



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

February 23, 2012

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

Re: U.S. EPA Notice of Disapproval of an Enbridge Energy, Limited Partnership January 9, 2012 submittal in response 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) ("Order") and Supplement to the Administrative Order issued by U.S. EPA on September 23, 2010 ("Supplement").

Dear Mr. Adams:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the following document submitted by Enbridge Energy, Limited Partnership, Enbridge Pipelines (Lakehead) L.L.C., Enbridge Pipelines (Wisconsin), and Enbridge Energy Partners, L.P. (collectively referred to as "Enbridge") on June 14, 2011:

Enbridge Line 6B MP 608, Marshall, MI Pipeline Release, Report of Findings for Background Sediment Concentrations, Investigation for Upstream Sample Areas, Prepared for United States Environmental Protection Agency, Enbridge Energy, Limited Partnership, Original Submitted: November 11, 2011, Resubmitted: January 09, 2012

U.S. EPA disapproves Enbridge's above referenced ***Report of Findings for Background Sediment Concentrations, Investigation for Upstream Sample Areas*** submitted on January 9, 2012 due to deficiencies described herein. Specific comments are set forth below and shall be incorporated into a revised report, pursuant to Paragraph 18 of the U.S. EPA Administrative Order and Supplement.

1. Section 1.1:

- a. Page 1, Last Sentence: Replace "...not impacted by the release..." with "...not impacted by the Line 6B release..."
- b. Page 2: Clarify that selected locations were "expected" to have similar hydrodynamic and streambed sediment characteristics as those areas where most of the submerged oil detections have occurred downstream of the Line 6B release.

2. Section 2.1.1:
 - a. Sentence 1: Cite references for the “other historical spills,” or remove the reference to other historical spills.
 - b. Second full paragraph: Clarify the specific differences between the referenced upstream reaches and impacted reaches of Talmadge Creek.
 - c. The Evaluation of Potential Impact of Released Oil on Groundwater used for Drinking Water (Enbridge, 2010) cited to identify historical spills and impacts does not encompass the upstream areas selected for the background study. One example of a potential historical spill which may have impacted the background area at the Marshall Impound is the Marshall Hydroelectric Plant site, MDEQ Facility ID Number 00040508, Confirmed Release Number C-0744-00. Please expand the identification of sites of potential environmental contamination to include the areas selected for the background study to more completely evaluate the comparability of the reference concentrations developed in this report.
3. Section 2.1.2:
 - a. Describe the collection of quality control (QC) samples.
 - b. Provide references to the specific analytical methods used, method detection limits and any exceptions to the standard methods employed, including citations when necessary.
 - c. Provide a description for decontamination procedures used and cite references, when appropriate.
 - d. Page 4, First full paragraph: Clarify that a sample was sent to Colorado State University (CSU) for analysis, and remove reference to the sample being collected by CSU.
4. Section 2.2: Provide references to the specific analytical methods used, method detection limits, any exceptions to the standard methods employed and minimum sample volumes required, including citations when necessary.
5. Section 2.3:
 - a. Page 7, Second full paragraph, Sentence 8: Replace this sentence with the following: “Therefore, if 100 observations are taken from this population, it is predicted with a 95% confidence that at least 95 of these observations will be below this value.”
 - b. Page 7, Item 2: State that data rejected during the validation process cannot and will not be used for any purpose.

- c. Page 8, Item 5:
 - i. Provide more a detailed description of methods used to clarify how censored values (i.e., less than a reporting limit) were handled when estimating the median, mean, and confidence limits, and when the Kaplan-Meier estimates of a summarized group's mean value were used. For example, footnote 1 on Table 6 indicates that the data set was truncated (i.e., ignored censored values) when calculating the summary statistics listed therein.
 - ii. The inference made about Enbridge actively sampling transported load to show that the results are representative of the incoming load is incorrect. The samples analyzed represent only the bed material from selected depositional (low energy) habitats in selected areas not impacted by the Line 6B release. Replace "...incoming bed-material load" with "bed material from selected depositional (i.e., low energy) habitats in selected areas not impacted by the Line 6B release."
 - d. Section 2.3 and Tables 10 through 13: Explain how Enbridge assigned soil classes 1 through 3 (i.e., based on reported grain size, or Unified Soil Classification System); and assign each sample to one of the 3 soil classifications in the table of results.
- 6. Section 3.1, Paragraph 3: State that sediments in the new enhanced sediment traps need to and will be analyzed for full chemical fingerprint analysis for comparison to source of oil.
 - 7. Section 3.2.1: Define what is meant by "lower detection limits" (i.e., lower than all other samples, lower than another laboratory, etc.).
 - 8. Section 3.3.1
 - a. Molybdenum (Mo) bullet:
 - i. Provide a reconciliation of reported results with graphical summary of test results included in Attachment C, Sheet 1. The graphic does not identify comparisons with significant differences when taking the family-wise error rate into account (i.e., Bonferroni adjustment to family-wise critical value to declare significance).
 - ii. Of the 6 replicate pairs of samples collected from Talmadge Creek analyzed for molybdenum, 2 had differences greater than 50% of the primary sample concentration. Please incorporate analytical uncertainty needs to qualify statements of differences between soil classes in their median molybdenum concentrations. For example, n=2 samples compose

soil class 1 for Talmadge Creek, a group which appears to include one of the replicate pairs with large uncertainty.

- iii. Recalculate median molybdenum concentrations for each of the sample areas with the full set of primary samples included (do not truncate by ignoring censored values).
 - iv. Comparisons between groups using only median of detections is unacceptable.
 - v. For Talmadge Creek, with a 52% detection frequency, the median value will be close to the detection limit, which is very different from the reported value of 2.15 mg/kg in Table 6 as the Talmadge Creek median.
 - vi. For Battle Creek, with a 13% detection frequency, the median is less than 1 mg/kg, not the reported value of 1.55 mg/kg included in Table 9 as the median.
 - vii. Enbridge reported a Kaplan-Meier (KM) mean of 1.15 mg/kg in Table 9 for Battle Creek, and a KM mean of 2.34 mg/kg in Table 6 for Talmadge Creek, with KM standard deviations for each KM mean. Compare the groups using valid statistical interpretation of the results without introducing bias into the data.
- b. Vanadium (V) bullet: Two of the statements of significant differences between soil classes in vanadium concentrations involve soil classes that contain only 2 sample results. Even if the comparisons are statistically significant, in such cases the environmental meaning that the statistical result conveys is of questionable reliability and needs to be, at the very least, qualified. Please qualify the results or provide other statements discussing the reliability of the vanadium data.
- c. DRO bullet: Reporting medians of truncated DRO data sets where censored values were ignored is unacceptable. Report the KM mean for the Talmadge Creek, Kalamazoo River and Battle Creek areas.
- d. Benzo(a)pyrene bullet:
- i. The graphical summary shown in Attachment C, Sheet 8 indicates that only two of the comparisons (Talmadge Creek and Kalamazoo River; Marshall Impoundment and Kalamazoo River) between sampled areas found significant differences. In both comparisons, the Kalamazoo River samples had the higher concentration. Please reconcile the statements of significant differences with graphical summary of test results in Attachment C, Sheet 8.

- ii. The graphical summary on Attachment C, Sheet 16 shows that none of the comparisons between soil classes found significant differences. Please reconcile statements of significant differences with the graphical summary of test results included in Attachment C, Sheet 16.
 - e. ORO bullet: The final sentence is incomplete because statements that ORO concentrations are greater have no comparative object (i.e., greater than what). Clarify this sentence to include comparative objects.
9. Section 3.3.2:
- a. Page 16, First full paragraph, Sentence 1: Replace "PNAs" with benzo(a)pyrene, since it was the only PNA compound analyzed.
 - b. Page 16, First full paragraph, Sentence 2: Delete "all" because the general pattern of lower concentrations in Talmadge Creek is not true for all parameters.
 - c. Please clarify which properties or parameters are being referenced by the statement "Upstream Kalamazoo River Area sediment is not significantly different than Upstream Marshall Impoundment Area or Upstream Battle Creek River Area sediment."
10. Tables 1 through 4: Provide calculations for samples SEKR0000L001S100611D023 (2.1-2.3 ft) and SEKR0000L003S 100611D014 (0 - 1.4 ft) verifying that the data results and reporting limits are adjusted for percent moisture.

Please submit five copies of the revised report, as modified, to U.S. EPA no later than 17:00 hours Eastern, March 2, 2011. Enbridge shall also concurrently submit the document electronically in Microsoft Word format for the text and in Microsoft Excel for spreadsheet/graphs/tables.

If you have any questions regarding this notice of disapproval, 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
M. Durno, U.S. EPA, Dep. IC, Section Chief
S. Vega, U.S. EPA
Records Center, U.S. EPA, Reg. V
M. Ducharme, MDEQ
M. Delong, MDEQ