March 29, 2017

Enbridge Response to Request for Information

A. Information currently available to Enbridge

1. Underwater Inspections- Please provide copies of all information available to Enbridge, including, without limitation, documents, reports, photographs, and video recordings, relating to any and all underwater inspections of the dual pipelines conducted after the completion of 2014 inspections performed by Ballard Marine Construction. This includes, but is not limited to, the 2016 underwater inspections referenced in the Plan.

Please find attached (1) a report prepared by Ballard Marine Construction ("BMC") summarizing the findings of the visual inspection of the Line 5 Dual Pipelines conducted for Enbridge in the Straits of Mackinac in 2016 and the repair work done following the inspection and (2) a report prepared by GEI Consultants ("GEI") summarizing the findings of the biota survey of the Dual Pipelines that the firm conducted for Enbridge based on the visual inspection conducted by BMC. These reports were previously submitted to the EPA on January 4, 2017. Also attached is a Supplemental Biota Work Plan submitted by Enbridge to EPA on March 23, 2017. Photographs of areas identified in both the original and supplemental Biota Work Plans are contained in the reports themselves.

BMC conducted a visual inspection of the portion of Line 5 that crosses the Straits in June 2016 and the results were analyzed in July 2016. The attached BMC report explains how the inspection was conducted and summarizes the findings of the inspection.

The attached GEI report describes a survey of biota undertaken based on the visual inspection made of the Dual Pipelines. The Enbridge biota work plan, currently pending approval by EPA, is based in part on the attached GEI report, which is referenced in the Enbridge Biota Work Plan.

Associated video files from the 2016 BMC underwater inspection are also being provided.

The materials provided constitute the key documents relating to the latest underwater inspection, which was performed by BMC in 2016.

2. Clarification and Documentation of Conditions referred to in the Plan- Please:

a. List and explain the criteria used by Enbridge to identify the "holiday" areas referred to in the Plan.

The 18 areas referred to in the Biota Work Plan were identified based on review of the video recording of the 2016 inspection. The areas identified included (i) areas where Biota was not present and (ii) areas where Biota was not present and the pipelines' outer wrap appeared to have anomalies. Enbridge intends to inspect all 18 locations, as per the Biota Work Plan and its supplement, in order to gather any relevant additional data about these areas. Depending on the results of these inspections, Enbridge will make a determination on whether a review of additional areas of the Dual Lines where there are similar or other potential anomalies in biota presence or the outer wrap would yield any additional useful data.

b. For each such identified "holiday" area or "locations with potential delaminated coatings" referred to in the Plan, including, but not limited to those designated in Figures 4 and 5,

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i. Provide Enbridge's best estimate of the size of the "holiday" area

The estimated size of the each of the areas identified below in response to Request # A.2.b.v is between 2 – 10 ft2 (with <100ft2 total).

Execution of the Biota Work Plan may allow Enbridge to further assess and refine these estimates.

ii. Indicate whether, and to what extent, bare metal is exposed

Enbridge has seen no evidence that any of the areas identified in the Biota Work Plan as "holiday" areas or areas with "potential delaminated coating" have bare metal exposed. In addition, a CPCM inline inspection was completed and local cathodic protection currents were measured to determine if any bare metal was present. This inspection has not indicated that there are any holidays in the coating.

iii. Describe the "delamination" or other condition that has been observed, e.g., whether and to what extent one or more layer of pipeline wrap and/or coating is missing

In 8 of the identified areas, there is a lack of Biota, but no visible indication of anomalies to the coating and specifically to the outer wrap. In the remaining 10 identified areas, there is a lack of Biota and some indication of anomalies in the outer wrap. In all cases, all other layers of coating appear to be intact and unaffected, including the enamel layer that covers the pipeline.

iv. Indicate whether, and to what extent, "delaminated pipeline coatings" referred to in the Plan have been observed on the lake floor

There is one location (W-12A) among the 18 areas identified in the Biota Work Plan where the outer layer wrap was observed on the lake floor. See also Response to # A.2.c.iv below (regarding second area not referred to in the Biota Work Plan).

v. Identify the time or other frame markings on the 2014 and 2016 underwater video recordings that Enbridge used to identify the holiday area, and if photographs of that specific area are available, provide them.

In the supplied video from the 2016 visual inspection, the 18 identified areas can be seen at the following frame times.

Label	2016 Frame Markings
Between E-74 & E-71	9:27:25
Between E-77 & E-26	9:44:30
Between E-24 & E-25	9:56:50
E-30	10:36:10
E-35	10:47:20
Between E-33 & E-34B	11:02:45
E-39	11:40:04
Near E-48	12:36:44
Near E-70	12:43:44

Between E-02 & E76	14:59:08
E-01B-B	15:21:32
Between W-10 & W-11	9:38:15
W-12A	9:47:55
Between W-15 & W-16	10:33:00
W-35	12:15:23
W-70	13:28:50
W-68	13:46:40
Between W-56 & W-54	14:27:25

Photographs of these areas are contained in both the September 2016 Work Plan and the Supplemental Work Plan. Enbridge has utilized the most recent 2016 data as it provides the best picture of pipeline coating condition.

vi. Provide any document(s), graphs, or figures correlating the visual observations of that area with the results of previous in-line inspections of the same area.

When comparing the identified locations with past In-line Inspection data from corrosion tools, there is no evidence of external corrosion found at any of the locations.

The Cathodic Protection in-line inspection tool deployed on September 27, 2016, found that the coating was protecting the pipe at all locations including the 18 locations identified in the Biota Plan.

c. Indicate whether, in addition to the areas referred to in the Plan and covered in item 2.b., above, Enbridge or its contractors have observed any other areas on the dual pipelines where the external pipeline coating is damaged or absent. If any such other areas have been observed, for each such area, provide the information listed in 2.b. (i.)- (vi.)

i. Provide Enbridge's best estimate of the size of the "holiday" area

The estimated size of the each of the areas identified below in response to Request # A.2.c.v is between 0 – 20 ft2 (with <100ft2 total).

ii. Indicate whether, and to what extent, bare metal is exposed

Enbridge has seen no confirmed locations of bare metal exposed at any point on the lines as shown by inline inspection results, including at the areas addressed in response to Request A.2.b.ii above. Three areas identified in the Supplemental Biota Work Plan will be inspected to determine if any bare metal is exposed. Also, as mentioned previously, our 2016 CPCM inline inspection has not identified any areas of increased usage of cathodic protection indicating that our coating is performing as designed.

iii. Describe the "delamination" or other condition that has been observed, e.g., whether and to what extent one or more layer of pipeline wrap and/or coating is missing

Some areas seen in the 2016 inspection exhibit only a lack of Biota – no visible indication of anomalies to the coating and specifically to the outer wrap. There are also a number of areas where there is a lack of Biota plus some indication of anomalies in the outer wrap. The locations of the areas in the second

category are listed in the table provided in response to Request A.2.c.v below. In all cases, all other layers of coating appear to be intact and unaffected.

iv. Indicate whether, and to what extent, "delaminated pipeline coatings" referred to in the Plan have been observed on the lake floor

There is one other location (E-02B) seen in the 2016 Inspection where the outer layer wrap was observed on the lake floor. As noted above, W-12A also has outer coating on the lake floor.

v. Identify the time or other frame markings on the 2014 and 2016 underwater video recordings that Enbridge used to identify the holiday area, and if photographs of that specific area are available, provide them.

In the supplied video for the 2016 visual inspection, the additional areas where the coating appears to have an anomaly can be seen at the following frame times.

Label	2016 Frame Markings, TIME
Between E-25 & E-24	9:54:23
Between E-39 & E-40	11:46:35
E-45	12:08:17
E-48B	12:34:20
E-52	13:17:00
E-61A-A	13:35:18
Between E-12 & E-13A	14:39:04
E-13C	14:48:40
Between E-13C & E-3	14:52:17
E-76B	14:57:15
Between E-76B & E-02A	15:01:21
Between E-76B & E-02A	15:02:44
Between E-76B & E-02A	15:03:37
E-02B	15:11:01
E-01B-A	15:20:10
E-04B	15:28:32
Between E-04B & E-05A	15:29:16
Between E-05B & E-06	15:36:32
Between E-05B & E-06	15:37:17
Between E-05B & E-06	15:37:58
E-07	15:42:18
Between E-07 & E-65A	15:48:21
Between E-65B & Burial	15:55:58
W-01A	8:33:04
Between W01B & W-5	8:40:15
Between W-15 & W-16	10:32:22

Between W-15 & W-16	10:33:41
Between W-15 & W-18	10:38:37
Between W-18B & W-20	10:51:50
W-24	10:56:45
W-24	10:58:38
W-23A	11:00:14
W-23B	11:04:08
Between W-22 & W-21	11:06:48
Between W-22 & W-21	11:07:25
Between W-25 & W-26	11:12:36
Between W-26 & W-27	11:16:54
W-27	11:18:17
W-28	11:36:30
W-31A	11:46:48
W-53A	13:15:03
W-53A	13:17:06
Between W-64 & W-67	15:59:57

vi. Provide any document(s), graphs, or figures correlating the visual observations of that area with the results of previous in-line inspections of the same area.

When comparing the identified locations with past In-line Inspection data from corrosion tools, there is no external corrosion found at any of the locations.

The Cathodic Protection in-line inspection tool deployed on September 27, 2016, found that the coating was protecting the pipe at all locations including the areas listed in the preceding response.

3. Any Other Pipeline Inspection Results or Reports Not Previously Provided to the State- To the extent, if any, that Enbridge has available to it the results or reports of any other inspections of the dual pipelines, including, but not limited to any in-line inspections, conducted after 2013, that have not previously been provided to the State please provide copies of any such inspection results or reports.

Reports or summaries of all in-line inspections of the dual pipelines conducted after 2013 other than those previously provided are attached. These reports include:

- 2016 BH CPCM Inspection (East Straits)
- 2016 BH GeoPig Inspection (East Straits)
- 2016 BH CPCM Inspection (West Straits)
- 2016 BH GeoPig Inspection (West Straits)
- 2015 Acoustic Emission Inspection (East Straits)
- 2015 Acoustic Emission Inspection (West Straits)

Part B: Information Available to Enbridge in the Future. Please provide as soon as possible, and in any event, not later than ten (10) days after the date that each becomes available to Enbridge:

1. The Final, EPA-Approved Work Plan for the Biota Investigation required under Paragraph 69.b. of the proposed Consent Decree.

Enbridge will provide a copy of the approved Work Plan when available.

2. The Final Report of the Biota Investigation and, if applicable, the proposed work plan to address actual or threatened impairments to the dual pipelines required under Paragraph 69.c. of the proposed Consent Decree.

Enbridge will provide a copy of the Final Biota Report when available.

3. Underwater Inspections- Please provide copies of all information that becomes available to Enbridge, including, without limitation, documents, reports, photographs, and video recordings, relating to any and all underwater inspections of the Dual Pipelines conducted after the completion of the 2016 inspection and not already provided in response to Item A.1., above.

Enbridge will inform the State of future visual inspections as they occur.

4. Any Other Pipeline Inspection and Test Results- Please provide copies of all information that becomes available to Enbridge regarding the results or reports of any other inspections or tests of the integrity of the Dual Pipelines, including, but not limited to any in-line inspections, hydrostatic tests, or pipeline movement investigation required under Paragraphs 70 through 73 of the proposed Consent Decree.

Enbridge will inform the State of future inspections or tests of the integrity of the Dual Pipelines as they occur.