



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

October 6, 2011

Enbridge Energy, Limited Partnership
c/o Mr. Rich Adams
Vice President, Operations
Superior City Centre
Second Floor
1409 Hammond Ave.
Superior, Wisconsin 54880

Re: Modifications to Work Plans for Oil Recovery Activities to be Conducted from Fall 2011 through Fall 2012, required by U.S. EPA pursuant to the Administrative Order issued by U.S. EPA on July 27, 2010, pursuant to § 311(c) of the Clean Water Act (Docket No. CWA 1321-5-10-001) and Supplement to the Administrative Order issued by U.S. EPA on September 23, 2010

Dear Mr. Adams:

Pursuant to paragraph 20 of the Administrative Order (“Order”) dated July 27, 2010, the United States Environmental Protection Agency (U.S. EPA) directs Enbridge Energy, Limited Partnership, Enbridge Pipelines (Lakehead) L.L.C., Enbridge Pipelines (Wisconsin), and Enbridge Energy Partners, L.P. (herein collectively referred to as “Enbridge”) to modify the work plans identified below. The Order and Supplement to Order for Compliance (“Supplement”) dated September 23, 2010 require Enbridge to address the discharge of oil from its pipeline that began on or about July 26, 2010. As of the date of this letter, oil from Enbridge’s discharge remains in Talmadge Creek and the Kalamazoo River and associated river banks. Accordingly, pursuant to the Order and the Supplement, U.S. EPA directs Enbridge to prepare work plan addenda for the performance of additional oil recovery activities as described herein. The required response actions detailed below involve work related to the oil-impacted overbank areas (the areas along the banks and floodplains of the Kalamazoo River) and submerged oil located within the Kalamazoo River (including the Morrow Lake Delta and Morrow Lake). Failure to comply with the Order, the Supplement, or the requirements specified herein may result in the assessment of civil penalties and a court-ordered cleanup.

U.S. EPA transferred the primary oversight authority of ongoing cleanup activities along Talmadge Creek to the Michigan Department of Environmental Quality (MDEQ) on August 5, 2011. U.S. EPA will continue to monitor Enbridge’s progress and support MDEQ’s oversight pursuant to U.S. EPA’s Order and Supplement, although Talmadge Creek is not at this time included in the scope of this directive.

Enbridge shall prepare an addendum to the work plan identified below to provide a detailed description of activities to address the assessment and recovery of oil and oil-impacted soil/sediment, as described herein. The work plan addendum shall also include a detailed execution schedule.

Enbridge Line 6B MP 608 Pipeline Release, Marshall, Michigan, Response Plan for Downstream Impacted Areas, August 2, 2010 (Revised August 17, 2010 per U.S. EPA August 17, 2010 letter)

The addendum to the *Response Plan for Downstream Impacted Areas* shall specifically incorporate the actions described below:

I. OVERBANK OIL

- A. Fall 2011 and Winter 2011/2012 OSCAR Strategy** – Complete recovery of oil and oil-containing soil in overbank areas identified in the *Outstanding Sites Characterization, Assessment and Reconciliation (OSCAR)* list (which continues to be developed) in each of the three following general segments: MP 2.25 to Ceresco Dam; Ceresco Dam to Mill Ponds; and Mill Ponds to the Morrow Lake Dam.
- B. New Sites Recovery** – Implement recovery of oil and oil-containing soil from all newly-identified oil-impacted overbank areas prior to the Spring 2012 reassessment described below.
- C. Spring 2012 Reassessment**– Implement shoreline and overbank reassessment from MP 2.25 of the Kalamazoo River through the Morrow Lake Dam and propose additional response actions for impacted overbank areas that are necessary during 2012 to prevent oil and/or sheen from impacting navigable waterways.

II. SUBMERGED OIL

- A. Hydrodynamic Assessment** – As directed in U.S. EPA’s August 31, 2011 letter, Enbridge shall develop and execute the *Hydrodynamic Assessment Work Plan*. This work shall be completed according to the schedule, once approved by the U.S. EPA. Once complete, Enbridge shall submit a report of the assessment to U.S. EPA. The assessment results will be used to: better understand and predict the patterns and rates of submerged oil transport, entrainment, and deposition; optimize and focus oil-recovery strategies; and establish when submerged oil recovery operations are effective. The assessment results will also be used to help refine and validate current submerged oil volume quantification methodology and evaluate the effectiveness of recovery methods (i.e., agitation, “Toolbox” techniques and dredging).

- B. Temperature Effects on Submerged Oil** – Enbridge shall complete preparation of *The Temperature Effect on Submerged Oil Work Plan for Bench-Scale Study* no later than October 20, 2011. The purpose of the work will result in an enhanced understanding of the effects that temperature has on submerged oil liberation and the effectiveness of recovery methods. The findings of this study shall be applied to improve submerged oil assessment and recovery as appropriate, and as approved by U.S. EPA.
- C. Hydrodynamic Modeling** – Enbridge shall develop a hydrodynamic model in the Fall and Winter of 2011. Enbridge shall perform an iterative refinement of the numerical hydrodynamic model using data generated from Spring 2012, Summer 2012 and Fall 2012 reassessment activities. These data will be collected in accordance with the *2011 Summer Strategic Work Plan* (July 30, 2011) and *Hydrodynamic Assessment Work Plan* (development in progress).

The refined model shall be completed for the affected river system from the Talmadge Creek and Kalamazoo River confluence to the Morrow Lake Dam. Elements of both the overall hydrodynamic assessment and submerged oil quantification shall be used for model refinement on an ongoing basis, and will allow for a better understanding of the transport of submerged oil that has not necessarily been discernable by qualitative assessment techniques performed to date. Enbridge shall complete this work and apply the findings of this study to improve submerged oil reassessment and recovery as appropriate, and as approved by U.S. EPA.

- D. Submerged Oil Quantification** – Enbridge shall quantify all remaining submerged oil. This quantification shall include, but not be limited to: all oil (including higher density fractions which typically are not mobilized to the surface by poling and/or toolbox agitation techniques); and areas categorized through poling as having heavy, moderate and light submerged oil. The quantification shall include all areas within the affected portions of the Kalamazoo River system, through the Morrow Lake Dam.

The quantification of submerged oil shall be repeated after 2011 submerged oil recovery operations are completed. An ancillary purpose of the quantification is to further evaluate the potential for remobilization of submerged oil in the system. Sediment cores used for the purpose of quantifying submerged oil shall be collected in all geomorphic areas of interest as determined by a fluvial geomorphologist, and at frequencies specified in the *Hydrodynamic Assessment Work Plan* (development in progress).

Submerged oil quantification methods shall be comparable to those described in the *Quantification of Submerged Oil Report* (development in progress) and in accordance with the subsequent discussions between Enbridge and U.S. EPA regarding sample collection/location/density and analyses (including revised preparation methods). All post-recovery 2011 sampling for the Fall 2011 submerged oil quantification shall be completed by the time ice begins to form on the river. Enbridge shall complete this work

and apply the findings of this study to submerged oil assessment and recovery as appropriate, and as approved by U.S. EPA.

- E. Spring 2012 Reassessment** – Enbridge shall perform a submerged oil reassessment between MP 2.25 and Morrow Lake Dam and at additional areas downstream of Morrow Lake Dam as described in the Hydrodynamic Assessment Work Plan (development in progress). Enbridge shall identify what response actions are necessary during the Summer of 2012 based on indications of remaining heavy, moderate, and light submerged oil in the system. Techniques shall include, but not be limited to, methods for collecting qualitative data.
- F. Fall/Winter 2011 and Spring/Summer 2012 Recovery Actions** – Enbridge shall conduct recovery actions, as approved and/or modified by the U.S. EPA, at all heavy, moderate, and light submerged oil locations identified by the Spring 2011 Reassessment, the late Summer 2011 Reassessment, and the above-referenced Spring 2012 Reassessment. Recovery actions shall proceed in a strict upstream to downstream sequence in the three major segments identified herein. Poling shall be conducted when sediments and surface water temperatures are at the optimal range as identified in the report of findings from the *Temperature Effect on Submerged Oil Work Plan for Bench-Scale Study* (development in progress).

U.S. EPA will consider allowing suspension and/or termination of the iterative assessment and/or recovery action requirement for submerged oil areas when Enbridge can demonstrate to U.S. EPA's satisfaction and through appropriate poling techniques conducted during optimum seasonal conditions (described below), that previously identified impacted areas consistently show no heavy or moderate submerged oil.

Enbridge shall prepare an addendum to the work plan identified below to provide a detailed description of activities to address the containment and recovery of oil and oil-impacted soil/sediment, as described herein. The work plan addendum shall also include a detailed execution schedule.

Enbridge Line 6B MP 608 Pipeline Release, Marshall, Michigan, Supplement to Source Area Response Plan and Supplement to Response Plan for Downstream Impacted Areas, Referred to as Operations and Maintenance Work Plan, October 17, 2010

The addendum to the *Operations and Maintenance Work Plan* shall specifically incorporate the actions described below:

- A. Fall/Winter 2011 Containment Plan** – Enbridge shall implement a containment strategy in the Kalamazoo River/Morrow Lake Delta/Morrow Lake to prevent further migration of oil into Morrow Lake and to prevent migration of submerged oil from Talmadge Creek into the Kalamazoo River.

B. Sediment Collection Areas – Enbridge shall design, construct, operate and maintain long-term sediment (submerged oil) collection devices within the following three river segments: MP 2.25 to Ceresco Dam; Ceresco Dam to Mill Ponds; and Mill Ponds to the Morrow Lake Dam for ongoing recovery of any future submerged oil transported and deposited via fluvial processes. Collection points shall be located based on the results of sediment fate and transport studies, hydrodynamic modeling, and locations previously identified as favorable depositional areas during assessment/reassessment activities. Enbridge shall operate and maintain collection areas until oil and/or oiled sediments no longer accumulate in the sediment collection devices, or as otherwise approved/directed by U.S. EPA.

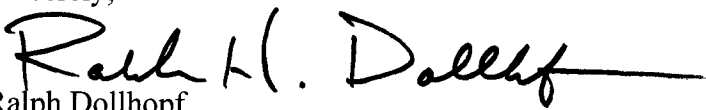
A graphical depiction of the work described herein is presented in the attached figure, which also shows a generalized and overarching timeline for execution of this directive.

The work plan addenda shall be submitted to the U.S. EPA no later than 5:00 pm Eastern time on October 20, 2011.

The oil recovery operations shall be performed in accordance with all federal, state, and local regulations. Undertaking activities directed by the U.S. EPA does not obviate the need for Enbridge to acquire all necessary permits and comply with other applicable regulatory requirements.

If you have any questions regarding this letter, please contact me immediately at (231) 301-0559.

Sincerely,


Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. EPA, Region 5

cc: L. Kirby-Miles, U.S. EPA, ORC
J. Kimble, U.S. EPA
M. Durno, U.S. EPA
T. Edwards, U.S. EPA
S. Wolfe, U.S. EPA
S. Vega, U.S. EPA
M. Ducharme, MDEQ
M. Alexander, MDEQ
Records Center, U.S. EPA, Reg. V

Attachment – Figure

Figure 1 2011-2012 Reassessment & Recovery Scope of Work



Overbank Oil

Submerged Oil

