroethane	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	---	---	---	**3.6**	---	---	---	---	**7.4**	**13**	**2.9**	< 2.0	< 2.0	< 2.0	**8.6**
Methyl Iodide	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	---	---	---	**12**	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**4.4**
n-Propylbenzene	ug/l	---	---	---	**2.0**	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**
o-Xylene	ug/l	---	---	---	**2.2**	---	---	---	---	**3.9**	**5.0**	**1.1**	< 1.0	< 1.0	< 1.0	**4.3**
p-Isopropyl toluene (p-Cymene)	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	---	---	---	< 5.0	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	---	---	---	< 50	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	---	---	---	< 90	---	---	---	---	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	---	---	---	< 1.0	---	---	---	---	**6.5**	**27**	**4.6**	**2.2**	**1.5**	< 1.0	**13**
Total BTEX	ug/l	---	---	---	**1.4**	---	---	---	---	**8.5**	**31**	**4.6**	**2.2**	---	---	---
trans-1,2-Dichloroethylene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	---	---	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	---	---	---	**5.8**	---	---	---	---	**11**	**18**	**4.0**	< 2.0	< 2.0	< 2.0	**13**

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/3/2014 8:00 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/29/2011 12:00 PM	12/1/2011 11:00 AM	7/23/2014 10:20 AM	7/23/2014 10:30 AM	7/23/2014 10:37 AM	11/11/2014 7:35 AM	11/11/2014 7:45 AM	7/24/2014 1:20 PM	7/24/2014 1:26 PM	8/6/2014 2:25 PM	6/7/2012 9:15 AM	11/28/2011 3:55 PM
	Location	SBKR0825R 504	SBKR0897I0 01	SBKR0897I0 02	SBKR0897I0 13	SBKR0897I0 27	SBKR0900I5 07	SBKR0900I5 07	SBKR0900I5 07	SBKR0900I5 10	SBKR0900I5 10	SBKR0950L 512	SBKR0950L 512	SBKR0975I5 03	SBKR1150L 538	SBKR1256L 011
	Sample	SBKR0825R 504S 110314S014	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 013S 112911S005	SBKR0897I 027S 120111S009	SBKR0900I 507S 072314S006	SBKR0900I 507S 072314S016	SBKR0900I 507S 072314S029	SBKR0900I 510S 111114S005	SBKR0900I 510S 111114S018	SBKR0950L 512S 072414S005	SBKR0950L 512S 072414S012	SBKR0975I 503S 080614S005	SBKR1150L 538S 060712S005	SBKR1256L 011S 112811S009
	Depth	1 - 1.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.4 - 0.9 ft	0 - 0.6 ft	0.7 - 1.55 ft	1.55 - 2.9 ft	0 - 0.5 ft	1 - 1.8 ft	0 - 0.5 ft	0.6 - 1.2 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals																
Molybdenum	mg/l	< 0.0050	---	< 0.0050	< 0.0050	---	---	---	---	---	---	---	---	---	< 0.0050	---
Vanadium	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PNA																
2-Methylnaphthalene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
Acenaphthene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
Acenaphthylene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
Anthracene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
Benzo(a)anthracene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Benzo(a)pyrene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Benzo(b)fluoranthene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Benzo(g,h,i)perylene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Benzo(k)fluoranthene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Chrysene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Dibenzo(a,h)anthracene	ug/l	---	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0	< 2.0	< 2.9	< 2.4
Fluoranthene	ug/l	---	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.4	< 1.2
Fluorene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
Indeno(1,2,3-c,d)pyrene	ug/l	---	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0	< 2.0	< 2.9	< 2.4
Naphthalene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
Phenanthrene	ug/l	---	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0	< 2.0	< 2.9	< 2.4
Pyrene	ug/l	---	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 7.1	< 6.1
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,2,3-Trimethylbenzene	ug/l	< 5.0	---	---	---	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	**6.8**	---	---	---
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	**5.1**	---	< 1.0	< 1.0	**1.3**	**11**	---	---	---
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	**1.2**	---	---	---
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/3/2014 8:00 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/29/2011 12:00 PM	12/1/2011 11:00 AM	7/23/2014 10:20 AM	7/23/2014 10:30 AM	7/23/2014 10:37 AM	11/11/2014 7:35 AM	11/11/2014 7:45 AM	7/24/2014 1:20 PM	7/24/2014 1:26 PM	8/6/2014 2:25 PM	6/7/2012 9:15 AM	11/28/2011 3:55 PM
	Location	SBKR0825R 504	SBKR0897I0 01	SBKR0897I0 02	SBKR0897I0 13	SBKR0897I0 27	SBKR0900I5 07	SBKR0900I5 07	SBKR0900I5 07	SBKR0900I5 10	SBKR0900I5 10	SBKR0950L 512	SBKR0950L 512	SBKR0975I5 03	SBKR1150L 538	SBKR1256L 011
	Sample	SBKR0825R 504S 110314S014	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 013S 112911S005	SBKR0897I 027S 120111S009	SBKR0900I 507S 072314S006	SBKR0900I 507S 072314S016	SBKR0900I 507S 072314S029	SBKR0900I 510S 111114S005	SBKR0900I 510S 111114S018	SBKR0950L 512S 072414S005	SBKR0950L 512S 072414S012	SBKR0975I 503S 080614S005	SBKR1150L 538S 060712S005	SBKR1256L 011S 112811S009
	Depth	1 - 1.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.4 - 0.9 ft	0 - 0.6 ft	0.7 - 1.55 ft	1.55 - 2.9 ft	0 - 0.5 ft	1 - 1.8 ft	0 - 0.5 ft	0.6 - 1.2 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	**2.0**	---	< 1.0	< 1.0	< 1.0	**1.8**	---	---	---
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,4-Dichloro-2-butene, trans	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
2-Butanone (MEK)	ug/l	< 25	< 5.0	< 5.0	---	< 5.0	< 25	< 25	---	< 25	< 25	< 25	< 25	---	---	---
2-Hexanone	ug/l	< 50	< 5.0	< 5.0	---	< 5.0	< 50	< 50	---	< 50	< 50	< 50	< 50	---	---	---
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	**6.4**	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 5.0	< 5.0	---	< 5.0	< 50	< 50	---	< 50	< 50	< 50	< 50	---	---	---
Acetone	ug/l	< 50	< 20	< 20	---	< 20	**2900**	**71**	---	< 50	**93**	< 50	**2200**	---	---	---
Acrylonitrile	ug/l	< 2.0	< 1.0	< 1.0	---	< 1.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---
Benzene	ug/l	< 1.0	< 1.0	< 1.0	---	**1.4**	**5.0**	**1.1**	---	< 1.0	< 1.0	**5.8**	**11**	---	---	---
Bromobenzene	ug/l	< 1.0	---	---	---	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	---	**8.2**	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Bromomethane	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Carbon disulfide	ug/l	< 5.0	< 2.5	< 2.5	---	< 2.5	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Chloroethane	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Chloromethane	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Dibromochloromethane	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Dibromomethane	ug/l	< 5.0	---	---	---	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Dichlorodifluoromethane	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Diethyl ether	ug/l	< 10	< 10	< 10	---	< 10	< 10	< 10	---	< 10	< 10	< 10	< 10	---	---	---
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	**2.0**	**1.4**	---	< 1.0	< 1.0	**4.1**	**11**	---	---	---
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/3/2014 8:00 AM	11/28/2011 11:15 AM	11/28/2011 11:45 AM	11/29/2011 12:00 PM	12/1/2011 11:00 AM	7/23/2014 10:20 AM	7/23/2014 10:30 AM	7/23/2014 10:37 AM	11/11/2014 7:35 AM	11/11/2014 7:45 AM	7/24/2014 1:20 PM	7/24/2014 1:26 PM	8/6/2014 2:25 PM	6/7/2012 9:15 AM	11/28/2011 3:55 PM
	Location	SBKR0825R 504	SBKR0897I0 01	SBKR0897I0 02	SBKR0897I0 13	SBKR0897I0 27	SBKR0900I5 07	SBKR0900I5 07	SBKR0900I5 07	SBKR0900I5 10	SBKR0900I5 10	SBKR0950L 512	SBKR0950L 512	SBKR0975I5 03	SBKR1150L 538	SBKR1256L 011
	Sample	SBKR0825R 504S 110314S014	SBKR0897I 001S 112811S005	SBKR0897I 002S 112811S005	SBKR0897I 013S 112911S005	SBKR0897I 027S 120111S009	SBKR0900I 507S 072314S006	SBKR0900I 507S 072314S016	SBKR0900I 507S 072314S029	SBKR0900I 510S 111114S005	SBKR0900I 510S 111114S018	SBKR0950L 512S 072414S005	SBKR0950L 512S 072414S012	SBKR0975I 503S 080614S005	SBKR1150L 538S 060712S005	SBKR1256L 011S 112811S009
	Depth	1 - 1.4 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0.4 - 0.9 ft	0 - 0.6 ft	0.7 - 1.55 ft	1.55 - 2.9 ft	0 - 0.5 ft	1 - 1.8 ft	0 - 0.5 ft	0.6 - 1.2 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.9 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Hexachloroethane	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Isopropyl benzene	ug/l	< 5.0	< 1.0	< 1.0	---	< 1.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	---	< 2.0	**5.2**	**4.8**	---	< 2.0	< 2.0	**9.8**	**27**	---	---	---
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	**7.4**	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	**5.0**	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	**1.4**	---	---	---
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	**2.2**	**2.3**	---	< 1.0	< 1.0	**4.8**	**17**	---	---	---
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 2.0	< 2.0	---	< 2.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Styrene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	---
t-Butyl alcohol	ug/l	< 50	< 50	< 50	---	< 50	< 50	< 50	---	< 50	< 50	< 50	< 50	---	---	---
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Tetrahydrofuran	ug/l	< 90	< 10	< 10	---	< 10	< 90	< 90	---	< 90	< 90	< 90	< 90	---	---	---
Toluene	ug/l	< 1.0	< 1.0	< 1.0	---	**26**	**14**	**4.6**	---	< 1.0	< 1.0	**30**	**47**	---	---	---
Total BTEX	ug/l	---	---	---	---	---	**21**	**7.1**	---	---	---	**40**	**69**	---	---	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	---	---	**7.4**	**7.1**	---	< 2.0	< 2.0	**15**	**44**	---	---	---

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/28/2011 3:50 PM	5/7/2013 2:25 PM	4/2/2013 11:12 AM	11/12/2013 10:32 AM	4/3/2014 9:18 AM	2/5/2014 11:25 AM	2/17/2014 2:05 PM	10/7/2011 10:05 AM
	Location	SBKR1497I013	SBKR2225L503	SBKR2900L506	SBSA0025R525	SBTC0050R504	SBTC0075L514	SBTC0075R509R1	SBTC0175R073
	Sample	SBKR1497I 013S 112811S005	SBKR2225L 503S 050713S033	SBKR2900L 506S 040213S034	SBSA0025R 525S111213 S021	SBTC0050R 504S 040314S005	SBTC0075L 514S 020514S003	SBTC0075R 509R1S 021714S007	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	2.7 - 3.3 ft	2.9 - 3.35 ft	1.9 - 2.1 ft	0.25 - 0.5 ft	0 - 0.3 ft	0.5 - 0.7 ft	0 - 1 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result
Metals									
Molybdenum	mg/l	< 0.0050	---	---	---	< 0.0050	< 0.0050	< 0.0050	---
Vanadium	mg/l	---	---	---	---	---	---	---	---
PNA									
2-Methylnaphthalene	ug/l	< 6.2	---	---	---	---	---	---	---
Acenaphthene	ug/l	< 6.2	---	---	---	---	---	---	---
Acenaphthylene	ug/l	< 6.2	---	---	---	---	---	---	---
Anthracene	ug/l	< 6.2	---	---	---	---	---	---	---
Benzo(a)anthracene	ug/l	< 1.2	---	---	---	---	---	---	---
Benzo(a)pyrene	ug/l	< 1.2	---	---	---	---	---	---	---
Benzo(b)fluoranthene	ug/l	< 1.2	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	ug/l	< 1.2	---	---	---	---	---	---	---
Benzo(k)fluoranthene	ug/l	< 1.2	---	---	---	---	---	---	---
Chrysene	ug/l	< 1.2	---	---	---	---	---	---	---
Dibenzo(a,h)anthracene	ug/l	< 2.5	---	---	---	---	---	---	---
Fluoranthene	ug/l	< 1.2	**1.2**	< 1.4	---	---	---	---	---
Fluorene	ug/l	< 6.2	---	---	---	---	---	---	---
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.5	---	---	---	---	---	---	---
Naphthalene	ug/l	< 6.2	< 5.6	< 7.1	---	---	---	---	---
Phenanthrene	ug/l	< 2.5	**2.4**	< 2.9	---	---	---	---	---
Pyrene	ug/l	< 6.2	---	---	---	---	---	---	---
VOC									
1,1,1,2-Tetrachloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
1,2,3-Trichloropropane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	---
1,2,4-Trichlorobenzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
1,2,4-Trimethylbenzene	ug/l	---	---	---	**43**	**3.1**	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/28/2011 3:50 PM	5/7/2013 2:25 PM	4/2/2013 11:12 AM	11/12/2013 10:32 AM	4/3/2014 9:18 AM	2/5/2014 11:25 AM	2/17/2014 2:05 PM	10/7/2011 10:05 AM
	Location	SBKR1497I013	SBKR2225L503	SBKR2900L506	SBSA0025R525	SBTC0050R504	SBTC0075L514	SBTC0075R509R1	SBTC0175R073
	Sample	SBKR1497I 013S 112811S005	SBKR2225L 503S 050713S033	SBKR2900L 506S 040213S034	SBSA0025R 525S111213S021	SBTC0050R 504S 040314S005	SBTC0075L 514S 020514S003	SBTC0075R 509R1S 021714S007	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	2.7 - 3.3 ft	2.9 - 3.35 ft	1.9 - 2.1 ft	0.25 - 0.5 ft	0 - 0.3 ft	0.5 - 0.7 ft	0 - 1 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result
1,2-Dichloropropane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	---	---	---	---	< 25	< 25	< 25	< 5.0
2-Hexanone	ug/l	---	---	---	---	< 50	< 50	< 50	< 5.0
2-Methylnaphthalene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	---	---	---	---	< 50	< 50	< 50	< 5.0
Acetone	ug/l	---	---	---	---	**71**	< 50	< 50	< 20
Acrylonitrile	ug/l	---	---	---	---	< 2.0	< 2.0	< 2.0	< 1.0
Benzene	ug/l	---	---	---	**22**	< 1.0	< 1.0	< 1.0	**1.4**
Bromobenzene	ug/l	---	---	---	---	< 1.0	---	< 1.0	---
Bromochloromethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
Carbon disulfide	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 2.5
Carbon tetrachloride	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	**2.2**
Chloroethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
Chloroform	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
cis-1,2-Dichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
Dibromochloropropane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	---	---	---	---	< 5.0	---	< 5.0	---
Dichlorodifluoromethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
Diethyl ether	ug/l	---	---	---	---	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	---	---	---	**33**	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0

Table 10. Spill Area Wide NAPL Indicators - SPLP Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/28/2011 3:50 PM	5/7/2013 2:25 PM	4/2/2013 11:12 AM	11/12/2013 10:32 AM	4/3/2014 9:18 AM	2/5/2014 11:25 AM	2/17/2014 2:05 PM	10/7/2011 10:05 AM
	Location	SBKR1497I013	SBKR2225L503	SBKR2900L506	SBSA0025R525	SBTC0050R504	SBTC0075L514	SBTC0075R509R1	SBTC0175R073
	Sample	SBKR1497I 013S 112811S005	SBKR2225L 503S 050713S033	SBKR2900L 506S 040213S034	SBSA0025R 525S111213 S021	SBTC0050R 504S 040314S005	SBTC0075L 514S 020514S003	SBTC0075R 509R1S 021714S007	SBTC0175R 073S 100711S010
	Depth	0 - 0.5 ft	2.7 - 3.3 ft	2.9 - 3.35 ft	1.9 - 2.1 ft	0.25 - 0.5 ft	0 - 0.3 ft	0.5 - 0.7 ft	0 - 1 ft
	Dissolved / Total	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP	SPLP
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result
Hexachloroethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
Isopropyl benzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 1.0
m&p-Xylene	ug/l	---	---	---	**170**	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	---
Methyl-tert-butyl ether (MTBE)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	---	---	---	**60**	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 2.0
sec-Butylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	---	---	---	---	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	---	---	---	---	< 90	< 90	< 90	< 10
Toluene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	**4.4**
Total BTEX	ug/l	---	---	---	**290**	---	---	---	---
trans-1,2-Dichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	---	---	---	**230**	< 2.0	< 2.0	< 2.0	< 2.0

Soil SPLP Footnotes:
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects new criteria rules, numbered from 299.1 to 299.50 which became effective on December 30, 2013.
Bold values are concentrations detected above the reporting limit.
Shaded values exceed Part 201 Generic Residential Cleanup Criteria.
Shaded values indicate that the laboratory Reporting Limit value exceeds Part 201 Generic Residential Cleanup Criteria.
(A) = Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(D) = Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(E) = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value provided in a table available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(M) = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(S) = Criterion defaults to the hazardous substance-specific water solubility limit.
(W) = Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(AA) = Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses.
--- = not completed/not analyzed.
ft = feet.
ID = insufficient data to develop criterion.
mg/l = milligram per liter.
NA = a criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NCE = no criteria established.
NLV = hazardous substance is not likely to volatilize under most conditions.
PNA = polynuclear aromatic hydrocarbon.

SPLP = synthetic precipitation leaching procedure.
ug/l = micrograms per liter.
VOC = volatile organic compound.

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	4/11/2014 2:15 PM	6/16/2014 2:10 PM	9/15/2014 3:50 PM	12/3/2014 10:55 AM	12/16/2013 11:03 AM	2/7/2014 11:25 AM	4/3/2014 10:55 AM	6/19/2014 3:00 PM	9/22/2014 12:50 PM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514
	Sample					MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWKR0250L 560S 091514GX	MWKR0250L 560S 120314GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R514S092214GX
	Depth													
	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Field														
Depth to Water	ft	NCE	NCE	NCE	NCE	**3.48**	**4.25**	**4.28**	**4.16**	**5.72**	**5.24**	**4.36**	**5.39**	**6.25**
Dissolved Oxygen	mg/l	NCE	NCE	NCE	NCE	**0.45**	**0.80**	**0.79**	**1.67**	**0.20**	**0.36**	**0.34**	**0.06**	**0.08**
Oxidation Reduction Potential	millivolts	NCE	NCE	NCE	NCE	**68.4**	**76.9**	**94.2**	**161.5**	**57.5**	-148.9	**219**	-52.1	-39.4
pH	su	8.5(E)	9	ID	NCE	**7.00**	**7.12**	**7.03**	**6.95**	**6.65**	**6.78**	**6.78**	**6.59**	**6.47**
Specific Conductance	mS/cm	NCE	NCE	NCE	NCE	**0.721**	**0.67**	**0.69**	**0.696**	**0.95**	**0.76**	**0.72**	**0.99**	**0.85**
Specific Conductance	uS/cm	NCE	NCE	NCE	NCE	---	---	---	---	---	---	---	---	---
Temperature	deg c	NCE	NCE	NCE	NCE	**8.40**	**15.4**	**14.3**	**5.5**	**2.9**	**3.08**	**2.71**	**18.7**	**19.1**
Turbidity	ntu	NCE	NCE	NCE	NCE	**5.73**	**0.61**	**1.03**	**2.41**	**11.5**	**14.6**	**8.20**	**6.72**	**2.86**
Metals														
Beryllium	mg/l	0.004(A)	0.02(G)	NLV	0.001	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	0.073(B)	3.2(B)(X)	(B)NLV	0.05	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	0.1(B)(A)	0.11(B)(G)	(B)NLV	0.02	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	0.0045	0.027	NLV	0.004	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	**0.0047**
PNA														
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	1300	38	4200(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	52	ID	3900(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	43(S)	ID	43(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	2.1(Q)	(Q)ID	(Q)NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	5(Q)(A)	(Q)ID	(Q)NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	1.5(Q)(S,AA)	(Q)ID	(Q)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	1(M);0.26(S)	ID	NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	1(Q)(M);0.8(S)	(Q)NA	(Q)NLV	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	1.6(Q)(S)	(Q)ID	(Q)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	2(Q)(M);0.21	(Q)ID	(Q)NLV	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	210(S)	1.6	210(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	880	12	2000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	2(Q)(M);0.022(S)	(Q)ID	(Q)NLV	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	520	11	31000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	52	2(M);1.4	1000(S)	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	140(S)	ID	140(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH														
Diesel Range Organics (C10-C20)	mg/l	NCE	NCE	NCE	0.1	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/l	NCE	NCE	NCE	0.1	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/l	NCE	NCE	NCE	0.5	---	---	---	---	---	---	---	---	---

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	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	4/11/2014 2:15 PM	6/16/2014 2:10 PM	9/15/2014 3:50 PM	12/3/2014 10:55 AM	12/16/2013 11:03 AM	2/7/2014 11:25 AM	4/3/2014 10:55 AM	6/19/2014 3:00 PM	9/22/2014 12:50 PM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514
	Sample					MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWKR0250L 560S 091514GX	MWKR0250L 560S 120314GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R514S092214GX
	Depth													
	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC														
1,1,1,2-Tetrachloroethane	ug/l	77	ID	15000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	200(A)	89	660000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	8.5	78(X)	12000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	170000(S)	32	170000(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	5(A)	330(X)	17000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	880	740	1e+006	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	7(I)(A)	130(I)	200(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	42	NA	8300	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	70(A)	99(X)	300000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	63(I)(E)	17(I)	56000(I)(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	600(A)	13	160000(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	5(I)(A)	360(I)(X)	9600(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	5(I)(A)	230(I)(X)	16000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	72(I)(E)	45(I)	61000(I)(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	6.6	28	18000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	NCE	NCE	NCE	1	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0
1,4-Dichlorobenzene	ug/l	75(A)	17	16000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	13000(I)	2200(I)	2.4e+008(I)(S)	25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	1000	ID	4.2e+006	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	260	19ID	25000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	1800(I)	(I)ID	2e+007(I)(S)	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	730(I)	1700(I)	1e+009(I)(D,S)	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	2.6(I)	2(I)(M);1.2	34000(I)	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	5(I)(A)	200(I)(X)	5600(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**5.2**
Bromobenzene	ug/l	18(I)	(I)NA	180000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0
Bromochloromethane	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	80(A,W)	ID	4800	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	80(A,W)	ID	470000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	10	35	4000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	800(I,R)	(I,R)ID	250000(I,R)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	5(A)	45(X)	370	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria				4/11/2014 2:15 PM	6/16/2014 2:10 PM	9/15/2014 3:50 PM	12/3/2014 10:55 AM	12/16/2013 11:03 AM	2/7/2014 11:25 AM	4/3/2014 10:55 AM	6/19/2014 3:00 PM	9/22/2014 12:50 PM
	Location					MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514
	Sample	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Target Detection Limits - Water	MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWKR0250L 560S 091514GX	MWKR0250L 560S 120314GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R514S092214GX
	Depth													
	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	100(I)(A)	25(I)	210000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	430	1100(X)	5.7e+006(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	80(A,W)	350(X)	28000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	260(I)	(I)ID	8600(I)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	70(A)	620	93000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	80(A,W)	ID	14000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	0.2(A)	ID	220(S)	0.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	80	NA	ID	5	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	1700	ID	220000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	10(E)	ID	6.1e+007(S)	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	30	ID	8000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	74(I)(E)	18(I)	110000(I)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	0.05(A)	5.7(X)	2400	0.05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	49(E)	ID	2.9e+006	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	7.3	6.7(X)	27000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	800	28ID	56000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	(J)	(J)	(J)	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	NCE	NCE	NCE	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	5(A)	1500(X)	220000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	40(E)	7100(X)	4.7e+007(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	520	11	31000(S)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	(J)	(J)	(J)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	NCE	NCE	NCE	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	80	ID	ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	100(A)	80(X)	170000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	190(E)	NA	260000	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	3900	NA	1e+009(D,S)	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	80(I)	(I)ID	(I)ID	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	5(A)	60(X)	25000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	95	11000(X)	6.9e+006	90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	790(I)(E)	270(I)	530000(I)(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	NCE	NCE	NCE		< 1.0	< 1.0	---	---	---	< 1.0	< 1.0	< 1.0	---
trans-1,2-Dichloroethylene	ug/l	100(A)	1500(X)	85000	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	Part 201 Generic Residential Cleanup Criteria			Target Detection Limits - Water	4/11/2014 2:15 PM	6/16/2014 2:10 PM	9/15/2014 3:50 PM	12/3/2014 10:55 AM	12/16/2013 11:03 AM	2/7/2014 11:25 AM	4/3/2014 10:55 AM	6/19/2014 3:00 PM	9/22/2014 12:50 PM
	Location	Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria		MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWKR0250L 560	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514	MWSA0025 R514
	Sample					MWKR0250L 560S 041114GX	MWKR0250L 560S 061614GX	MWKR0250L 560S 091514GX	MWKR0250L 560S 120314GX	MWSA0025 R514S121613GX	MWSA0025 R514S020714GX	MWSA0025 R514S040314GX	MWSA0025 R514S061914GX	MWSA0025 R514S092214GX
	Depth													
	Dissolved / Total					T	T	T	T	T	T	T	T	T
Analyte	Units					Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	5(A)	200(X)	2200	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	2600	NA	1.1e+006(S)	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	2(A)	13(X)	1100	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	280(I)(E)	41(I)	190000(I)(S)	3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/9/2014 2:00 PM	12/13/2013 3:42 PM	2/7/2014 1:45 PM	4/3/2014 4:00 PM	6/19/2014 1:30 PM	9/22/2014 2:55 PM	12/9/2014 2:55 PM	12/19/2013 10:10 AM	2/4/2014 12:40 PM	4/4/2014 11:55 AM	6/24/2014 2:40 PM	9/19/2014 10:25 AM	12/8/2014 12:55 PM	12/16/2013 2:50 PM	2/4/2014 2:45 PM
	Location	MWSA0025 R514	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R523	MWSA0025 R523
	Sample	MWSA0025 R514S120914GX	MWSA0025 R516S121313GX	MWSA0025 R516S020714GX	MWSA0025 R516S040314GX	MWSA0025 R516S061914GX	MWSA0025 R516S092214GX	MWSA0025 R516S120914GX	MWSA0025 R520S121913GX	MWSA0025 R520S020414GX	MWSA0025 R520S040414GX	MWSA0025 R520S062414GX	MWSA0025 R520S091914GX	MWSA0025 R520S120814GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**5.95**	**5.79**	**5.49**	**4.44**	**5.49**	**6.30**	**5.99**	**3.74**	**3.04**	**2.80**	**3.10**	**6.26**	**3.51**	**4.60**	**4.24**
Dissolved Oxygen	mg/l	**1.01**	**0.30**	**0.19**	**0.16**	**0.05**	**0.15**	**0.57**	**0.26**	**0.25**	**0.25**	**0.08**	**0.18**	**0.65**	**0.13**	**0.23**
Oxidation Reduction Potential	millivolts	**83.5**	-112.8	-181.1	**180**	-105.6	-96.0	-69.7	**31.8**	-198.3	**171**	-128.4	**25.7**	-19.4	-54.4	-169.1
pH	su	**6.38**	**7.12**	**7.28**	**7.29**	**7.27**	**7.23**	**7.19**	**6.95**	**7.16**	**7.90**	**6.88**	**6.51**	**6.86**	**7.17**	**7.17**
Specific Conductance	mS/cm	**0.719**	**0.524**	**0.64**	**0.61**	**0.59**	**0.57**	**0.400**	**1.78**	**1.50**	**1.20**	**2.09**	**1.74**	**0.846**	**0.740**	**0.77**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**10.1**	**9.7**	**7.19**	**6.38**	**15.3**	**15.9**	**11.3**	**5.1**	**3.19**	**2.97**	**21.7**	**15.7**	**7.5**	**3.5**	**5.18**
Turbidity	ntu	**8.89**	**22.1**	**60.0**	**9.98**	**9.25**	**4.04**	**15.13**	**6.50**	**18.5**	**40.1**	**7.07**	**2.95**	**17.76**	**15.1**	**18.24**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	**0.0046**	< 0.0040	< 0.0040	**0.0045**	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	Date / Time Collected	12/9/2014 2:00 PM	12/13/2013 3:42 PM	2/7/2014 1:45 PM	4/3/2014 4:00 PM	6/19/2014 1:30 PM	9/22/2014 2:55 PM	12/9/2014 2:55 PM	12/19/2013 10:10 AM	2/4/2014 12:40 PM	4/4/2014 11:55 AM	6/24/2014 2:40 PM	9/19/2014 10:25 AM	12/8/2014 12:55 PM	12/16/2013 2:50 PM	2/4/2014 2:45 PM
	Location	MWSA0025 R514	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R523	MWSA0025 R523
	Sample	MWSA0025 R514S120914GX	MWSA0025 R516S121313GX	MWSA0025 R516S020714GX	MWSA0025 R516S040314GX	MWSA0025 R516S061914GX	MWSA0025 R516S092214GX	MWSA0025 R516S120914GX	MWSA0025 R520S121913GX	MWSA0025 R520S020414GX	MWSA0025 R520S040414GX	MWSA0025 R520S062414GX	MWSA0025 R520S091914GX	MWSA0025 R520S120814GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	**74**	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/9/2014 2:00 PM	12/13/2013 3:42 PM	2/7/2014 1:45 PM	4/3/2014 4:00 PM	6/19/2014 1:30 PM	9/22/2014 2:55 PM	12/9/2014 2:55 PM	12/19/2013 10:10 AM	2/4/2014 12:40 PM	4/4/2014 11:55 AM	6/24/2014 2:40 PM	9/19/2014 10:25 AM	12/8/2014 12:55 PM	12/16/2013 2:50 PM	2/4/2014 2:45 PM
	Location	MWSA0025 R514	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R523	MWSA0025 R523
	Sample	MWSA0025 R514S120914GX	MWSA0025 R516S121313GX	MWSA0025 R516S020714GX	MWSA0025 R516S040314GX	MWSA0025 R516S061914GX	MWSA0025 R516S092214GX	MWSA0025 R516S120914GX	MWSA0025 R520S121913GX	MWSA0025 R520S020414GX	MWSA0025 R520S040414GX	MWSA0025 R520S062414GX	MWSA0025 R520S091914GX	MWSA0025 R520S120814GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	---	< 1.0	< 1.0	< 1.0	---	---	---	< 1.0	< 1.0	< 1.0	---	---	---	< 1.0
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/9/2014 2:00 PM	12/13/2013 3:42 PM	2/7/2014 1:45 PM	4/3/2014 4:00 PM	6/19/2014 1:30 PM	9/22/2014 2:55 PM	12/9/2014 2:55 PM	12/19/2013 10:10 AM	2/4/2014 12:40 PM	4/4/2014 11:55 AM	6/24/2014 2:40 PM	9/19/2014 10:25 AM	12/8/2014 12:55 PM	12/16/2013 2:50 PM	2/4/2014 2:45 PM
	Location	MWSA0025 R514	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R516	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R520	MWSA0025 R523	MWSA0025 R523
	Sample	MWSA0025 R514S120914GX	MWSA0025 R516S121313GX	MWSA0025 R516S020714GX	MWSA0025 R516S040314GX	MWSA0025 R516S061914GX	MWSA0025 R516S092214GX	MWSA0025 R516S120914GX	MWSA0025 R520S121913GX	MWSA0025 R520S020414GX	MWSA0025 R520S040414GX	MWSA0025 R520S062414GX	MWSA0025 R520S091914GX	MWSA0025 R520S120814GX	MWSA0025 R523S121613GX	MWSA0025 R523S020414GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/4/2014 11:10 AM	6/23/2014 4:45 PM	9/23/2014 3:25 PM	12/10/2014 2:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	9/23/2014 4:30 PM	12/10/2014 12:05 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	9/19/2014 12:50 PM
	Location	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525
	Sample	MWSA0025 R523S04041 4GX	MWSA0025 R523S06231 4GX	MWSA0025 R523S09231 4GX	MWSA0025 R523S12101 4GX	MWSA0025 R524S12161 3GX	MWSA0025 R524S02041 4GX	MWSA0025 R524S04041 4GX	MWSA0025 R524S06231 4GX	MWSA0025 R524S09231 4GX	MWSA0025 R524S12101 4GX	MWSA0025 R525S12161 3GX	MWSA0025 R525S02061 4GX	MWSA0025 R525S04031 4GX	MWSA0025 R525S06181 4GX	MWSA0025 R525S09191 4GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**3.23**	**4.30**	**5.18**	**4.81**	**4.82**	**4.48**	**3.45**	**4.54**	**5.38**	**5.04**	**6.50**	**6.20**	**5.21**	**6.18**	**6.95**
Dissolved Oxygen	mg/l	**0.14**	**0.06**	**0.19**	**0.29**	**0.11**	**0.21**	**0.22**	**0.08**	**0.10**	**0.32**	**0.04**	**0.18**	**0.29**	**0.05**	**0.12**
Oxidation Reduction Potential	millivolts	-101.5	-96.4	-105.1	-52.8	-77.1	-192.5	-72.2	-93.3	-96.9	-87.5	-108.5	**270.3**	-91.7	-85.3	-78.4
pH	su	**7.27**	**7.10**	**7.13**	**7.05**	**7.08**	**6.96**	**7.16**	**7.16**	**7.14**	**7.09**	**7.03**	**7.10**	**7.07**	**7.08**	**7.08**
Specific Conductance	mS/cm	**0.595**	**0.61**	**0.50**	**0.416**	**0.574**	**0.66**	**0.565**	**0.54**	**0.49**	**0.322**	**0.534**	**0.56**	**0.522**	**0.54**	**0.553**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**6.2**	**19.9**	**17.6**	**8.0**	**6.5**	**6.67**	**6.8**	**18.9**	**16.5**	**9.1**	**5.5**	**4.76**	**2.90**	**20.7**	**18.9**
Turbidity	ntu	**6.1**	**9.02**	**0.63**	**27.00**	**20.2**	**4.27**	**3.60**	**7.74**	**5.08**	**8.63**	**19.7**	**16.45**	**9.03**	**8.08**	**7.07**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/4/2014 11:10 AM	6/23/2014 4:45 PM	9/23/2014 3:25 PM	12/10/2014 2:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	9/23/2014 4:30 PM	12/10/2014 12:05 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	9/19/2014 12:50 PM
	Location	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525
	Sample	MWSA0025 R523S040414GX	MWSA0025 R523S062314GX	MWSA0025 R523S092314GX	MWSA0025 R523S121014GX	MWSA0025 R524S121613GX	MWSA0025 R524S020414GX	MWSA0025 R524S040414GX	MWSA0025 R524S062314GX	MWSA0025 R524S092314GX	MWSA0025 R524S121014GX	MWSA0025 R525S121613GX	MWSA0025 R525S020614GX	MWSA0025 R525S040314GX	MWSA0025 R525S061814GX	MWSA0025 R525S091914GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**18**	**21**	**24**	**19**	**11**
Bromobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/4/2014 11:10 AM	6/23/2014 4:45 PM	9/23/2014 3:25 PM	12/10/2014 2:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	9/23/2014 4:30 PM	12/10/2014 12:05 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	9/19/2014 12:50 PM
	Location	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525
	Sample	MWSA0025 R523S040414GX	MWSA0025 R523S062314GX	MWSA0025 R523S092314GX	MWSA0025 R523S121014GX	MWSA0025 R524S121613GX	MWSA0025 R524S020414GX	MWSA0025 R524S040414GX	MWSA0025 R524S062314GX	MWSA0025 R524S092314GX	MWSA0025 R524S121014GX	MWSA0025 R525S121613GX	MWSA0025 R525S020614GX	MWSA0025 R525S040314GX	MWSA0025 R525S061814GX	MWSA0025 R525S091914GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.1**	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**3.2**	**2.5**	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**	**1.0**	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	< 1.0	< 1.0	---	---	---	< 1.0	< 1.0	< 1.0	---	---	---	**21**	**25**	**19**	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/4/2014 11:10 AM	6/23/2014 4:45 PM	9/23/2014 3:25 PM	12/10/2014 2:05 PM	12/16/2013 4:05 PM	2/4/2014 4:05 PM	4/4/2014 12:00 PM	6/23/2014 3:25 PM	9/23/2014 4:30 PM	12/10/2014 12:05 PM	12/16/2013 11:27 AM	2/6/2014 3:40 PM	4/3/2014 11:00 AM	6/18/2014 2:35 PM	9/19/2014 12:50 PM
	Location	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R523	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R524	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525	MWSA0025 R525
	Sample	MWSA0025 R523S04041 4GX	MWSA0025 R523S06231 4GX	MWSA0025 R523S09231 4GX	MWSA0025 R523S12101 4GX	MWSA0025 R524S12161 3GX	MWSA0025 R524S02041 4GX	MWSA0025 R524S04041 4GX	MWSA0025 R524S06231 4GX	MWSA0025 R524S09231 4GX	MWSA0025 R524S12101 4GX	MWSA0025 R525S12161 3GX	MWSA0025 R525S02061 4GX	MWSA0025 R525S04031 4GX	MWSA0025 R525S06181 4GX	MWSA0025 R525S09191 4GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	**4.5**	**3.5**	< 2.0	< 2.0

	Date / Time Collected	12/8/2014 2:35 PM	12/16/2013 1:02 PM	2/6/2014 2:36 PM	4/3/2014 12:05 PM	6/18/2014 12:55 PM	9/19/2014 1:45 PM	12/8/2014 4:10 PM	12/20/2013 10:50 AM	2/4/2014 10:10 AM	4/7/2014 5:00 PM	6/25/2014 5:30 PM	9/22/2014 11:20 AM	12/10/2014 9:20 AM	1/9/2014 3:05 PM	2/3/2014 1:10 PM
	Location	MWSA0025 R525	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R545	MWSA0025 R545
	Sample	MWSA0025 R525S120814GX	MWSA0025 R526S121613GX	MWSA0025 R526S020614GX	MWSA0025 R526S040314GX	MWSA0025 R526S061814GX	MWSA0025 R526S091914GX	MWSA0025 R526S120814GX	MWSA0025 R541S122013GX	MWSA0025 R541S020414GX	MWSA0025 R541S040714GX	MWSA0025 R541S062514GX	MWSA0025 R541S092214GX	MWSA0025 R541S121014GX	MWSA0025 R545S010914GX	MWSA0025 R545S020314GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**6.63**	**6.52**	**6.21**	**5.25**	**6.24**	**6.97**	**6.65**	**3.60**	**3.09**	**2.85**	**3.03**	**4.47**	**4.21**	**0.23**	**3.25**
Dissolved Oxygen	mg/l	**0.85**	**0.01**	**0.20**	**0.25**	**0.06**	**0.14**	**1.03**	**0.85**	**0.27**	**0.21**	**0.09**	**0.10**	**1.68**	**0.22**	**0.16**
Oxidation Reduction Potential	millivolts	**334.0**	-98.7	**291.9**	-95.7	-92.4	-94.1	**258.3**	-64.8	-98.5	-112.3	**113.1**	**12.0**	**195.2**	-118.9	-73.0
pH	su	**7.20**	**7.07**	**7.12**	**7.15**	**7.09**	**7.15**	**7.15**	**6.75**	**6.97**	**6.92**	**6.90**	**6.86**	**6.75**	**6.60**	**6.57**
Specific Conductance	mS/cm	**0.508**	**0.517**	**0.70**	**0.650**	**0.58**	**0.53**	**0.547**	**1.50**	**1.97**	**2.66**	**1.93**	**1.71**	**1.92**	**1.38**	**1.13**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**9.6**	**8.0**	**6.77**	**3.57**	**18.5**	**17.8**	**9.9**	**7.5**	**8.61**	**8.18**	**19.7**	**16.4**	**3.0**	**7.7**	**8.3**
Turbidity	ntu	**5.66**	**32.1**	**5.88**	**2.19**	**8.83**	**3.28**	**9.86**	**63.7**	**12.12**	**6.31**	**9.86**	**10.9**	**5.50**	**9.93**	**78.4**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.25**	**0.065**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	**0.023**	**0.051**	**0.025**	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	**0.0050**	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/8/2014 2:35 PM	12/16/2013 1:02 PM	2/6/2014 2:36 PM	4/3/2014 12:05 PM	6/18/2014 12:55 PM	9/19/2014 1:45 PM	12/8/2014 4:10 PM	12/20/2013 10:50 AM	2/4/2014 10:10 AM	4/7/2014 5:00 PM	6/25/2014 5:30 PM	9/22/2014 11:20 AM	12/10/2014 9:20 AM	1/9/2014 3:05 PM	2/3/2014 1:10 PM
	Location	MWSA0025 R525	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R545	MWSA0025 R545
	Sample	MWSA0025 R525S120814GX	MWSA0025 R526S121613GX	MWSA0025 R526S020614GX	MWSA0025 R526S040314GX	MWSA0025 R526S061814GX	MWSA0025 R526S091914GX	MWSA0025 R526S120814GX	MWSA0025 R541S122013GX	MWSA0025 R541S020414GX	MWSA0025 R541S040714GX	MWSA0025 R541S062514GX	MWSA0025 R541S092214GX	MWSA0025 R541S121014GX	MWSA0025 R545S010914GX	MWSA0025 R545S020314GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	**5.5**	< 1.0	**1.2**	**4.6**	**5.2**	**1.9**	**1.8**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/8/2014 2:35 PM	12/16/2013 1:02 PM	2/6/2014 2:36 PM	4/3/2014 12:05 PM	6/18/2014 12:55 PM	9/19/2014 1:45 PM	12/8/2014 4:10 PM	12/20/2013 10:50 AM	2/4/2014 10:10 AM	4/7/2014 5:00 PM	6/25/2014 5:30 PM	9/22/2014 11:20 AM	12/10/2014 9:20 AM	1/9/2014 3:05 PM	2/3/2014 1:10 PM
	Location	MWSA0025 R525	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R545	MWSA0025 R545
	Sample	MWSA0025 R525S120814GX	MWSA0025 R526S121613GX	MWSA0025 R526S020614GX	MWSA0025 R526S040314GX	MWSA0025 R526S061814GX	MWSA0025 R526S091914GX	MWSA0025 R526S120814GX	MWSA0025 R541S122013GX	MWSA0025 R541S020414GX	MWSA0025 R541S040714GX	MWSA0025 R541S062514GX	MWSA0025 R541S092214GX	MWSA0025 R541S121014GX	MWSA0025 R545S010914GX	MWSA0025 R545S020314GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	---	**1.2**	**4.6**	**5.2**	---	---	---	< 1.0	< 1.0	< 1.0	---	---	---	< 1.0
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/8/2014 2:35 PM	12/16/2013 1:02 PM	2/6/2014 2:36 PM	4/3/2014 12:05 PM	6/18/2014 12:55 PM	9/19/2014 1:45 PM	12/8/2014 4:10 PM	12/20/2013 10:50 AM	2/4/2014 10:10 AM	4/7/2014 5:00 PM	6/25/2014 5:30 PM	9/22/2014 11:20 AM	12/10/2014 9:20 AM	1/9/2014 3:05 PM	2/3/2014 1:10 PM
	Location	MWSA0025 R525	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R526	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R541	MWSA0025 R545	MWSA0025 R545
	Sample	MWSA0025 R525S120814GX	MWSA0025 R526S121613GX	MWSA0025 R526S020614GX	MWSA0025 R526S040314GX	MWSA0025 R526S061814GX	MWSA0025 R526S091914GX	MWSA0025 R526S120814GX	MWSA0025 R541S122013GX	MWSA0025 R541S020414GX	MWSA0025 R541S040714GX	MWSA0025 R541S062514GX	MWSA0025 R541S092214GX	MWSA0025 R541S121014GX	MWSA0025 R545S010914GX	MWSA0025 R545S020314GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/9/2014 12:55 PM	6/24/2014 1:20 PM	9/19/2014 3:40 PM	12/11/2014 2:15 PM	1/9/2014 10:15 AM	2/3/2014 10:50 AM	4/8/2014 5:10 PM	6/24/2014 12:40 PM	9/19/2014 2:00 PM	12/12/2014 10:35 AM	1/10/2014 9:50 AM	2/3/2014 2:00 PM	4/8/2014 12:00 PM	6/24/2014 2:40 PM	9/18/2014 4:45 PM
	Location	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550
	Sample	MWSA0025 R545S040914GX	MWSA0025 R545S062414GX	MWSA0025 R545S091914GX	MWSA0025 R545S121114GX	MWSA0025 R547S010914GX	MWSA0025 R547S020314GX	MWSA0025 R547S040814GX	MWSA0025 R547S062414GX	MWSA0025 R547S091914GX	MWSA0025 R547S121214GX	MWSA0025 R550S011014GX	MWSA0025 R550S020314GX	MWSA0025 R550S040814GX	MWSA0025 R550S062414GX	MWSA0025 R550S091814GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**3.36**	**3.19**	**4.21**	**3.59**	**1.05**	**4.00**	**3.63**	**3.43**	**6.35**	**3.92**	**2.85**	**2.60**	**3.50**	**2.91**	**4.05**
Dissolved Oxygen	mg/l	**0.22**	**0.11**	**0.11**	**0.97**	**0.66**	**0.37**	**0.17**	**0.13**	**0.10**	**1.58**	**0.50**	**0.11**	**0.19**	**0.15**	**0.21**
Oxidation Reduction Potential	millivolts	**228**	**71.5**	-3.2	**217.0**	-94.8	-147.2	-48.3	**35.5**	**0.9**	**132.7**	-76.8	-80.7	-59.2	**110.7**	**26.4**
pH	su	**6.37**	**6.57**	**6.62**	**6.58**	**6.86**	**6.84**	**6.77**	**6.59**	**6.49**	**6.50**	**6.33**	**6.73**	**6.65**	**6.54**	**6.50**
Specific Conductance	mS/cm	**1.14**	**1.12**	**1.02**	**0.755**	**3.07**	**3.19**	**3.58**	**2.73**	**1.98**	**1.97**	**0.98**	**0.84**	**0.91**	**0.78**	**0.94**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**11.24**	**17.4**	**19.2**	**5.5**	**1.5**	**2.4**	**10.44**	**20.1**	**22.3**	**3.4**	**4.6**	**7.7**	**11.1**	**22.6**	**22.5**
Turbidity	ntu	**9.98**	**7.07**	**2.39**	**7.98**	**50.2**	**56.1**	**9.81**	**8.95**	**8.95**	**9.45**	**59.6**	**7.93**	**10.1**	**6.28**	**6.49**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	**0.022**	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

	Date / Time Collected	4/9/2014 12:55 PM	6/24/2014 1:20 PM	9/19/2014 3:40 PM	12/11/2014 2:15 PM	1/9/2014 10:15 AM	2/3/2014 10:50 AM	4/8/2014 5:10 PM	6/24/2014 12:40 PM	9/19/2014 2:00 PM	12/12/2014 10:35 AM	1/10/2014 9:50 AM	2/3/2014 2:00 PM	4/8/2014 12:00 PM	6/24/2014 2:40 PM	9/18/2014 4:45 PM
	Location	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550
	Sample	MWSA0025 R545S040914GX	MWSA0025 R545S062414GX	MWSA0025 R545S091914GX	MWSA0025 R545S121114GX	MWSA0025 R547S010914GX	MWSA0025 R547S020314GX	MWSA0025 R547S040814GX	MWSA0025 R547S062414GX	MWSA0025 R547S091914GX	MWSA0025 R547S121214GX	MWSA0025 R550S011014GX	MWSA0025 R550S020314GX	MWSA0025 R550S040814GX	MWSA0025 R550S062414GX	MWSA0025 R550S091814GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/9/2014 12:55 PM	6/24/2014 1:20 PM	9/19/2014 3:40 PM	12/11/2014 2:15 PM	1/9/2014 10:15 AM	2/3/2014 10:50 AM	4/8/2014 5:10 PM	6/24/2014 12:40 PM	9/19/2014 2:00 PM	12/12/2014 10:35 AM	1/10/2014 9:50 AM	2/3/2014 2:00 PM	4/8/2014 12:00 PM	6/24/2014 2:40 PM	9/18/2014 4:45 PM
	Location	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550
	Sample	MWSA0025 R545S040914GX	MWSA0025 R545S062414GX	MWSA0025 R545S091914GX	MWSA0025 R545S121114GX	MWSA0025 R547S010914GX	MWSA0025 R547S020314GX	MWSA0025 R547S040814GX	MWSA0025 R547S062414GX	MWSA0025 R547S091914GX	MWSA0025 R547S121214GX	MWSA0025 R550S011014GX	MWSA0025 R550S020314GX	MWSA0025 R550S040814GX	MWSA0025 R550S062414GX	MWSA0025 R550S091814GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	< 1.0	< 1.0	---	---	---	< 1.0	< 1.0	< 1.0	---	---	---	< 1.0	< 1.0	< 1.0	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/9/2014 12:55 PM	6/24/2014 1:20 PM	9/19/2014 3:40 PM	12/11/2014 2:15 PM	1/9/2014 10:15 AM	2/3/2014 10:50 AM	4/8/2014 5:10 PM	6/24/2014 12:40 PM	9/19/2014 2:00 PM	12/12/2014 10:35 AM	1/10/2014 9:50 AM	2/3/2014 2:00 PM	4/8/2014 12:00 PM	6/24/2014 2:40 PM	9/18/2014 4:45 PM
	Location	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R545	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R547	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550	MWSA0025 R550
	Sample	MWSA0025 R545S04091 4GX	MWSA0025 R545S06241 4GX	MWSA0025 R545S09191 4GX	MWSA0025 R545S12111 4GX	MWSA0025 R547S01091 4GX	MWSA0025 R547S02031 4GX	MWSA0025 R547S04081 4GX	MWSA0025 R547S06241 4GX	MWSA0025 R547S09191 4GX	MWSA0025 R547S12121 4GX	MWSA0025 R550S01101 4GX	MWSA0025 R550S02031 4GX	MWSA0025 R550S04081 4GX	MWSA0025 R550S06241 4GX	MWSA0025 R550S09181 4GX
	Depth															
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/11/2014 4:20 PM	1/9/2014 11:55 AM	2/3/2014 4:10 PM	4/9/2014 3:10 PM	6/25/2014 3:35 PM	9/22/2014 1:25 PM	12/10/2014 12:20 PM	6/24/2014 3:10 PM	5/1/2014 9:45 AM	12/5/2011 11:50 AM	4/9/2013 10:55 AM	5/1/2014 10:55 AM	5/15/2014 2:07 PM	5/15/2014 3:22 PM	12/6/2011 2:10 PM
	Location	MWSA0025 R550	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	SBKR0000R 507	SBKR0225L 502AA	SBKR0225L 502C	SBKR0225L 502C	SBKR0225L 502WR1	SBKR0225L 502ZR1	SBKR0225L 502ZR1	SBKR0250I5 07
	Sample	MWSA0025 R550S12111 4GX	MWSA0025 R552S01091 4GX	MWSA0025 R552S02031 4GX	MWSA0025 R552S04091 4GX	MWSA0025 R552S06251 4GX	MWSA0025 R552S09221 4GX	MWSA0025 R552S12101 4GX	SBKR0000R 507S 062414G037	SBKR0225L 502AAS 050114G040	SBKR0225L 502CS 120511G031	SBKR0225L 502CS 040913G015	SBKR0225L 502WR1S05 0114G038	SBKR0225L 502ZR1S051 514G027	SBKR0225L 502ZR1S051 514G051	SBKR0250I 507S 120611G026
	Depth								0.5 - 3.7 ft	0.5 - 4 ft	2.07 - 3.07 ft	1 - 1.5 ft	0.5 - 3.8 ft	0.5 - 2.7 ft	0.5 - 5.1 ft	1.6 - 2.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**2.96**	**3.28**	**2.92**	**2.55**	**2.86**	**4.20**	**3.61**	**2.63**	**3.39**	---	**3.92**	**3.39**	**3.12**	**2.16**	**2.51**
Dissolved Oxygen	mg/l	**1.37**	**0.31**	**0.18**	**0.20**	**0.27**	**0.14**	**0.90**	**0.17**	**0.73**	---	**0.18**	**0.52**	**0.34**	**0.37**	**0.39**
Oxidation Reduction Potential	millivolts	**227.1**	-65.6	-45.8	-43.9	**121.6**	**126.1**	**164.3**	-101.9	-68.3	---	-76.7	-100.1	**134.2**	**153.9**	-86.8
pH	su	**6.46**	**6.81**	**6.81**	**6.86**	**6.72**	**6.72**	**6.71**	**7.14**	**6.93**	---	**6.89**	**6.99**	**7.30**	**7.25**	**7.06**
Specific Conductance	mS/cm	**0.786**	**1.01**	**1.29**	**3.71**	**1.41**	**1.17**	**1.06**	**2.16**	**0.98**	---	**1.21**	**1.09**	**0.91**	**0.90**	---
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**660**
Temperature	deg c	**3.2**	**7.1**	**7.2**	**11.5**	**17.1**	**19.3**	**4.4**	**20.0**	**8.8**	---	**5.7**	**8.5**	**9.8**	**8.2**	**7.39**
Turbidity	ntu	**5.52**	**66.5**	**47.1**	**9.5**	**5.28**	**9.93**	**9.59**	**4.47**	**6.56**	---	**3.63**	**8.83**	**5.93**	**4.23**	**7.90**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	---	< 0.0010	< 0.0010	---	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	---	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	**0.021**	**0.024**	**0.029**	**0.022**	< 0.020	**0.021**	< 0.020	---	< 0.020	< 0.020	---	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	---	< 0.0040	< 0.0040	---	< 0.0040	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	---	---	---	---	---	---	---	---	---	**1.1**	**0.39**	---	---	---	**0.14**
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	---	---	---	---	---	< 0.20	---	---	---	---	< 0.20
Oil Range Organics (C20-C34)	mg/l	---	---	---	---	---	---	---	---	---	**2.2**	**0.52**	---	---	---	**0.23**

	Date / Time Collected	12/11/2014 4:20 PM	1/9/2014 11:55 AM	2/3/2014 4:10 PM	4/9/2014 3:10 PM	6/25/2014 3:35 PM	9/22/2014 1:25 PM	12/10/2014 12:20 PM	6/24/2014 3:10 PM	5/1/2014 9:45 AM	12/5/2011 11:50 AM	4/9/2013 10:55 AM	5/1/2014 10:55 AM	5/15/2014 2:07 PM	5/15/2014 3:22 PM	12/6/2011 2:10 PM
	Location	MWSA0025 R550	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	SBKR0000R 507	SBKR0225L 502AA	SBKR0225L 502C	SBKR0225L 502C	SBKR0225L 502WR1	SBKR0225L 502ZR1	SBKR0225L 502ZR1	SBKR0250I5 07
	Sample	MWSA0025 R550S12111 4GX	MWSA0025 R552S01091 4GX	MWSA0025 R552S02031 4GX	MWSA0025 R552S04091 4GX	MWSA0025 R552S06251 4GX	MWSA0025 R552S09221 4GX	MWSA0025 R552S12101 4GX	SBKR0000R 507S 062414G037	SBKR0225L 502AAS 050114G040	SBKR0225L 502CS 120511G031	SBKR0225L 502CS 040913G015	SBKR0225L 502WR1S05 0114G038	SBKR0225L 502ZR1S051 514G027	SBKR0225L 502ZR1S051 514G051	SBKR0250I 507S 120611G026
	Depth								0.5 - 3.7 ft	0.5 - 4 ft	2.07 - 3.07 ft	1 - 1.5 ft	0.5 - 3.8 ft	0.5 - 2.7 ft	0.5 - 5.1 ft	1.6 - 2.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	< 5.0	< 5.0	< 5.0	---
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	**1.3**	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 2.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	---	< 25	< 25	---	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	< 1.0	< 1.0	< 1.0	---
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0

	Date / Time Collected	12/11/2014 4:20 PM	1/9/2014 11:55 AM	2/3/2014 4:10 PM	4/9/2014 3:10 PM	6/25/2014 3:35 PM	9/22/2014 1:25 PM	12/10/2014 12:20 PM	6/24/2014 3:10 PM	5/1/2014 9:45 AM	12/5/2011 11:50 AM	4/9/2013 10:55 AM	5/1/2014 10:55 AM	5/15/2014 2:07 PM	5/15/2014 3:22 PM	12/6/2011 2:10 PM
	Location	MWSA0025 R550	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	SBKR0000R 507	SBKR0225L 502AA	SBKR0225L 502C	SBKR0225L 502C	SBKR0225L 502WR1	SBKR0225L 502ZR1	SBKR0225L 502ZR1	SBKR0250I5 07
	Sample	MWSA0025 R550S12111 4GX	MWSA0025 R552S01091 4GX	MWSA0025 R552S02031 4GX	MWSA0025 R552S04091 4GX	MWSA0025 R552S06251 4GX	MWSA0025 R552S09221 4GX	MWSA0025 R552S12101 4GX	SBKR0000R 507S 062414G037	SBKR0225L 502AAS 050114G040	SBKR0225L 502CS 120511G031	SBKR0225L 502CS 040913G015	SBKR0225L 502WR1S05 0114G038	SBKR0225L 502ZR1S051 514G027	SBKR0225L 502ZR1S051 514G051	SBKR0250I 507S 120611G026
	Depth								0.5 - 3.7 ft	0.5 - 4 ft	2.07 - 3.07 ft	1 - 1.5 ft	0.5 - 3.8 ft	0.5 - 2.7 ft	0.5 - 5.1 ft	1.6 - 2.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	---	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	< 5.0	< 5.0	< 5.0	---
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	---	< 10	< 10	---	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	**1.2**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	---	< 90	< 90	---	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	---	< 1.0	< 1.0	< 1.0	---	---	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/11/2014 4:20 PM	1/9/2014 11:55 AM	2/3/2014 4:10 PM	4/9/2014 3:10 PM	6/25/2014 3:35 PM	9/22/2014 1:25 PM	12/10/2014 12:20 PM	6/24/2014 3:10 PM	5/1/2014 9:45 AM	12/5/2011 11:50 AM	4/9/2013 10:55 AM	5/1/2014 10:55 AM	5/15/2014 2:07 PM	5/15/2014 3:22 PM	12/6/2011 2:10 PM
	Location	MWSA0025 R550	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	MWSA0025 R552	SBKR0000R 507	SBKR0225L 502AA	SBKR0225L 502C	SBKR0225L 502C	SBKR0225L 502WR1	SBKR0225L 502ZR1	SBKR0225L 502ZR1	SBKR0250I5 07
	Sample	MWSA0025 R550S12111 4GX	MWSA0025 R552S01091 4GX	MWSA0025 R552S02031 4GX	MWSA0025 R552S04091 4GX	MWSA0025 R552S06251 4GX	MWSA0025 R552S09221 4GX	MWSA0025 R552S12101 4GX	SBKR0000R 507S 062414G037	SBKR0225L 502AAS 050114G040	SBKR0225L 502CS 120511G031	SBKR0225L 502CS 040913G015	SBKR0225L 502WR1S05 0114G038	SBKR0225L 502ZR1S051 514G027	SBKR0225L 502ZR1S051 514G051	SBKR0250I 507S 120611G026
	Depth								0.5 - 3.7 ft	0.5 - 4 ft	2.07 - 3.07 ft	1 - 1.5 ft	0.5 - 3.8 ft	0.5 - 2.7 ft	0.5 - 5.1 ft	1.6 - 2.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	---	**1.2**	< 2.0	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	5/2/2013 10:05 AM	12/8/2011 11:15 AM	4/30/2014 10:32 AM	12/5/2013 3:20 PM	12/4/2013 3:40 PM	12/4/2013 11:10 AM	12/5/2013 3:35 PM	12/6/2013 2:35 PM	5/14/2014 10:30 AM	5/14/2014 2:33 PM	12/19/2013 9:43 AM	5/14/2014 2:35 PM	12/20/2011 9:50 AM	5/14/2014 11:20 AM	5/9/2014 11:20 AM
	Location	SBKR0250I514A	SBKR0250L506	SBKR0250L511	SBKR0250L544	SBKR0250L549	SBKR0250L550	SBKR0250L552	SBKR0250L560	SBKR0250L562	SBKR0250L565	SBKR0250L566	SBKR0250L567	SBKR0275I501	SBKR0275I507	SBKR0275I512
	Sample	SBKR0250I 514AS 050213G014	SBKR0250L 506S 120811G036	SBKR0250L 511S 043014G043	SBKR0250L 544S 120513G040	SBKR0250L 549S 120413G040	SBKR0250L 550S 120413G039	SBKR0250L 552S 120513G043	SBKR0250L 560S 120613G040	SBKR0250L 562S 051414G030	SBKR0250L 565S 051414G040	SBKR0250L 566S 121913G039	SBKR0250L 567S 051414G030	SBKR0275I 501S 122011G030	SBKR0275I 507S 051414G025	SBKR0275I 512S 050914G014
	Depth	0.4 - 1.4 ft	2.55 - 3.55 ft	0.5 - 4.3 ft	0.5 - 4.04 ft	0.5 - 4.01 ft	0.5 - 3.88 ft	0.5 - 4.28 ft	0.5 - 4 ft	1 - 3 ft	1 - 4 ft	0.5 - 3.9 ft	1 - 3 ft	2 - 3 ft	1 - 2.5 ft	0.2 - 1.4 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**2.75**	**1.95**	**3.15**	**1.54**	**3.05**	**3.66**	**4.88**	**3.68**	**2.66**	**3.06**	**3.68**	**3.14**	**2.43**	---	**2.75**
Dissolved Oxygen	mg/l	**0.07**	**1.16**	**0.39**	**0.38**	**0.38**	**0.37**	**9.58**	**0.44**	**0.47**	**0.49**	**0.43**	**3.04**	**1.59**	**4.18**	**0.30**
Oxidation Reduction Potential	millivolts	-117.1	-29.2	-35.9	-112.5	-80.1	-87.0	**207.9**	**101.1**	-112.8	-77.9	-91.8	**26.5**	-95.2	-48.3	-163.3
pH	su	**6.99**	**6.75**	**6.89**	**6.77**	**7.04**	**7.00**	**7.04**	**7.11**	**6.86**	**6.90**	**6.89**	**6.74**	**6.50**	**7.00**	**7.10**
Specific Conductance	mS/cm	**0.82**	**0.708**	**0.77**	**1.01**	**0.674**	**0.79**	**0.95**	**0.695**	**0.87**	**0.88**	**0.652**	**0.870**	**0.975**	**0.35**	**0.74**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**9.8**	**5.82**	**9.0**	**5.4**	**8.6**	**8.6**	**2.80**	**6.7**	**10.5**	**10.9**	**4.1**	**11.0**	**7.50**	**14.4**	**17.7**
Turbidity	ntu	**16.2**	**25.7**	**7.00**	**9.60**	**3.60**	**8.09**	**17.0**	**1.98**	**3.89**	**14.8**	**3.10**	**4.18**	**3.93**	**354**	**2.85**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	---	---	< 0.0010	< 0.0010	< 0.0010	---	< 0.0010	< 0.0010	---	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	---	---	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	---	---	< 0.020	< 0.020	< 0.020	---	< 0.020	< 0.020	---	< 0.020	< 0.020	**0.036**	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	---	---	< 0.0040	< 0.0040	< 0.0040	---	< 0.0040	< 0.0040	---	< 0.0040	< 0.0040	**0.048**	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	**0.39**	**1.5**	---	---	---	---	---	---	---	---	---	---	**0.56**	---	---
Gasoline Range Organics (C6-C10)	mg/l	---	< 0.20	---	---	---	---	---	---	---	---	---	---	< 0.20	---	---
Oil Range Organics (C20-C34)	mg/l	**0.76**	**1.4**	---	---	---	---	---	---	---	---	---	---	**0.56**	---	---

	Date / Time Collected	5/2/2013 10:05 AM	12/8/2011 11:15 AM	4/30/2014 10:32 AM	12/5/2013 3:20 PM	12/4/2013 3:40 PM	12/4/2013 11:10 AM	12/5/2013 3:35 PM	12/6/2013 2:35 PM	5/14/2014 10:30 AM	5/14/2014 2:33 PM	12/19/2013 9:43 AM	5/14/2014 2:35 PM	12/20/2011 9:50 AM	5/14/2014 11:20 AM	5/9/2014 11:20 AM
	Location	SBKR0250I514A	SBKR0250L506	SBKR0250L511	SBKR0250L544	SBKR0250L549	SBKR0250L550	SBKR0250L552	SBKR0250L560	SBKR0250L562	SBKR0250L565	SBKR0250L566	SBKR0250L567	SBKR0275I501	SBKR0275I507	SBKR0275I512
	Sample	SBKR0250I 514AS 050213G014	SBKR0250L 506S 120811G036	SBKR0250L 511S 043014G043	SBKR0250L 544S 120513G040	SBKR0250L 549S 120413G040	SBKR0250L 550S 120413G039	SBKR0250L 552S 120513G043	SBKR0250L 560S 120613G040	SBKR0250L 562S 051414G030	SBKR0250L 565S 051414G040	SBKR0250L 566S 121913G039	SBKR0250L 567S 051414G030	SBKR0275I 501S 122011G030	SBKR0275I 507S 051414G025	SBKR0275I 512S 050914G014
	Depth	0.4 - 1.4 ft	2.55 - 3.55 ft	0.5 - 4.3 ft	0.5 - 4.04 ft	0.5 - 4.01 ft	0.5 - 3.88 ft	0.5 - 4.28 ft	0.5 - 4 ft	1 - 3 ft	1 - 4 ft	0.5 - 3.9 ft	1 - 3 ft	2 - 3 ft	1 - 2.5 ft	0.2 - 1.4 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	---	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**4.2**	< 1.0	< 1.0	**1.2**	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**2.2**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	---	< 25	< 25	---	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	---	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	---	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	---	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	---	---	< 1.0	---	---	---	---	---	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0
Bromochloromethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

	Date / Time Collected	5/2/2013 10:05 AM	12/8/2011 11:15 AM	4/30/2014 10:32 AM	12/5/2013 3:20 PM	12/4/2013 3:40 PM	12/4/2013 11:10 AM	12/5/2013 3:35 PM	12/6/2013 2:35 PM	5/14/2014 10:30 AM	5/14/2014 2:33 PM	12/19/2013 9:43 AM	5/14/2014 2:35 PM	12/20/2011 9:50 AM	5/14/2014 11:20 AM	5/9/2014 11:20 AM
	Location	SBKR0250I514A	SBKR0250L506	SBKR0250L511	SBKR0250L544	SBKR0250L549	SBKR0250L550	SBKR0250L552	SBKR0250L560	SBKR0250L562	SBKR0250L565	SBKR0250L566	SBKR0250L567	SBKR0275I501	SBKR0275I507	SBKR0275I512
	Sample	SBKR0250I 514AS 050213G014	SBKR0250L 506S 120811G036	SBKR0250L 511S 043014G043	SBKR0250L 544S 120513G040	SBKR0250L 549S 120413G040	SBKR0250L 550S 120413G039	SBKR0250L 552S 120513G043	SBKR0250L 560S 120613G040	SBKR0250L 562S 051414G030	SBKR0250L 565S 051414G040	SBKR0250L 566S 121913G039	SBKR0250L 567S 051414G030	SBKR0275I 501S 122011G030	SBKR0275I 507S 051414G025	SBKR0275I 512S 050914G014
	Depth	0.4 - 1.4 ft	2.55 - 3.55 ft	0.5 - 4.3 ft	0.5 - 4.04 ft	0.5 - 4.01 ft	0.5 - 3.88 ft	0.5 - 4.28 ft	0.5 - 4 ft	1 - 3 ft	1 - 4 ft	0.5 - 3.9 ft	1 - 3 ft	2 - 3 ft	1 - 2.5 ft	0.2 - 1.4 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	---	---	< 5.0	---	---	---	---	---	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	---	< 10	< 10	---	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**2.0**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	---	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	---	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	---	< 90	< 90	---	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	5/2/2013 10:05 AM	12/8/2011 11:15 AM	4/30/2014 10:32 AM	12/5/2013 3:20 PM	12/4/2013 3:40 PM	12/4/2013 11:10 AM	12/5/2013 3:35 PM	12/6/2013 2:35 PM	5/14/2014 10:30 AM	5/14/2014 2:33 PM	12/19/2013 9:43 AM	5/14/2014 2:35 PM	12/20/2011 9:50 AM	5/14/2014 11:20 AM	5/9/2014 11:20 AM
	Location	SBKR0250I514A	SBKR0250L506	SBKR0250L511	SBKR0250L544	SBKR0250L549	SBKR0250L550	SBKR0250L552	SBKR0250L560	SBKR0250L562	SBKR0250L565	SBKR0250L566	SBKR0250L567	SBKR0275I501	SBKR0275I507	SBKR0275I512
	Sample	SBKR0250I 514AS 050213G014	SBKR0250L 506S 120811G036	SBKR0250L 511S 043014G043	SBKR0250L 544S 120513G040	SBKR0250L 549S 120413G040	SBKR0250L 550S 120413G039	SBKR0250L 552S 120513G043	SBKR0250L 560S 120613G040	SBKR0250L 562S 051414G030	SBKR0250L 565S 051414G040	SBKR0250L 566S 121913G039	SBKR0250L 567S 051414G030	SBKR0275I 501S 122011G030	SBKR0275I 507S 051414G025	SBKR0275I 512S 050914G014
	Depth	0.4 - 1.4 ft	2.55 - 3.55 ft	0.5 - 4.3 ft	0.5 - 4.04 ft	0.5 - 4.01 ft	0.5 - 3.88 ft	0.5 - 4.28 ft	0.5 - 4 ft	1 - 3 ft	1 - 4 ft	0.5 - 3.9 ft	1 - 3 ft	2 - 3 ft	1 - 2.5 ft	0.2 - 1.4 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	---	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	---	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**2.0**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/13/2011 1:10 PM	12/15/2011 1:55 PM	12/15/2011 10:45 AM	12/20/2011 2:20 PM	12/14/2011 3:20 PM	12/21/2011 10:30 AM	5/20/2014 2:47 PM	12/19/2011 12:45 PM	12/19/2011 3:00 PM	11/11/2011 2:58 PM	7/3/2012 10:00 AM	7/14/2014 11:37 AM	5/17/2013 10:05 AM	10/25/2012 11:50 AM	10/25/2012 2:25 PM
	Location	SBKR0275L 507	SBKR0300I5 02	SBKR0300L 507	SBKR0375I5 01	SBKR0375I5 03	SBKR0375R 502	SBKR0375R 503	SBKR0500R 504	SBKR0550L 505	SBKR0675I0 03	SBKR0700I5 18	SBKR0700I5 18	SBKR0750I5 01	SBKR0775I5 01	SBKR0800I5 02
	Sample	SBKR0275L 507S 121311G035	SBKR0300I 502S 121511G037	SBKR0300L 507S 121511G041	SBKR0375I 501S 122011G038	SBKR0375I 503S 121411G040	SBKR0375R 502S 122111G038	SBKR0375R 503S 052014G040	SBKR0500R 504S 121911G033	SBKR0550L 505S 121911G023	SBKR0675I 003S 111111G019	SBKR0700I 518S 070312G028	SBKR0700I 518S 071414G030	SBKR0750I 501S 051713G031	SBKR0775I 501S 102512G020	SBKR0800I 502S 102512G015
	Depth	2.5 - 3.5 ft	2.7 - 3.7 ft	3.1 - 4.1 ft	0.5 - 3.88 ft	3 - 4 ft	2.8 - 3.8 ft	0.5 - 4 ft	2.31 - 3.31 ft	1.3 - 2.3 ft	0.9 - 1.9 ft		0.5 - 3 ft	0.5 - 3.05 ft	1 - 2 ft	0.5 - 1.5 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	---	**1.60**	---	**2.83**	**2.65**	**2.72**	**3.06**	---	---	**1.05**	**3.34**	**3.04**	**3.34**	**3.79**	**4.12**
Dissolved Oxygen	mg/l	---	**0.73**	---	**0.45**	**2.50**	**4.41**	**0.73**	---	---	**0.29**	**0.60**	**0.30**	**0.07**	**8.36**	**0.30**
Oxidation Reduction Potential	millivolts	---	-56.8	---	-206.4	-10.1	**212.7**	**180.0**	---	---	-61.5	-120.5	-147.4	-189.6	-275.5	-137.6
pH	su	---	**6.62**	---	**7.19**	**6.65**	**7.24**	**6.77**	---	---	**6.91**	**7.01**	**9.11**	**7.08**	**8.00**	**7.85**
Specific Conductance	mS/cm	---	**0.885**	---	---	**0.791**	---	**0.63**	---	---	**0.106**	**0.69**	**0.99**	**0.68**	**0.598**	**0.71**
Specific Conductance	uS/cm	---	---	---	**775.0**	---	**563.6**	---	---	---	---	---	---	---	---	---
Temperature	deg c	---	**8.13**	---	**4.7**	**5.92**	**6.8**	**23.7**	---	---	**10.1**	**17.1**	**19.5**	**13.6**	**16.1**	**15.5**
Turbidity	ntu	---	**1.82**	---	**5.04**	**11.6**	**9.99**	**2.51**	---	---	**4.02**	**11.1**	**2.86**	**4.08**	**5.82**	**1.81**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	---	< 0.0010	< 0.0010	< 0.0010	< 0.0010	---	< 0.0010	< 0.0020	< 0.0020
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	---	< 0.020	< 0.020	< 0.020	< 0.020	---	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	**0.022**	< 0.0040	< 0.0040	< 0.0040	---	< 0.0040	< 0.0040	< 0.0040	< 0.0040	---	< 0.0040	< 0.0050	< 0.0050
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	< 0.10	**0.39**	**1.2**	< 0.10	**2.8**	< 0.10	---	< 0.10	< 0.10	**0.15**	< 0.10	---	< 0.10	< 0.10	< 0.10
Gasoline Range Organics (C6-C10)	mg/l	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	< 0.20	< 0.20	---	---	---	---	---
Oil Range Organics (C20-C34)	mg/l	< 0.10	**0.39**	**1.4**	< 0.10	**3.0**	< 0.10	---	< 0.10	< 0.10	**0.25**	< 0.10	---	< 0.10	< 0.10	< 0.10

	Date / Time Collected	12/13/2011 1:10 PM	12/15/2011 1:55 PM	12/15/2011 10:45 AM	12/20/2011 2:20 PM	12/14/2011 3:20 PM	12/21/2011 10:30 AM	5/20/2014 2:47 PM	12/19/2011 12:45 PM	12/19/2011 3:00 PM	11/11/2011 2:58 PM	7/3/2012 10:00 AM	7/14/2014 11:37 AM	5/17/2013 10:05 AM	10/25/2012 11:50 AM	10/25/2012 2:25 PM
	Location	SBKR0275L 507	SBKR0300I5 02	SBKR0300L 507	SBKR0375I5 01	SBKR0375I5 03	SBKR0375R 502	SBKR0375R 503	SBKR0500R 504	SBKR0550L 505	SBKR0675I0 03	SBKR0700I5 18	SBKR0700I5 18	SBKR0750I5 01	SBKR0775I5 01	SBKR0800I5 02
	Sample	SBKR0275L 507S 121311G035	SBKR0300I 502S 121511G037	SBKR0300L 507S 121511G041	SBKR0375I 501S 122011G038	SBKR0375I 503S 121411G040	SBKR0375R 502S 122111G038	SBKR0375R 503S 052014G040	SBKR0500R 504S 121911G033	SBKR0550L 505S 121911G023	SBKR0675I 003S 111111G019	SBKR0700I 518S 070312G028	SBKR0700I 518S 071414G030	SBKR0750I 501S 051713G031	SBKR0775I 501S 102512G020	SBKR0800I 502S 102512G015
	Depth	2.5 - 3.5 ft	2.7 - 3.7 ft	3.1 - 4.1 ft	0.5 - 3.88 ft	3 - 4 ft	2.8 - 3.8 ft	0.5 - 4 ft	2.31 - 3.31 ft	1.3 - 2.3 ft	0.9 - 1.9 ft		0.5 - 3 ft	0.5 - 3.05 ft	1 - 2 ft	0.5 - 1.5 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,2,3-Trimethylbenzene	ug/l	---	---	---	---	---	---	< 5.0	< 5.0	< 5.0	---	---	< 5.0	---	---	---
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,4-Dichloro-2-butene, trans	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
2-Butanone (MEK)	ug/l	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	---	< 25	---	---	---
2-Hexanone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	---	---	---
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	---	---	---
Acetone	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	---	---	---
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	---	---
Benzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Bromobenzene	ug/l	---	---	---	---	---	---	< 1.0	---	---	---	---	< 1.0	---	---	---
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Bromoform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/13/2011 1:10 PM	12/15/2011 1:55 PM	12/15/2011 10:45 AM	12/20/2011 2:20 PM	12/14/2011 3:20 PM	12/21/2011 10:30 AM	5/20/2014 2:47 PM	12/19/2011 12:45 PM	12/19/2011 3:00 PM	11/11/2011 2:58 PM	7/3/2012 10:00 AM	7/14/2014 11:37 AM	5/17/2013 10:05 AM	10/25/2012 11:50 AM	10/25/2012 2:25 PM
	Location	SBKR0275L 507	SBKR0300I5 02	SBKR0300L 507	SBKR0375I5 01	SBKR0375I5 03	SBKR0375R 502	SBKR0375R 503	SBKR0500R 504	SBKR0550L 505	SBKR0675I0 03	SBKR0700I5 18	SBKR0700I5 18	SBKR0750I5 01	SBKR0775I5 01	SBKR0800I5 02
	Sample	SBKR0275L 507S 121311G035	SBKR0300I 502S 121511G037	SBKR0300L 507S 121511G041	SBKR0375I 501S 122011G038	SBKR0375I 503S 121411G040	SBKR0375R 502S 122111G038	SBKR0375R 503S 052014G040	SBKR0500R 504S 121911G033	SBKR0550L 505S 121911G023	SBKR0675I 003S 111111G019	SBKR0700I 518S 070312G028	SBKR0700I 518S 071414G030	SBKR0750I 501S 051713G031	SBKR0775I 501S 102512G020	SBKR0800I 502S 102512G015
	Depth	2.5 - 3.5 ft	2.7 - 3.7 ft	3.1 - 4.1 ft	0.5 - 3.88 ft	3 - 4 ft	2.8 - 3.8 ft	0.5 - 4 ft	2.31 - 3.31 ft	1.3 - 2.3 ft	0.9 - 1.9 ft		0.5 - 3 ft	0.5 - 3.05 ft	1 - 2 ft	0.5 - 1.5 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Chloroform	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Dibromomethane	ug/l	---	---	---	---	---	---	< 5.0	---	---	---	---	< 5.0	---	---	---
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Diethyl ether	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	---	< 10	---	---	---
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	---	---
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
sec-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Styrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---
t-Butyl alcohol	ug/l	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	---	< 50	---	---	---
t-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Tetrahydrofuran	ug/l	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	---	< 90	---	---	---
Toluene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Total BTEX	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	---	---	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	12/13/2011 1:10 PM	12/15/2011 1:55 PM	12/15/2011 10:45 AM	12/20/2011 2:20 PM	12/14/2011 3:20 PM	12/21/2011 10:30 AM	5/20/2014 2:47 PM	12/19/2011 12:45 PM	12/19/2011 3:00 PM	11/11/2011 2:58 PM	7/3/2012 10:00 AM	7/14/2014 11:37 AM	5/17/2013 10:05 AM	10/25/2012 11:50 AM	10/25/2012 2:25 PM
	Location	SBKR0275L 507	SBKR0300I5 02	SBKR0300L 507	SBKR0375I5 01	SBKR0375I5 03	SBKR0375R 502	SBKR0375R 503	SBKR0500R 504	SBKR0550L 505	SBKR0675I0 03	SBKR0700I5 18	SBKR0700I5 18	SBKR0750I5 01	SBKR0775I5 01	SBKR0800I5 02
	Sample	SBKR0275L 507S 121311G035	SBKR0300I 502S 121511G037	SBKR0300L 507S 121511G041	SBKR0375I 501S 122011G038	SBKR0375I 503S 121411G040	SBKR0375R 502S 122111G038	SBKR0375R 503S 052014G040	SBKR0500R 504S 121911G033	SBKR0550L 505S 121911G023	SBKR0675I 003S 111111G019	SBKR0700I 518S 070312G028	SBKR0700I 518S 071414G030	SBKR0750I 501S 051713G031	SBKR0775I 501S 102512G020	SBKR0800I 502S 102512G015
	Depth	2.5 - 3.5 ft	2.7 - 3.7 ft	3.1 - 4.1 ft	0.5 - 3.88 ft	3 - 4 ft	2.8 - 3.8 ft	0.5 - 4 ft	2.31 - 3.31 ft	1.3 - 2.3 ft	0.9 - 1.9 ft		0.5 - 3 ft	0.5 - 3.05 ft	1 - 2 ft	0.5 - 1.5 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---
Xylenes	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/6/2014 10:20 AM	11/15/2011 1:28 PM	10/25/2012 3:40 PM	11/7/2014 10:15 AM	1/31/2012 12:30 PM	11/29/2011 12:00 PM	7/23/2014 10:34 AM	11/19/2011 9:47 AM	11/8/2012 3:00 PM	7/25/2014 9:30 AM	11/8/2012 11:30 AM	8/12/2014 3:50 PM	8/7/2014 2:12 PM	11/17/2011 2:00 PM	11/17/2011 11:10 AM
	Location	SBKR0800R 507	SBKR0825I0 11	SBKR0825I5 02	SBKR0825R 504	SBKR0848L 501	SBKR0897I0 02	SBKR0900I5 07	SBKR0910L 015	SBKR0925R 505	SBKR0950L 512	SBKR0975I5 02	SBKR0975I5 02	SBKR0975I5 03	SBKR0978I0 03	SBKR0978I0 06
	Sample	SBKR0800R 507S 110614G040	SBKR0825I 011S 111511G016	SBKR0825I 502S 102512G015	SBKR0825R 504S 110714G041	SBKR0848L 501S 013112G041	SBKR0897I 002S 112911G020	SBKR0900I 507S 072314G040	SBKR0910L 015S 111911G039	SBKR0925R 505S 110812G020	SBKR0950L 512S 072514G040	SBKR0975I 502S 110812G020	SBKR0975I 502S 081214G035	SBKR0975I 503S 080714G040	SBKR0978I 003S 111711G016	SBKR0978I 006S 111711G016
	Depth	0.5 - 4 ft	0.6 - 1.6 ft	0.5 - 1.5 ft	0.5 - 4.12 ft	3.1 - 4.1 ft	1.05 - 2 ft	0.5 - 4 ft	2.9 - 3.9 ft	1 - 2 ft	0.5 - 4 ft	1 - 2 ft	0.5 - 3.5 ft	0.5 - 4 ft	0.6 - 1.6 ft	0.6 - 1.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**4.05**	**0.60**	**3.32**	**2.97**	**2.68**	**2.39**	**3.74**	**2.66**	**4.21**	**4.32**	**4.81**	**3.44**	**3.63**	**5.13**	**5.06**
Dissolved Oxygen	mg/l	**1.20**	**0.28**	**0.58**	**4.10**	**4.9**	**0.64**	**0.16**	**0.36**	**0.28**	**3.31**	**0.37**	**2.81**	**0.22**	**0.62**	**0.47**
Oxidation Reduction Potential	millivolts	**20.9**	-103.6	-32.6	**59.8**	-111.0	-129.6	-123.1	-117.6	-126.6	-19.8	-160.3	**0.68**	**34.2**	-53.8	-121.1
pH	su	**6.88**	**7.01**	**8.13**	**6.82**	**6.95**	**6.89**	**7.35**	**7.03**	**6.65**	**7.03**	**6.58**	**7.34**	**7.41**	**6.85**	**7.05**
Specific Conductance	mS/cm	**0.78**	**0.106**	**0.72**	**0.749**	**0.779**	**1.00**	**0.540**	**0.629**	**0.607**	**0.82**	**0.567**	-68.9	**0.549**	**0.83**	**0.74**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**11.3**	**11.1**	**13.4**	**6.8**	**4.7**	**6.8**	**16.0**	**8.6**	**11.9**	**15.4**	**11.8**	**16.8**	**18.3**	**8.8**	**8.8**
Turbidity	ntu	**2.00**	**7.86**	**0.39**	**20.5**	**11.1**	**4.66**	**1.59**	**19.2**	**222**	**6.23**	**32.6**	**2.60**	**1.52**	**2.30**	**6.15**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	---	< 0.0010	< 0.0010	---	< 0.0010	---	---	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	---	< 0.050	---	---	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	---	< 0.020	< 0.020	---	< 0.020	---	---	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0050	< 0.0040	< 0.0040	< 0.0040	---	< 0.0040	**0.0045**	---	< 0.0040	---	---	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	---	---	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	---	< 0.10	< 0.10	---	**0.12**	**0.10**	---	**0.12**	< 0.10	---	< 0.10	---	---	**0.18**	< 0.10
Gasoline Range Organics (C6-C10)	mg/l	---	< 0.20	---	---	< 0.20	< 0.20	---	< 0.20	---	---	---	---	---	< 0.20	< 0.20
Oil Range Organics (C20-C34)	mg/l	---	< 0.10	< 0.10	---	**0.33**	**0.18**	---	**0.16**	< 0.10	---	< 0.10	---	---	**0.29**	**0.12**

	Date / Time Collected	11/6/2014 10:20 AM	11/15/2011 1:28 PM	10/25/2012 3:40 PM	11/7/2014 10:15 AM	1/31/2012 12:30 PM	11/29/2011 12:00 PM	7/23/2014 10:34 AM	11/19/2011 9:47 AM	11/8/2012 3:00 PM	7/25/2014 9:30 AM	11/8/2012 11:30 AM	8/12/2014 3:50 PM	8/7/2014 2:12 PM	11/17/2011 2:00 PM	11/17/2011 11:10 AM
	Location	SBKR0800R 507	SBKR0825I0 11	SBKR0825I5 02	SBKR0825R 504	SBKR0848L 501	SBKR0897I0 02	SBKR0900I5 07	SBKR0910L 015	SBKR0925R 505	SBKR0950L 512	SBKR0975I5 02	SBKR0975I5 02	SBKR0975I5 03	SBKR0978I0 03	SBKR0978I0 06
	Sample	SBKR0800R 507S 110614G040	SBKR0825I 011S 111511G016	SBKR0825I 502S 102512G015	SBKR0825R 504S 110714G041	SBKR0848L 501S 013112G041	SBKR0897I 002S 112911G020	SBKR0900I 507S 072314G040	SBKR0910L 015S 111911G039	SBKR0925R 505S 110812G020	SBKR0950L 512S 072514G040	SBKR0975I 502S 110812G020	SBKR0975I 502S 081214G035	SBKR0975I 503S 080714G040	SBKR0978I 003S 111711G016	SBKR0978I 006S 111711G016
	Depth	0.5 - 4 ft	0.6 - 1.6 ft	0.5 - 1.5 ft	0.5 - 4.12 ft	3.1 - 4.1 ft	1.05 - 2 ft	0.5 - 4 ft	2.9 - 3.9 ft	1 - 2 ft	0.5 - 4 ft	1 - 2 ft	0.5 - 3.5 ft	0.5 - 4 ft	0.6 - 1.6 ft	0.6 - 1.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	< 5.0	---	---	< 5.0	---	---	< 5.0	---	---	< 5.0	---	< 5.0	< 5.0	---	---
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	**1.5**	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	---	< 25	< 25	< 25	< 25	< 25	---	< 25	---	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	---	< 50	---	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	---	< 50	---	< 50	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	---	< 50	---	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	< 1.0	---	---	< 1.0	---	---	< 1.0	---	---	< 1.0	---	< 1.0	< 1.0	---	---
Bromochloromethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/6/2014 10:20 AM	11/15/2011 1:28 PM	10/25/2012 3:40 PM	11/7/2014 10:15 AM	1/31/2012 12:30 PM	11/29/2011 12:00 PM	7/23/2014 10:34 AM	11/19/2011 9:47 AM	11/8/2012 3:00 PM	7/25/2014 9:30 AM	11/8/2012 11:30 AM	8/12/2014 3:50 PM	8/7/2014 2:12 PM	11/17/2011 2:00 PM	11/17/2011 11:10 AM
	Location	SBKR0800R 507	SBKR0825I0 11	SBKR0825I5 02	SBKR0825R 504	SBKR0848L 501	SBKR0897I0 02	SBKR0900I5 07	SBKR0910L 015	SBKR0925R 505	SBKR0950L 512	SBKR0975I5 02	SBKR0975I5 02	SBKR0975I5 03	SBKR0978I0 03	SBKR0978I0 06
	Sample	SBKR0800R 507S 110614G040	SBKR0825I 011S 111511G016	SBKR0825I 502S 102512G015	SBKR0825R 504S 110714G041	SBKR0848L 501S 013112G041	SBKR0897I 002S 112911G020	SBKR0900I 507S 072314G040	SBKR0910L 015S 111911G039	SBKR0925R 505S 110812G020	SBKR0950L 512S 072514G040	SBKR0975I 502S 110812G020	SBKR0975I 502S 081214G035	SBKR0975I 503S 080714G040	SBKR0978I 003S 111711G016	SBKR0978I 006S 111711G016
	Depth	0.5 - 4 ft	0.6 - 1.6 ft	0.5 - 1.5 ft	0.5 - 4.12 ft	3.1 - 4.1 ft	1.05 - 2 ft	0.5 - 4 ft	2.9 - 3.9 ft	1 - 2 ft	0.5 - 4 ft	1 - 2 ft	0.5 - 3.5 ft	0.5 - 4 ft	0.6 - 1.6 ft	0.6 - 1.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	< 5.0	---	---	< 5.0	---	---	< 5.0	---	---	< 5.0	---	< 5.0	< 5.0	---	---
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	---	< 10	< 10	< 10	< 10	< 10	---	< 10	---	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	---	< 50	< 50	< 50	< 50	< 50	---	< 50	---	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	---	< 90	< 90	< 90	< 90	< 90	---	< 90	---	< 90	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	---	---	---	< 1.0	---	< 1.0	---	---	< 1.0	---	< 1.0	< 1.0	---	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/6/2014 10:20 AM	11/15/2011 1:28 PM	10/25/2012 3:40 PM	11/7/2014 10:15 AM	1/31/2012 12:30 PM	11/29/2011 12:00 PM	7/23/2014 10:34 AM	11/19/2011 9:47 AM	11/8/2012 3:00 PM	7/25/2014 9:30 AM	11/8/2012 11:30 AM	8/12/2014 3:50 PM	8/7/2014 2:12 PM	11/17/2011 2:00 PM	11/17/2011 11:10 AM
	Location	SBKR0800R 507	SBKR0825I0 11	SBKR0825I5 02	SBKR0825R 504	SBKR0848L 501	SBKR0897I0 02	SBKR0900I5 07	SBKR0910L 015	SBKR0925R 505	SBKR0950L 512	SBKR0975I5 02	SBKR0975I5 02	SBKR0975I5 03	SBKR0978I0 03	SBKR0978I0 06
	Sample	SBKR0800R 507S 110614G040	SBKR0825I 011S 111511G016	SBKR0825I 502S 102512G015	SBKR0825R 504S 110714G041	SBKR0848L 501S 013112G041	SBKR0897I 002S 112911G020	SBKR0900I 507S 072314G040	SBKR0910L 015S 111911G039	SBKR0925R 505S 110812G020	SBKR0950L 512S 072514G040	SBKR0975I 502S 110812G020	SBKR0975I 502S 081214G035	SBKR0975I 503S 080714G040	SBKR0978I 003S 111711G016	SBKR0978I 006S 111711G016
	Depth	0.5 - 4 ft	0.6 - 1.6 ft	0.5 - 1.5 ft	0.5 - 4.12 ft	3.1 - 4.1 ft	1.05 - 2 ft	0.5 - 4 ft	2.9 - 3.9 ft	1 - 2 ft	0.5 - 4 ft	1 - 2 ft	0.5 - 3.5 ft	0.5 - 4 ft	0.6 - 1.6 ft	0.6 - 1.6 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/17/2011 3:10 PM	11/14/2012 4:35 PM	8/5/2014 3:33 PM	5/3/2012 3:55 PM	11/29/2011 1:50 PM	11/16/2011 12:20 PM	11/16/2011 3:20 PM	5/2/2013 3:05 PM	11/15/2011 3:25 PM	11/14/2012 3:07 PM	5/3/2013 10:52 AM	5/31/2012 11:30 AM	5/2/2013 3:22 PM	11/17/2011 2:30 PM	5/2/2013 4:15 PM
	Location	SBKR0978I008	SBKR1000I501	SBKR1000I501	SBKR1025L502	SBKR1037R010	SBKR1070I006	SBKR1070I025	SBKR1075L510	SBKR1082I004	SBKR1100I501	SBKR1125I502	SBKR1150L522	SBKR1150R506	SBKR1175L019	SBKR1175R502
	Sample	SBKR0978I 008S 111711G032	SBKR1000I 501S 111412G025	SBKR1000I 501S 080514G041	SBKR1025L 502S 050312G037	SBKR1037R 010S 112911G028	SBKR1070I 006S 111611G021	SBKR1070I 025S 111611G019	SBKR1075L 510S 050213G035	SBKR1082I 004S 111511G014	SBKR1100I 501S 111412G042	SBKR1125I 502S 050313G012	SBKR1150L 522S 053112G037	SBKR1150R 506S 050213G029	SBKR1175L 019S 111711G033	SBKR1175R 502S 050213G011
	Depth	2.2 - 3.2 ft	1.5 - 2.5 ft	0.5 - 4.1 ft	0 - 3.7 ft	1.8 - 2.8 ft	1.1 - 2.1 ft	0.9 - 1.9 ft	2.5 - 3.5 ft	0.43 - 1.4 ft	3.2 - 4.2 ft	0.2 - 1.2 ft	2.7 - 3.7 ft	1.9 - 2.9 ft	2.3 - 3.3 ft	0.1 - 1.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**5.2**	**4.27**	**4.01**	**1.34**	**0.15**	**0.9**	**0.9**	**3.2**	**4.61**	**4.16**	**2.87**	**3.20**	**3.80**	**1.80**	**2.80**
Dissolved Oxygen	mg/l	**1.95**	**4.51**	**2.07**	**5.8**	**0.40**	**0.22**	**0.41**	**1.39**	**0.43**	**6.8**	**0.13**	**0.32**	**2.17**	**7.64**	**0.09**
Oxidation Reduction Potential	millivolts	-80.5	**20.0**	-7.1	-88.7	-101.5	-122.8	-113.5	-70.8	-97.1	**1.4**	**150.2**	-163.4	-87.9	**228.7**	-374.2
pH	su	**6.86**	**7.47**	**7.59**	**6.72**	**7.03**	**6.99**	**7.07**	**6.94**	**10.85**	**7.63**	**7.26**	---	**7.54**	**6.80**	**6.55**
Specific Conductance	mS/cm	**0.763**	**0.603**	**0.62**	**0.95**	**0.563**	**0.661**	**0.82**	**0.64**	**0.89**	**0.613**	**0.91**	**0.68**	**0.71**	**1.957**	**1.69**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**9.97**	**5.8**	**23.5**	**15.0**	**6.1**	**10.6**	**9.3**	**15.6**	**13.0**	**7.1**	**13.5**	**12.7**	**16.6**	**8.81**	**14.6**
Turbidity	ntu	**3.0**	**7.21**	**2.76**	**56.2**	**11.7**	**5.08**	**32.7**	**7.01**	**14.5**	**3.41**	**15.2**	**157**	**70.5**	**7.09**	**41.2**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	**0.034**	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	< 0.10	< 0.10	---	**0.13**	**0.17**	**0.24**	**1.1**	**0.22**	**0.35**	< 0.10	< 0.10	**0.21**	< 0.10	< 0.10	**0.49**
Gasoline Range Organics (C6-C10)	mg/l	< 0.20	---	---	---	< 0.20	< 0.20	< 0.20	---	< 0.20	---	---	---	---	< 0.20	---
Oil Range Organics (C20-C34)	mg/l	< 0.10	< 0.10	---	**0.24**	**0.25**	**0.28**	**1.6**	**0.83**	**0.32**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	**1.2**

	Date / Time Collected	11/17/2011 3:10 PM	11/14/2012 4:35 PM	8/5/2014 3:33 PM	5/3/2012 3:55 PM	11/29/2011 1:50 PM	11/16/2011 12:20 PM	11/16/2011 3:20 PM	5/2/2013 3:05 PM	11/15/2011 3:25 PM	11/14/2012 3:07 PM	5/3/2013 10:52 AM	5/31/2012 11:30 AM	5/2/2013 3:22 PM	11/17/2011 2:30 PM	5/2/2013 4:15 PM
	Location	SBKR0978I008	SBKR1000I501	SBKR1000I501	SBKR1025L502	SBKR1037R010	SBKR1070I006	SBKR1070I025	SBKR1075L510	SBKR1082I004	SBKR1100I501	SBKR1125I502	SBKR1150L522	SBKR1150R506	SBKR1175L019	SBKR1175R502
	Sample	SBKR0978I 008S 111711G032	SBKR1000I 501S 111412G025	SBKR1000I 501S 080514G041	SBKR1025L 502S 050312G037	SBKR1037R 010S 112911G028	SBKR1070I 006S 111611G021	SBKR1070I 025S 111611G019	SBKR1075L 510S 050213G035	SBKR1082I 004S 111511G014	SBKR1100I 501S 111412G042	SBKR1125I 502S 050313G012	SBKR1150L 522S 053112G037	SBKR1150R 506S 050213G029	SBKR1175L 019S 111711G033	SBKR1175R 502S 050213G011
	Depth	2.2 - 3.2 ft	1.5 - 2.5 ft	0.5 - 4.1 ft	0 - 3.7 ft	1.8 - 2.8 ft	1.1 - 2.1 ft	0.9 - 1.9 ft	2.5 - 3.5 ft	0.43 - 1.4 ft	3.2 - 4.2 ft	0.2 - 1.2 ft	2.7 - 3.7 ft	1.9 - 2.9 ft	2.3 - 3.3 ft	0.1 - 1.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,1,1-Trichloroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,1,2-Trichloroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,1-Dichloroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,1-Dichloroethylene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,2,3-Trichlorobenzene	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
1,2,3-Trichloropropane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,2,3-Trimethylbenzene	ug/l	---	---	< 5.0	---	---	---	---	---	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
1,2,4-Trimethylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	**1.1**	---	< 1.0	---	---	---	---	< 1.0	---
1,2-Dichlorobenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,2-Dichloroethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,2-Dichloropropane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,3,5-Trimethylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,3-Dichlorobenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,3-Dichloropropene, cis	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,3-Dichloropropene, trans	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,4-Dichloro-2-butene, trans	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
1,4-Dichlorobenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
2-Butanone (MEK)	ug/l	< 25	---	< 25	---	< 25	< 25	< 25	---	< 25	---	---	---	---	< 25	---
2-Hexanone	ug/l	< 50	---	< 50	---	< 50	< 50	< 50	---	< 50	---	---	---	---	< 50	---
2-Methylnaphthalene	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	---	< 50	---	< 50	< 50	< 50	---	< 50	---	---	---	---	< 50	---
Acetone	ug/l	< 50	---	< 50	---	< 50	< 50	< 50	---	< 50	---	---	---	---	< 50	---
Acrylonitrile	ug/l	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	< 2.0	---	---	---	---	< 2.0	---
Benzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Bromobenzene	ug/l	---	---	< 1.0	---	---	---	---	---	---	---	---	---	---	---	---
Bromochloromethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Bromodichloromethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Bromoform	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Bromomethane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Carbon disulfide	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Carbon tetrachloride	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	11/17/2011 3:10 PM	11/14/2012 4:35 PM	8/5/2014 3:33 PM	5/3/2012 3:55 PM	11/29/2011 1:50 PM	11/16/2011 12:20 PM	11/16/2011 3:20 PM	5/2/2013 3:05 PM	11/15/2011 3:25 PM	11/14/2012 3:07 PM	5/3/2013 10:52 AM	5/31/2012 11:30 AM	5/2/2013 3:22 PM	11/17/2011 2:30 PM	5/2/2013 4:15 PM
	Location	SBKR0978I008	SBKR1000I501	SBKR1000I501	SBKR1025L502	SBKR1037R010	SBKR1070I006	SBKR1070I025	SBKR1075L510	SBKR1082I004	SBKR1100I501	SBKR1125I502	SBKR1150L522	SBKR1150R506	SBKR1175L019	SBKR1175R502
	Sample	SBKR0978I 008S 111711G032	SBKR1000I 501S 111412G025	SBKR1000I 501S 080514G041	SBKR1025L 502S 050312G037	SBKR1037R 010S 112911G028	SBKR1070I 006S 111611G021	SBKR1070I 025S 111611G019	SBKR1075L 510S 050213G035	SBKR1082I 004S 111511G014	SBKR1100I 501S 111412G042	SBKR1125I 502S 050313G012	SBKR1150L 522S 053112G037	SBKR1150R 506S 050213G029	SBKR1175L 019S 111711G033	SBKR1175R 502S 050213G011
	Depth	2.2 - 3.2 ft	1.5 - 2.5 ft	0.5 - 4.1 ft	0 - 3.7 ft	1.8 - 2.8 ft	1.1 - 2.1 ft	0.9 - 1.9 ft	2.5 - 3.5 ft	0.43 - 1.4 ft	3.2 - 4.2 ft	0.2 - 1.2 ft	2.7 - 3.7 ft	1.9 - 2.9 ft	2.3 - 3.3 ft	0.1 - 1.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Chloroethane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Chloroform	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Chloromethane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
cis-1,2-Dichloroethylene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Cyclohexane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Dibromochloromethane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Dibromochloropropane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Dibromomethane	ug/l	---	---	< 5.0	---	---	---	---	---	---	---	---	---	---	---	---
Dichlorodifluoromethane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Diethyl ether	ug/l	< 10	---	< 10	---	< 10	< 10	< 10	---	< 10	---	---	---	---	< 10	---
Di-isopropyl ether (DIPE)	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Ethylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Ethylene dibromide	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Hexachloroethane	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Isopropyl benzene	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
m&p-Xylene	ug/l	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	< 2.0	---	---	---	---	< 2.0	---
Methyl Iodide	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Methylene chloride	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
Naphthalene	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
n-Butylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
n-Propylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
o-Xylene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
sec-Butylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Styrene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
t-Amyl methyl ether (TAME)	ug/l	< 5.0	---	< 5.0	---	< 5.0	< 5.0	< 5.0	---	< 5.0	---	---	---	---	< 5.0	---
t-Butyl alcohol	ug/l	< 50	---	< 50	---	< 50	< 50	< 50	---	< 50	---	---	---	---	< 50	---
t-Butylbenzene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Tetrachloroethylene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Tetrahydrofuran	ug/l	< 90	---	< 90	---	< 90	< 90	< 90	---	< 90	---	---	---	---	< 90	---
Toluene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Total BTEX	ug/l	---	---	< 1.0	---	---	---	---	---	---	---	---	---	---	---	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---

	Date / Time Collected	11/17/2011 3:10 PM	11/14/2012 4:35 PM	8/5/2014 3:33 PM	5/3/2012 3:55 PM	11/29/2011 1:50 PM	11/16/2011 12:20 PM	11/16/2011 3:20 PM	5/2/2013 3:05 PM	11/15/2011 3:25 PM	11/14/2012 3:07 PM	5/3/2013 10:52 AM	5/31/2012 11:30 AM	5/2/2013 3:22 PM	11/17/2011 2:30 PM	5/2/2013 4:15 PM
	Location	SBKR0978I008	SBKR1000I501	SBKR1000I501	SBKR1025L502	SBKR1037R010	SBKR1070I006	SBKR1070I025	SBKR1075L510	SBKR1082I004	SBKR1100I501	SBKR1125I502	SBKR1150L522	SBKR1150R506	SBKR1175L019	SBKR1175R502
	Sample	SBKR0978I 008S 111711G032	SBKR1000I 501S 111412G025	SBKR1000I 501S 080514G041	SBKR1025L 502S 050312G037	SBKR1037R 010S 112911G028	SBKR1070I 006S 111611G021	SBKR1070I 025S 111611G019	SBKR1075L 510S 050213G035	SBKR1082I 004S 111511G014	SBKR1100I 501S 111412G042	SBKR1125I 502S 050313G012	SBKR1150L 522S 053112G037	SBKR1150R 506S 050213G029	SBKR1175L 019S 111711G033	SBKR1175R 502S 050213G011
	Depth	2.2 - 3.2 ft	1.5 - 2.5 ft	0.5 - 4.1 ft	0 - 3.7 ft	1.8 - 2.8 ft	1.1 - 2.1 ft	0.9 - 1.9 ft	2.5 - 3.5 ft	0.43 - 1.4 ft	3.2 - 4.2 ft	0.2 - 1.2 ft	2.7 - 3.7 ft	1.9 - 2.9 ft	2.3 - 3.3 ft	0.1 - 1.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Trichlorofluoromethane	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Vinyl chloride	ug/l	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	< 1.0	---	---	---	---	< 1.0	---
Xylenes	ug/l	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	< 2.0	---	---	---	---	< 2.0	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/17/2013 1:56 PM	4/17/2013 10:00 AM	4/17/2013 11:25 AM	10/11/2013 10:57 AM	1/27/2012 11:35 AM	2/2/2012 11:05 AM	2/10/2012 1:05 PM	11/3/2011 3:40 PM	11/4/2011 2:03 PM	6/11/2013 2:10 PM	11/29/2011 11:35 AM	11/30/2011 12:40 PM	5/23/2013 11:20 AM	7/25/2013 3:45 PM	7/25/2013 11:40 AM
	Location	SBKR1250I502	SBKR1250I510	SBKR1250I511	SBKR1275R502	SBKR1300R537	SBKR1300R563	SBKR1300R588	SBKR1350L001	SBKR1350L006	SBKR1400I502	SBKR1497I007	SBKR1497I013	SBKR2225L503	SBKR2225R511	SBKR2250R514
	Sample	SBKR1250I 502S 041713G015	SBKR1250I 510S 041713G015	SBKR1250I 511S 041713G018	SBKR1275R 502S 101113G042	SBKR1300R 537S 012712G044	SBKR1300R 563S 020212G040	SBKR1300R 588S 021012G043	SBKR1350L 001S 110311G043	SBKR1350L 006S 110411G041	SBKR1400I 502S 061113G041	SBKR1497I 007S 112911G023	SBKR1497I 013S 113011G012	SBKR2225L 503S 052313G043	SBKR2225R 511S 072513G041	SBKR2250R 514S 072513G041
	Depth	0.5 - 1.5 ft	1 - 1.5 ft	1.3 - 1.8 ft	0.5 - 4.2 ft	3.4 - 4.4 ft	3 - 4 ft	3.3 - 4.3 ft	3.3 - 4.3 ft	3.1 - 4.1 ft	0.5 - 4.1 ft	1.3 - 2.3 ft	0.2 - 1.2 ft	0.5 - 4.3 ft	0.5 - 4.09 ft	0.6 - 4.11 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field																
Depth to Water	ft	**2.97**	**3.40**	**3.40**	**0.78**	**2.98**	**3.17**	**3.25**	**2.5**	**1.57**	**3.39**	**0.95**	**0.31**	**4.02**	**4.03**	**4.38**
Dissolved Oxygen	mg/l	**2.34**	**1.52**	**2.49**	**2.45**	**1.15**	**0.36**	**0.42**	**10.27**	**0.79**	**2.73**	**10.18**	**1.88**	**1.78**	**0.64**	**0.98**
Oxidation Reduction Potential	millivolts	-61.7	-56.4	**15.8**	**17.2**	**444.7**	-92.1	**322.9**	-101.3	-121.0	-166.7	**133.8**	-22.4	-50.7	-121.9	-101.3
pH	su	**7.89**	**7.52**	**7.96**	**7.46**	**7.25**	**6.80**	**7.21**	**7.36**	**7.31**	**7.17**	**7.87**	**7.30**	**6.89**	**6.67**	**6.97**
Specific Conductance	mS/cm	**0.638**	**0.694**	**0.632**	**0.64**	**0.753**	**0.91**	**0.487**	**0.82**	**0.68**	**0.74**	**0.137**	**0.493**	**1.14**	**0.965**	**0.765**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**5.7**	**5.7**	**7.4**	**15.6**	**4.1**	**5.4**	**2.1**	**1.5**	**12.3**	**16.8**	**2.46**	**5.98**	**11.9**	**18.81**	**17.49**
Turbidity	ntu	**4.24**	**31.8**	**6.56**	**6.17**	**5.57**	**3.46**	**37.0**	**56.6**	**10.9**	**21.3**	**121**	**6.94**	**29.1**	**0.1**	**0.59**
Metals																
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
PNA																
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.2**	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.8**	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.5**	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.2**	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TPH																
Diesel Range Organics (C10-C20)	mg/l	< 0.10	**0.24**	< 0.10	< 0.10	< 0.10	< 0.10	**0.11**	---	---	< 0.10	**0.46**	**1.1**	< 0.10	< 0.10	< 0.10
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	< 0.20	< 0.20	< 0.20	---	---	---	< 0.20	< 0.20	---	---	---
Oil Range Organics (C20-C34)	mg/l	< 0.10	**0.71**	**0.31**	< 0.10	< 0.10	< 0.10	**0.28**	---	---	< 0.10	**1.2**	**2.4**	< 0.10	< 0.10	< 0.10

	Date / Time Collected	4/17/2013 1:56 PM	4/17/2013 10:00 AM	4/17/2013 11:25 AM	10/11/2013 10:57 AM	1/27/2012 11:35 AM	2/2/2012 11:05 AM	2/10/2012 1:05 PM	11/3/2011 3:40 PM	11/4/2011 2:03 PM	6/11/2013 2:10 PM	11/29/2011 11:35 AM	11/30/2011 12:40 PM	5/23/2013 11:20 AM	7/25/2013 3:45 PM	7/25/2013 11:40 AM
	Location	SBKR1250I502	SBKR1250I510	SBKR1250I511	SBKR1275R502	SBKR1300R537	SBKR1300R563	SBKR1300R588	SBKR1350L001	SBKR1350L006	SBKR1400I502	SBKR1497I007	SBKR1497I013	SBKR2225L503	SBKR2225R511	SBKR2250R514
	Sample	SBKR1250I 502S 041713G015	SBKR1250I 510S 041713G015	SBKR1250I 511S 041713G018	SBKR1275R 502S 101113G042	SBKR1300R 537S 012712G044	SBKR1300R 563S 020212G040	SBKR1300R 588S 021012G043	SBKR1350L 001S 110311G043	SBKR1350L 006S 110411G041	SBKR1400I 502S 061113G041	SBKR1497I 007S 112911G023	SBKR1497I 013S 113011G012	SBKR2225L 503S 052313G043	SBKR2225R 511S 072513G041	SBKR2250R 514S 072513G041
	Depth	0.5 - 1.5 ft	1 - 1.5 ft	1.3 - 1.8 ft	0.5 - 4.2 ft	3.4 - 4.4 ft	3 - 4 ft	3.3 - 4.3 ft	3.3 - 4.3 ft	3.1 - 4.1 ft	0.5 - 4.1 ft	1.3 - 2.3 ft	0.2 - 1.2 ft	0.5 - 4.3 ft	0.5 - 4.09 ft	0.6 - 4.11 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC																
1,1,1,2-Tetrachloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,1,1-Trichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,1,2,2-Tetrachloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,1,2-Trichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,1-Dichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,1-Dichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,2,3-Trichlorobenzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
1,2,3-Trichloropropane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,2,3-Trimethylbenzene	ug/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
1,2,4-Trimethylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,2-Dichlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,2-Dichloroethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,2-Dichloropropane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,3,5-Trimethylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,3-Dichlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,3-Dichloropropene, cis	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,3-Dichloropropene, trans	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,4-Dichloro-2-butene, trans	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
1,4-Dichlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
2-Butanone (MEK)	ug/l	---	---	---	---	< 25	< 25	< 25	< 25	< 25	---	< 25	< 25	---	---	---
2-Hexanone	ug/l	---	---	---	---	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	---	---
2-Methylnaphthalene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
4-Methyl-2-pentanone (MIBK)	ug/l	---	---	---	---	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	---	---
Acetone	ug/l	---	---	---	---	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	---	---
Acrylonitrile	ug/l	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	---	---
Benzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Bromobenzene	ug/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bromochloromethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Bromodichloromethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Bromoform	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Bromomethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Carbon disulfide	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Carbon tetrachloride	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/17/2013 1:56 PM	4/17/2013 10:00 AM	4/17/2013 11:25 AM	10/11/2013 10:57 AM	1/27/2012 11:35 AM	2/2/2012 11:05 AM	2/10/2012 1:05 PM	11/3/2011 3:40 PM	11/4/2011 2:03 PM	6/11/2013 2:10 PM	11/29/2011 11:35 AM	11/30/2011 12:40 PM	5/23/2013 11:20 AM	7/25/2013 3:45 PM	7/25/2013 11:40 AM
	Location	SBKR1250I502	SBKR1250I510	SBKR1250I511	SBKR1275R502	SBKR1300R537	SBKR1300R563	SBKR1300R588	SBKR1350L001	SBKR1350L006	SBKR1400I502	SBKR1497I007	SBKR1497I013	SBKR2225L503	SBKR2225R511	SBKR2250R514
	Sample	SBKR1250I 502S 041713G015	SBKR1250I 510S 041713G015	SBKR1250I 511S 041713G018	SBKR1275R 502S 101113G042	SBKR1300R 537S 012712G044	SBKR1300R 563S 020212G040	SBKR1300R 588S 021012G043	SBKR1350L 001S 110311G043	SBKR1350L 006S 110411G041	SBKR1400I 502S 061113G041	SBKR1497I 007S 112911G023	SBKR1497I 013S 113011G012	SBKR2225L 503S 052313G043	SBKR2225R 511S 072513G041	SBKR2250R 514S 072513G041
	Depth	0.5 - 1.5 ft	1 - 1.5 ft	1.3 - 1.8 ft	0.5 - 4.2 ft	3.4 - 4.4 ft	3 - 4 ft	3.3 - 4.3 ft	3.3 - 4.3 ft	3.1 - 4.1 ft	0.5 - 4.1 ft	1.3 - 2.3 ft	0.2 - 1.2 ft	0.5 - 4.3 ft	0.5 - 4.09 ft	0.6 - 4.11 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Chloroethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Chloroform	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Chloromethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
cis-1,2-Dichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Cyclohexane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Dibromochloromethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Dibromochloropropane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Dibromomethane	ug/l	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dichlorodifluoromethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Diethyl ether	ug/l	---	---	---	---	< 10	< 10	< 10	< 10	< 10	---	< 10	< 10	---	---	---
Di-isopropyl ether (DIPE)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Ethylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Ethylene dibromide	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Ethyl-tert-butyl ether (ETBE)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Hexachloroethane	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Isopropyl benzene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
m&p-Xylene	ug/l	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	---	---
Methyl Iodide	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Methylene chloride	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Methyl-tert-butyl ether (MTBE)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
Naphthalene	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
n-Butylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
n-Propylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
o-Xylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
p-Isopropyl toluene (p-Cymene)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
sec-Butylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Styrene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
t-Amyl methyl ether (TAME)	ug/l	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	---	< 5.0	< 5.0	---	---	---
t-Butyl alcohol	ug/l	---	---	---	---	< 50	< 50	< 50	< 50	< 50	---	< 50	< 50	---	---	---
t-Butylbenzene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Tetrachloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Tetrahydrofuran	ug/l	---	---	---	---	< 90	< 90	< 90	< 90	< 90	---	< 90	< 90	---	---	---
Toluene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Total BTEX	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	---	---
trans-1,2-Dichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	4/17/2013 1:56 PM	4/17/2013 10:00 AM	4/17/2013 11:25 AM	10/11/2013 10:57 AM	1/27/2012 11:35 AM	2/2/2012 11:05 AM	2/10/2012 1:05 PM	11/3/2011 3:40 PM	11/4/2011 2:03 PM	6/11/2013 2:10 PM	11/29/2011 11:35 AM	11/30/2011 12:40 PM	5/23/2013 11:20 AM	7/25/2013 3:45 PM	7/25/2013 11:40 AM
	Location	SBKR1250I502	SBKR1250I510	SBKR1250I511	SBKR1275R502	SBKR1300R537	SBKR1300R563	SBKR1300R588	SBKR1350L001	SBKR1350L006	SBKR1400I502	SBKR1497I007	SBKR1497I013	SBKR2225L503	SBKR2225R511	SBKR2250R514
	Sample	SBKR1250I 502S 041713G015	SBKR1250I 510S 041713G015	SBKR1250I 511S 041713G018	SBKR1275R 502S 101113G042	SBKR1300R 537S 012712G044	SBKR1300R 563S 020212G040	SBKR1300R 588S 021012G043	SBKR1350L 001S 110311G043	SBKR1350L 006S 110411G041	SBKR1400I 502S 061113G041	SBKR1497I 007S 112911G023	SBKR1497I 013S 113011G012	SBKR2225L 503S 052313G043	SBKR2225R 511S 072513G041	SBKR2250R 514S 072513G041
	Depth	0.5 - 1.5 ft	1 - 1.5 ft	1.3 - 1.8 ft	0.5 - 4.2 ft	3.4 - 4.4 ft	3 - 4 ft	3.3 - 4.3 ft	3.3 - 4.3 ft	3.1 - 4.1 ft	0.5 - 4.1 ft	1.3 - 2.3 ft	0.2 - 1.2 ft	0.5 - 4.3 ft	0.5 - 4.09 ft	0.6 - 4.11 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Trichlorofluoromethane	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Vinyl chloride	ug/l	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---	---	---
Xylenes	ug/l	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	---	---	---

	Date / Time Collected	7/11/2013 10:29 AM	7/12/2013 10:25 AM	7/11/2013 11:55 AM	8/19/2013 10:35 AM	8/28/2014 9:52 AM	12/6/2013 2:13 PM	7/21/2012 12:10 PM	7/23/2012 3:27 PM	7/21/2012 11:20 AM	7/23/2012 2:45 PM	8/3/2012 11:48 AM	10/28/2014 10:50 AM	10/21/2014 9:45 AM
	Location	SBKR2625R 510	SBKR2675R 507	SBKR2700R 506	SBKR2900L 506	SBKR3525L 520	SBSA0025R 541	SBSA0125	SBSA0125	SBSA0132	SBSA0132	SBSA0141	SBTC0025L5 05	SBTC0025R 567
	Sample	SBKR2625R 510S 071113G041	SBKR2675R 507S 071213G042	SBKR2700R 506S 071113G040	SBKR2900L 506S 081913G044	SBKR3525L 520S 082814G037	SBSA0025R 541S120613 G068	SBSA0125S 072112G085	SBSA0125S 072312G099	SBSA0132S 072112G020	SBSA0132S 072312G100	SBSA0141S 080312G036	SBTC0025L 505S 102814G042	SBTC0025R 567S 102114G041
	Depth	0.5 - 4.1 ft	0.5 - 4.23 ft	0.5 - 4.04 ft	0.9 - 4.42 ft	0.5 - 3.7 ft	6.8 - 6.8 ft	7.5 - 8.5 ft	8.9 - 9.9 ft	1 - 2 ft	8.95 - 9.95 ft	3.6 - 3.6 ft	0.5 - 4.19 ft	0.5 - 4.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Field														
Depth to Water	ft	**4.34**	**3.86**	**3.92**	**2.71**	**3.6**	---	**5.40**	**5.81**	**2.63**	---	**4.97**	**2.44**	**2.14**
Dissolved Oxygen	mg/l	**1.14**	**0.19**	**5.86**	**0.41**	**0.46**	**3.01**	**4.3**	**0.32**	**0.22**	---	**0.04**	**0.17**	**0.31**
Oxidation Reduction Potential	millivolts	-75.0	-156.3	**105.0**	-46.5	-97.5	-32.4	-62.3	-25.4	-63.7	---	-63.8	-31.2	-33.6
pH	su	**7.03**	**7.17**	**7.56**	**6.90**	**6.33**	**6.58**	**7.80**	**9.00**	**6.82**	---	**6.50**	**6.93**	**7.20**
Specific Conductance	mS/cm	**1.14**	**0.78**	**0.72**	**0.89**	**0.70**	**0.99**	**0.83**	**0.81**	**1.09**	---	**0.694**	**0.78**	**0.471**
Specific Conductance	uS/cm	---	---	---	---	---	---	---	---	---	---	---	---	---
Temperature	deg c	**15.6**	**15.9**	**22.5**	**17.0**	**15.6**	**6.7**	**23.2**	**22.8**	**22.9**	---	**24.06**	**12.1**	**11.0**
Turbidity	ntu	**1.88**	**2.49**	**4.70**	**5.53**	**8.74**	**179**	**43.6**	**43.4**	**29.7**	---	**1000**	**6.30**	**5.12**
Metals														
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	**0.0017**	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	**0.11**	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	**0.0089**	< 0.0040	< 0.0040	**0.15**	< 0.0040	< 0.0040
PNA														
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 8.0	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 8.0	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 8.0	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 5.0	< 5.0
TPH														
Diesel Range Organics (C10-C20)	mg/l	< 0.10	< 0.10	< 0.10	< 0.10	---	---	**0.26**	**0.28**	< 0.10	< 0.40	< 0.10	---	---
Gasoline Range Organics (C6-C10)	mg/l	---	---	---	---	---	---	**0.52**	**0.35**	< 0.20	< 0.20	< 0.20	---	---
Oil Range Organics (C20-C34)	mg/l	< 0.10	< 0.10	< 0.10	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.40	< 0.10	---	---

	Date / Time Collected	7/11/2013 10:29 AM	7/12/2013 10:25 AM	7/11/2013 11:55 AM	8/19/2013 10:35 AM	8/28/2014 9:52 AM	12/6/2013 2:13 PM	7/21/2012 12:10 PM	7/23/2012 3:27 PM	7/21/2012 11:20 AM	7/23/2012 2:45 PM	8/3/2012 11:48 AM	10/28/2014 10:50 AM	10/21/2014 9:45 AM
	Location	SBKR2625R 510	SBKR2675R 507	SBKR2700R 506	SBKR2900L 506	SBKR3525L 520	SBSA0025R 541	SBSA0125	SBSA0125	SBSA0132	SBSA0132	SBSA0141	SBTC0025L5 05	SBTC0025R 567
	Sample	SBKR2625R 510S 071113G041	SBKR2675R 507S 071213G042	SBKR2700R 506S 071113G040	SBKR2900L 506S 081913G044	SBKR3525L 520S 082814G037	SBSA0025R 541S120613 G068	SBSA0125S 072112G085	SBSA0125S 072312G099	SBSA0132S 072112G020	SBSA0132S 072312G100	SBSA0141S 080312G036	SBTC0025L 505S 102814G042	SBTC0025R 567S 102114G041
	Depth	0.5 - 4.1 ft	0.5 - 4.23 ft	0.5 - 4.04 ft	0.9 - 4.42 ft	0.5 - 3.7 ft	6.8 - 6.8 ft	7.5 - 8.5 ft	8.9 - 9.9 ft	1 - 2 ft	8.95 - 9.95 ft	3.6 - 3.6 ft	0.5 - 4.19 ft	0.5 - 4.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
VOC														
1,1,1,2-Tetrachloroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	---	---	---	---	---	< 5.0	---	---	---	---	---	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	---	---	---	---	---	< 1.0	**4.3**	**4.2**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	---	---	---	---	---	< 1.0	**1.4**	**1.4**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	---	---	---	---	---	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
2-Hexanone	ug/l	---	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	---	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	ug/l	---	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acrylonitrile	ug/l	---	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	ug/l	---	---	---	---	---	**6.7**	**18**	**14**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	---	---	---	---	---	---	---	---	---	---	---	< 1.0	< 1.0
Bromochloromethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

	Date / Time Collected	7/11/2013 10:29 AM	7/12/2013 10:25 AM	7/11/2013 11:55 AM	8/19/2013 10:35 AM	8/28/2014 9:52 AM	12/6/2013 2:13 PM	7/21/2012 12:10 PM	7/23/2012 3:27 PM	7/21/2012 11:20 AM	7/23/2012 2:45 PM	8/3/2012 11:48 AM	10/28/2014 10:50 AM	10/21/2014 9:45 AM
	Location	SBKR2625R 510	SBKR2675R 507	SBKR2700R 506	SBKR2900L 506	SBKR3525L 520	SBSA0025R 541	SBSA0125	SBSA0125	SBSA0132	SBSA0132	SBSA0141	SBTC0025L5 05	SBTC0025R 567
	Sample	SBKR2625R 510S 071113G041	SBKR2675R 507S 071213G042	SBKR2700R 506S 071113G040	SBKR2900L 506S 081913G044	SBKR3525L 520S 082814G037	SBSA0025R 541S120613 G068	SBSA0125S 072112G085	SBSA0125S 072312G099	SBSA0132S 072112G020	SBSA0132S 072312G100	SBSA0141S 080312G036	SBTC0025L 505S 102814G042	SBTC0025R 567S 102114G041
	Depth	0.5 - 4.1 ft	0.5 - 4.23 ft	0.5 - 4.04 ft	0.9 - 4.42 ft	0.5 - 3.7 ft	6.8 - 6.8 ft	7.5 - 8.5 ft	8.9 - 9.9 ft	1 - 2 ft	8.95 - 9.95 ft	3.6 - 3.6 ft	0.5 - 4.19 ft	0.5 - 4.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chlorobenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	---	---	---	---	---	< 5.0	**10**	**8.0**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	---	---	---	---	---	---	---	---	---	---	---	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	---	---	---	---	---	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	---	---	---	---	---	< 1.0	**2.0**	**1.4**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	---	---	---	---	---	< 2.0	**7.0**	**4.7**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	---	---	---	---	---	< 1.0	**4.5**	**3.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	---	---	---	---	---	< 5.0	**11**	**6.1**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	---	---	---	---	---	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	---	---	---	---	---	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
t-Butylbenzene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	---	---	---	---	---	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90
Toluene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	---	---	---	---	---	**20**	**15**	< 1.0	< 1.0	< 1.0	---	---
trans-1,2-Dichloroethylene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Table 11. Spill Area Wide NAPL Indicators - Groundwater Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Date / Time Collected	7/11/2013 10:29 AM	7/12/2013 10:25 AM	7/11/2013 11:55 AM	8/19/2013 10:35 AM	8/28/2014 9:52 AM	12/6/2013 2:13 PM	7/21/2012 12:10 PM	7/23/2012 3:27 PM	7/21/2012 11:20 AM	7/23/2012 2:45 PM	8/3/2012 11:48 AM	10/28/2014 10:50 AM	10/21/2014 9:45 AM
	Location	SBKR2625R 510	SBKR2675R 507	SBKR2700R 506	SBKR2900L 506	SBKR3525L 520	SBSA0025R 541	SBSA0125	SBSA0125	SBSA0132	SBSA0132	SBSA0141	SBTC0025L5 05	SBTC0025R 567
	Sample	SBKR2625R 510S 071113G041	SBKR2675R 507S 071213G042	SBKR2700R 506S 071113G040	SBKR2900L 506S 081913G044	SBKR3525L 520S 082814G037	SBSA0025R 541S120613 G068	SBSA0125S 072112G085	SBSA0125S 072312G099	SBSA0132S 072112G020	SBSA0132S 072312G100	SBSA0141S 080312G036	SBTC0025L 505S 102814G042	SBTC0025R 567S 102114G041
	Depth	0.5 - 4.1 ft	0.5 - 4.23 ft	0.5 - 4.04 ft	0.9 - 4.42 ft	0.5 - 3.7 ft	6.8 - 6.8 ft	7.5 - 8.5 ft	8.9 - 9.9 ft	1 - 2 ft	8.95 - 9.95 ft	3.6 - 3.6 ft	0.5 - 4.19 ft	0.5 - 4.1 ft
	Dissolved / Total	T	T	T	T	T	T	T	T	T	T	T	T	T
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Trichloroethylene	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	---	---	---	---	---	< 2.0	**11**	**8.0**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

	Date / Time Collected	9/1/2011 2:05 PM	11/4/2014 4:20 PM	2/11/2014 10:30 AM
	Location	SBTC0050R 107E	SBTC0050R 504	SBTC0075L5 14
	Sample	GWTC0050R 107ES 090111G078	SBTC0050R 504S 110414G033	SBTC0075L 514S 021114G051
	Depth	6.84 - 7.84 ft	0.3 - 3.28 ft	1.5 - 5.06 ft
	Dissolved / Total	T	T	T
Analyte	Units	Result	Result	Result
Field				
Depth to Water	ft	---	**2.96**	**0.17**
Dissolved Oxygen	mg/l	**0.15**	**1.54**	**0.36**
Oxidation Reduction Potential	millivolts	-172.1	-72.3	-28.9
pH	su	**7.16**	**7.20**	**7.09**
Specific Conductance	mS/cm	**0.536**	**0.84**	**0.537**
Specific Conductance	uS/cm	---	---	---
Temperature	deg c	**20.76**	**9.5**	**5.9**
Turbidity	ntu	**106.3**	**11.1**	**2.29**
Metals				
Beryllium	mg/l	< 0.0010	< 0.0010	< 0.0010
Molybdenum	mg/l	< 0.050	< 0.050	< 0.050
Nickel	mg/l	< 0.020	< 0.020	< 0.020
Vanadium	mg/l	< 0.0040	< 0.0040	< 0.0040
PNA				
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0
Acenaphthene	ug/l	< 5.0	< 5.0	< 5.0
Acenaphthylene	ug/l	< 5.0	< 5.0	< 5.0
Anthracene	ug/l	< 5.0	< 5.0	< 5.0
Benzo(a)anthracene	ug/l	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	ug/l	< 1.0	< 1.0	< 1.0
Benzo(b)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0
Benzo(g,h,i)perylene	ug/l	< 1.0	< 1.0	< 1.0
Benzo(k)fluoranthene	ug/l	< 1.0	< 1.0	< 1.0
Chrysene	ug/l	< 1.0	< 1.0	< 1.0
Dibenzo(a,h)anthracene	ug/l	< 2.0	< 2.0	< 2.0
Fluoranthene	ug/l	< 1.0	< 1.0	< 1.0
Fluorene	ug/l	< 5.0	< 5.0	< 5.0
Indeno(1,2,3-c,d)pyrene	ug/l	< 2.0	< 2.0	< 2.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0
Phenanthrene	ug/l	< 2.0	< 2.0	< 2.0
Pyrene	ug/l	< 5.0	< 5.0	< 5.0
TPH				
Diesel Range Organics (C10-C20)	mg/l	< 0.10	---	---
Gasoline Range Organics (C6-C10)	mg/l	< 0.20	---	---
Oil Range Organics (C20-C34)	mg/l	< 0.10	---	---

	Date / Time Collected	9/1/2011 2:05 PM	11/4/2014 4:20 PM	2/11/2014 10:30 AM
	Location	SBTC0050R 107E	SBTC0050R 504	SBTC0075L5 14
	Sample	GWTC0050R 107ES 090111G078	SBTC0050R 504S 110414G033	SBTC0075L 514S 021114G051
	Depth	6.84 - 7.84 ft	0.3 - 3.28 ft	1.5 - 5.06 ft
	Dissolved / Total	T	T	T
Analyte	Units	Result	Result	Result
VOC				
1,1,1,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0
1,2,3-Trichloropropane	ug/l	< 1.0	< 1.0	< 1.0
1,2,3-Trimethylbenzene	ug/l	---	< 5.0	< 5.0
1,2,4-Trichlorobenzene	ug/l	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	ug/l	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	ug/l	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	ug/l	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, cis	ug/l	< 1.0	< 1.0	< 1.0
1,3-Dichloropropene, trans	ug/l	< 1.0	< 1.0	< 1.0
1,4-Dichloro-2-butene, trans	ug/l	< 5.0	< 1.0	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	ug/l	< 25	< 25	< 25
2-Hexanone	ug/l	< 50	< 50	< 50
2-Methylnaphthalene	ug/l	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	ug/l	< 50	< 50	< 50
Acetone	ug/l	< 50	< 50	< 50
Acrylonitrile	ug/l	< 2.0	< 2.0	< 2.0
Benzene	ug/l	< 1.0	< 1.0	< 1.0
Bromobenzene	ug/l	---	< 1.0	< 1.0
Bromochloromethane	ug/l	< 1.0	< 1.0	< 1.0
Bromodichloromethane	ug/l	< 1.0	< 1.0	< 1.0
Bromoform	ug/l	< 1.0	< 1.0	< 1.0
Bromomethane	ug/l	< 5.0	< 5.0	< 5.0
Carbon disulfide	ug/l	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	ug/l	< 1.0	< 1.0	< 1.0

	Date / Time Collected	9/1/2011 2:05 PM	11/4/2014 4:20 PM	2/11/2014 10:30 AM
	Location	SBTC0050R 107E	SBTC0050R 504	SBTC0075L5 14
	Sample	GWTC0050R 107ES 090111G078	SBTC0050R 504S 110414G033	SBTC0075L 514S 021114G051
	Depth	6.84 - 7.84 ft	0.3 - 3.28 ft	1.5 - 5.06 ft
	Dissolved / Total	T	T	T
Analyte	Units	Result	Result	Result
Chlorobenzene	ug/l	< 1.0	< 1.0	< 1.0
Chloroethane	ug/l	< 5.0	< 5.0	< 5.0
Chloroform	ug/l	< 1.0	< 1.0	< 1.0
Chloromethane	ug/l	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0
Cyclohexane	ug/l	< 5.0	< 5.0	< 5.0
Dibromochloromethane	ug/l	< 5.0	< 5.0	< 5.0
Dibromochloropropane	ug/l	< 1.0	< 1.0	< 1.0
Dibromomethane	ug/l	---	< 5.0	< 5.0
Dichlorodifluoromethane	ug/l	< 5.0	< 5.0	< 5.0
Diethyl ether	ug/l	< 10	< 10	< 10
Di-isopropyl ether (DIPE)	ug/l	< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/l	< 1.0	< 1.0	< 1.0
Ethylene dibromide	ug/l	< 1.0	< 1.0	< 1.0
Ethyl-tert-butyl ether (ETBE)	ug/l	< 5.0	< 5.0	< 5.0
Hexachloroethane	ug/l	< 5.0	< 5.0	< 5.0
Isopropyl benzene	ug/l	< 5.0	< 5.0	< 5.0
m&p-Xylene	ug/l	< 2.0	< 2.0	< 2.0
Methyl Iodide	ug/l	< 1.0	< 1.0	< 1.0
Methylene chloride	ug/l	< 5.0	< 5.0	< 5.0
Methyl-tert-butyl ether (MTBE)	ug/l	< 5.0	< 5.0	< 5.0
Naphthalene	ug/l	< 5.0	< 5.0	< 5.0
n-Butylbenzene	ug/l	< 1.0	< 1.0	< 1.0
n-Propylbenzene	ug/l	< 1.0	< 1.0	< 1.0
o-Xylene	ug/l	< 1.0	< 1.0	< 1.0
p-Isopropyl toluene (p-Cymene)	ug/l	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	ug/l	< 2.0	< 1.0	< 1.0
Styrene	ug/l	< 1.0	< 1.0	< 1.0
t-Amyl methyl ether (TAME)	ug/l	< 5.0	< 5.0	< 5.0
t-Butyl alcohol	ug/l	< 50	< 50	< 50
t-Butylbenzene	ug/l	< 2.0	< 1.0	< 1.0
Tetrachloroethylene	ug/l	< 1.0	< 1.0	< 1.0
Tetrahydrofuran	ug/l	< 90	< 90	< 90
Toluene	ug/l	< 1.0	< 1.0	< 1.0
Total BTEX	ug/l	---	---	---
trans-1,2-Dichloroethylene	ug/l	< 1.0	< 1.0	< 1.0

	Date / Time Collected	9/1/2011 2:05 PM	11/4/2014 4:20 PM	2/11/2014 10:30 AM
	Location	SBTC0050R 107E	SBTC0050R 504	SBTC0075L5 14
	Sample	GWTC0050R 107ES 090111G078	SBTC0050R 504S 110414G033	SBTC0075L 514S 021114G051
	Depth	6.84 - 7.84 ft	0.3 - 3.28 ft	1.5 - 5.06 ft
	Dissolved / Total	T	T	T
Analyte	Units	Result	Result	Result
Trichloroethylene	ug/l	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	ug/l	< 1.0	< 1.0	< 1.0
Vinyl chloride	ug/l	< 1.0	< 1.0	< 1.0
Xylenes	ug/l	< 2.0	< 2.0	< 2.0

Groundwater Footnotes:
Criteria were originally promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This table reflects new criteria rules, numbered from 299.1 to 299.50 which became effective on December 30, 2013.
Bold values are concentrations detected above the reporting limit.
Shaded values exceed Part 201 Generic Residential Cleanup Criteria.
Shaded values indicate that the laboratory Reporting Limit value exceeds Part 201 Generic Residential Cleanup Criteria.
(A) = Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(E) = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value provided in a table available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(G) = Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg $CaCO_3$/L, use 400 mg $CaCO_3$/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G)-footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)
(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(M) = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.
(S) = Criterion defaults to the hazardous substance-specific water solubility limit.
(W) = Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.
(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)

(AA) = Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses.
--- = not completed/not analyzed.
D = dissolved (filtered).
deg c = degrees Celsius.
ft = feet.
ID = insufficient data to develop criterion.
mg/l = milligram per liter.
mS/cm = millisiemens per centimeter.
NA = a criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NCE = no criteria established.
NLV = hazardous substance is not likely to volatilize under most conditions.
ntu = nephelometric turbidity unit.
pH = a measure of the acidity or basicity of an aqueous solution.
PNA = polynuclear aromatic hydrocarbon.
su = standard unit.
T = total (unfiltered).
TPH = total petroleum hydrocarbon.
ug/l = micrograms per liter.
uS/cm = microsiemens per centimeter.
VOC = volatile organic compound.