Enbridge Energy, Limited Partnership
1601 Pratt Avenue
Marshall, Michigan 49068

November 8, 2011

Mr. Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. Environmental Protection Agency
801 Garfield Avenue, #229
Traverse City, MI 49686

Re: In the Matter of Enbridge Energy Partners, L.P., *et al*,
Docket No. CWA 1321-5-10-001

Dear Mr. Dollhopf:

The United States Environmental Protection Agency (U.S. EPA) in a letter dated November 4, 2011, directed Enbridge Energy, Limited Partnership (Enbridge) to submit a plan for preventing migration of oil past the Morrow Lake Dam during Winter 2011-2012.

Enclosed, please find the Plan for Preventing Migration of Oil Past the Morrow Lake Dam During Winter 2011-2012 (MP 36.75 – 37.25) for your review and approval.

If you have any questions about these materials, please do not hesitate to contact me.

Sincerely,

ENBRIDGE ENERGY, LIMITED PARTNERSHIP
By Enbridge Pipelines (Lakehead) L.L.C.
Its General Partner

Richard Adams
Vice President, U.S.Operations

CC: Joel W. Kanvik, Enbridge
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Approval Pending

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Plan for Preventing Migration of Oil Past the Morrow Lake Dam During Winter 2011-2012 (MP 36.75 – 37.25)

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: November 8, 2011

FIGURES

LIST OF ACRONYMS

Enbridge	Enbridge Energy, Limited Partnership
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department of Environmental Quality
MP	Mile Post
Supplemental Order	Supplement to Order for Compliance Under Section 311(c) of the Clean Water Act, issued by USEPA 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 Order	U.S. EPA Removal Administrative Order Under Section 311(c) of the Clean Water Act, issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001
U.S. EPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This *Plan for Preventing Migration of Oil Past the Morrow Lake Dam During Winter 2011-2012* was written in response to the November 4, 2011 United States Environmental Protection Agency (U.S. EPA) letter in response to Enbridge Energy, Limited Partnership's October 20, 2011 Submittal in response to the Administrative Order issued by U.S. EPA (U.S. EPA Order) on July 27, 2010 and Supplement to the Administrative Order issued by U.S. EPA on September 23, 2010 (Supplement Order), pursuant to §311(c) of the Clean Water Act (docket No. CWA 1321-5-10-001). The letter directs Enbridge to "continue to take all necessary actions to contain and prevent the migration of oil, sheen, submerged oil and oil-containing sediments past/downstream of the Morrow Lake Dam."

2.0 BACKGROUND

Remaining residual submerged oil may continue to migrate and accumulate in depositional areas of the Kalamazoo River. It will be necessary to contain and minimize the migration of oil, sheen, submerged oil and oil-containing sediments past/downstream of the Morrow Lake Dam during the winter and spring months to allow for removal activities during warmer months.

3.0 SEDIMENT CONTAINMENT

This work plan provides the conceptual design for enhancing the Morrow Lake Delta's natural depositional characteristics to minimize the migration of submerged oil and oil-containing sediments to Morrow Lake through the installation of bed structures. This preliminary design will be used to generate the final design pending refinement using the hydrodynamic model.

A combination of materials (coir logs, and natural bed structures constructed of small conifers and hardwoods, and/or brush bundles) will be used to construct bed structures installed within and adjacent to the Delta to promote sediment deposition and containment. Depth of water is the primary factor used to determine which type of structure will be used in each area. In some instances, a combination of multiple materials will be used to achieve the desired result. The attached figure depicts the preliminary proposed bed structure installation location based upon general site knowledge (e.g. flow patterns, water depths).

3.1 Site Selection

As stated above, the depth of water is a critical factor in choosing the optimal type of structure for each area. For the purposes of the model, the depth of water in the delta will be considered in two depth intervals: deep water (greater than two feet of water) and shallow water (less than two feet of water). The two scenarios are described below.

3.1.1 Deep Water

Deep water is primarily present on the north bank of the Delta within the river thalweg. Row(s) of natural bed structures will be constructed in deep water areas to increase sediment accretion. The structures will act as a natural filter to trap sediment and create areas in the channel with decreased water velocities to allow sediment to more readily fall out of suspension. The natural bed structures will be constructed of row(s) of the woody material that will be installed utilizing a network of stakes.

3.1.2 Shallow Water

Shallow water is present in the majority of the Delta, specifically the southern extents. As flow velocities are generally low in these areas, coir logs will be installed to guide sediment away from the channel. The ends of adjacent coir logs will be installed with a minimum 6-inch overlap to prevent sediment passing through the field joint. The upstream coir log will overlap the downstream coir log. Stakes will be used to fasten the coir logs to the river bed. A combination of wooden stakes and metal screw-type anchors will be driven through the coir log to secure it to the river bed. Alternately, stakes may be placed on each side of the coir logs utilizing natural fiber twine to retain the coir logs in place in a manner that will ensure direct sediment contact. Depth and type of sediment in each subject location will ultimately determine the appropriate installation method utilized.

3.2 Rationale

As sediment accretion is realized behind the bed structures, two primary mechanisms will be in place for control and containment.

1.) The presence of coir logs in the shallow water adjacent to the natural bed structures will guide the sediment away from the main channel into the shallow southern extents of the Delta causing sediment accretion and containment in that region.

2.) Structures and coir logs placed in strategic locations throughout the Delta to reduce flow velocities and allow for suspended material settlement. Sediment which migrates past upstream structures and coir logs will do so at slower velocities, increased settling time before it has the opportunity to enter Morrow Lake.

3.3 Site Preparation

Proper site preparation is essential to ensure complete contact of the sediment retention structure with the river bed. Prior to placement on the river bed, all rocks, clods, vegetation or other obstructions will be removed so that the installed devices will have direct contact with the sediment.

4.0 PERMITTING/REGULATORY APPROVAL

As the proposed installations represent a continuation of oil spill clean-up measures necessary to protect the waters of the state from further incident related impact, and as the installation is similar to other temporary measures previously authorized for installation, administrative approval for deployment of these temporary sediment control measures will be pursued with Michigan Department of Environmental Quality (MDEQ). Should MDEQ determine further regulatory submittals are necessary, additional approvals will be pursued prior to proceeding with deployment of the proposed measures.

5.0 MONITORING

Field monitoring will be performed with two goals in mind: to verify that the natural bed structures and coir logs are not being undermined and to monitor sediment accretion rates. Benchmarks will be established in expected deposition areas. The benchmarks will be regularly monitored to determine effectiveness of the program. Modifications to the design will be made as necessary to increase sediment accretion, for maintenance of the structures, and to adjust to any unintended consequences.

6.0 ADDITIONAL INFORMATION

The hydrodynamic model will be used to simulate and evaluate a range of flow conditions using various existing data sets. The model will be used to determine the number, and angle of the

structures to enhance sediment deposition. An addendum to this work plan will be provided with the results of the hydrodynamic model.

7.0 SCHEDULE

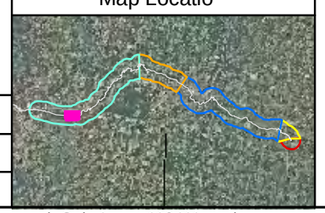
The refinement of the hydrodynamic model is proposed to be complete by November 16, 2011. The data obtained from the refined model will be used to draft the addendum to this plan. The work outlined above is proposed to commence after receipt of necessary agency approvals. The proposed start date is November 28, 2011. U.S. EPA and MDEQ will be notified of any changes to the start date. All work must be completed prior to freeze up. Should weather or river conditions create an adverse obstacle to completion of the subject activities, U. S. EPA and MDEQ will be notified of such conditions and their impact on completion of proposed remediation activities.

Figure

ENBRIDGE

Drawn:	BHS 11/07/2011
Approved:	BRS 11/07/2011
Project #:	106-4186

Map Locatio



Legend

Proposed Bed Structure

Quarter Mile Grid Segment

N

0 400 800 1,600

Scale in Feet

Figure 1. PROPOSED BED STRUCTURE INSTALLATION

Morrow Lake Delta

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

X:\ArcMap Project Files\HDM\HDM_Proposed_Coir_Logs_110411.mxd

Aerial Photography Date: April 2011