Enbridge Consent Decree – Civil Action No. 1:16-cv-914
Independent Third Party Review and Evaluation of Enbridge Submittal:
Section VII.D. Paragraph 29
In-Line Inspection Schedule for the Initial 12 Month Period

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Prepared by:
O.B. Harris, LLC
Independent Third Party

Prepared for:

The United States
Environmental Protection
Agency

Written by:	Marc Lamontagne
Reviewed by:	Elden Johnson Gary Kenney Jeryl Mohn Lawrence Shelton
Approved by:	O.B. Harris

Enbridge ILI Schedule for the Initial 12 Month Period

Amended Report

This document may contain information that Enbridge deems to be confidential business information or otherwise protected by statute.

Notice of Amendment

On September 22, 2017, the ITP published its review of the Enbridge report *12-Month Lakehead ILI Schedule Rev 1.1*. Following publication of the ITP report, the ITP identified an omission from that original report. The original report identified four inspections in four pipeline segments with ILI schedules exceeding CD requirements. This amended report identifies five inspections in four pipeline segments with ILI schedules exceeding CD requirements. The additional inspection is a corrosion inspection for Line 2 GF-CR that exceeds a 5-year re-inspection interval as per CD ¶66 by 11 months.

This amended report restates the original report, but with the following sections revised to reflect the corrected information:

Executive Summary

Introduction

Findings: Finding 1

Appendix: Corrosion ILI Program Table

This amended report supersedes the original report in its entirety.

Enbridge ILI Schedule for the Initial 12 Month Period

Amended Report

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O.B. Harris, LLC, the appointed Independent Third Party (ITP) under the proposed Enbridge Consent Decree (CD), has prepared this report at the request of the Environmental Protection Agency (EPA) and pursuant to CD requirements. In assessing Enbridge's compliance with the CD and in preparing this report, the ITP has relied in part on data and information provided by Enbridge.

The ITP has not yet completed its validation of Enbridge-supplied data and calculations, including but not limited to the following:

- Detailed assessment of Enbridge calculations of the remaining life of the worst remaining feature for each threat within each pipeline segment. Such assessment would address corrosion growth rate, crack fatigue analysis, and stress corrosion cracking growth rate, along with related calculation methodologies.
- Verification of features included in the Crack Assessment Sheets and Corrosion Assessment Sheets that previously have been repaired.
- Evaluation of Enbridge procedures relevant to the assessments and calculations identified above.

The ITP cannot be responsible for any errors or omissions in this report that are a result of errors or omissions in the data and information provided by Enbridge. This report, and the assessment reflected herein, supersedes any report previously issued by the ITP.

Definitions

Item	Definition
Corrosion Assessment Sheets	Enbridge document created for each ILI run to catalog every corrosion feature previously identified by ILI to enable assessment of time-dependent corrosion growth and establish the remaining life of each feature. These sheets are used to determine excavation locations and re-inspection intervals.
Crack Assessment Sheets	Enbridge document created for each ILI run to catalog every crack feature previously identified by ILI to enable assessment of time-dependent crack growth and to establish the remaining life of each feature. These sheets are used to determine excavation locations and re-inspection intervals.
ILI	In-line inspection
ILI Schedule	A CD-required document that provides details of planned ILI runs including tool type, pipeline segment, and timing.
Line Specific Integrity Plans	Enbridge documents for each Lakehead System pipeline that "compiles a summary of the asset properties and operation, a summary of the hazard susceptibility, a summary of consequence analysis, a description of recent line condition assessments and results if available, and a summary of the planned re-assessments."[1]
MFL	Magnetic flux leakage, an ILI tool technology used to characterize corrosion features.
Re-Inspection Interval	The maximum interval between successive ILI runs to assess corrosion, crack, or geometric features in accordance with CD ¶65 and CD ¶66.
Tool Run Report	Enbridge application to catalog ILI runs, Initial ILI Report timing, and other information related to ILI runs.

[1] Enbridge Procedure, PI-143 *Development of a Line Specific Integrity Plan v1.0.*

Executive Summary

The ITP for the Enbridge CD, O.B. Harris, LLC, was engaged effective January 11, 2017. The role of the ITP per the CD is to conduct a comprehensive verification of Enbridge's compliance with the requirements of the CD.[2]

On June 22, 2017, Enbridge submitted the *12-Month Lakehead ILI Schedule (ILI Schedule*) to the EPA. On July 14, in response to an ITP inquiry regarding the schedule, Enbridge submitted the *12-Month Lakehead ILI Schedule Rev 1.1 (Revised ILI Schedule)*. As required by CD ¶132.b, the ITP has reviewed and evaluated the *Revised ILI Schedule*. On August 8, 2017, the EPA requested that the ITP prepare and provide a written report of its evaluation of the *Revised ILI Schedule*.

The ITP reviewed and evaluated the timing of ILI re-inspections as described in the *Revised ILI Schedule*. The ITP's analysis of the *Revised ILI Schedule* applied the following standards that are described in the CD:

1. The ITP evaluated the *Revised ILI Schedule*'s compliance with the prescriptive requirements of the CD.
2. The ITP evaluated whether the *Revised ILI Schedule* is supported by the facts and best engineering judgment and is of sufficient detail and completeness so that the expected outcome will be achieved.

As required by CD ¶29, Enbridge submitted to the EPA a schedule (within 30 days of the CD Effective Date) identifying each ILI scheduled to be initiated on any pipeline segment during the initial 12-month period following the CD Effective Date. CD ¶29 further requires that the schedule shall be consistent with re-inspection intervals in CD ¶65 and CD ¶66. CD ¶65 provides that the maximum interval between crack and corrosion ILI shall not exceed half the remaining life of any unrepaired feature. CD ¶66 requires that the maximum interval between any corrosion, crack, or geometry ILI shall not exceed 5 years.

The ITP reached three findings where Enbridge does not conform to CD requirements:

1. ***Revised ILI Schedule* has five inspections in four pipeline segments where the scheduled ILI runs do not meet CD re-inspection requirements** - The ITP used Enbridge-provided documents to determine re-inspection intervals for crack and corrosion ILI in accordance with CD ¶65. The ITP also applied the CD ¶66 5-year requirement for crack, corrosion, and geometry ILI. This analysis identified four pipeline segments where the Enbridge scheduled inspection, or actual re-inspection, occurred after the CD re-inspection deadline. Due to time constraints and complexity of the work, the ITP has not completed an independent assessment and validation of all Enbridge practices and calculations used to determine re-inspection intervals. The ITP's ongoing work will produce this analysis and verification.

[2] CD ¶125.

2. **June 22 *ILI Schedule* did not correctly identify scheduled ILI runs** - In the ITP's review of the *ILI Schedule*, several discrepancies were identified between the *ILI Schedule* and the Enbridge database known as the Tool Run Report. These discrepancies were presented to Enbridge. In response, Enbridge issued the *Revised ILI Schedule* on July 14, 2017. The *Revised ILI Schedule* included seven additional ILI for the initial 12-month period that were not previously included in the June 22 submission.

3. **Re-inspection and scheduled ILI dates not provided in the *Revised ILI Schedule*** - The *ILI Schedule* listed the line number, the pipeline segment name, tool technology, and threat monitored for ILI runs planned between May 23, 2017 and May 22, 2018. No scheduled run dates or re-inspection deadlines were included on this list. The ITP was able to complete its analysis as a result of access to an Enbridge database known as the Tool Run Report that tracks ILI schedules.

Enbridge ILI Schedule for the Initial 12 Month Period

Amended Report

This document may contain information that Enbridge deems to be confidential business information or otherwise protected by statute.

Introduction

The ITP for the Enbridge CD, O.B. Harris, LLC, was engaged effective January 11, 2017. As required by CD ¶132.b, the ITP has reviewed and evaluated the Enbridge *12-Month Lakehead ILI Schedule (ILI Schedule)* that Enbridge submitted to the EPA on June 22, 2017.

The ITP had the following exchanges with Enbridge and EPA subsequent to the June 22 *ILI Schedule* submission.

- On July 10, 2017, the ITP transmitted a document to the EPA and Enbridge describing discrepancies found during an initial review of the *ILI Schedule*.
- In response to the ITP's document, Enbridge revised the *ILI Schedule* and submitted a revision to the EPA on July 14, 2017 as *12-Month Lakehead ILI Schedule Version 1.1 (Revised ILI Schedule*).
- On August 8, 2017, the EPA requested that the ITP evaluate the *ILI Schedule* and the *Revised ILI Schedule* and submit this report. In accordance with CD ¶132.b, this report is due within 45 days of the EPA's request or September 22, 2017.
- On August 9, 2017, the ITP presented a *Preliminary Evaluation* of the *Revised ILI Schedule* to Enbridge and the EPA. This *Preliminary Evaluation* noted that four pipeline segments included in the *Revised ILI Schedule* have scheduled ILI run dates that do not meet CD requirements for the relevant re-inspection intervals.
- Enbridge replied to the ITP's *Preliminary Evaluation* with a letter to EPA on August 24, 2017 (*Enbridge Letter*) stating that "Enbridge requests the EPA's guidance that will allow for a determination by the ITP in its final evaluation."
- On August 29, 2017, the ITP submitted a review (*ITP Review*) of the *Enbridge Letter* to the EPA with copy to Enbridge. The *ITP Review* summarized the ITP's findings with regards to each of the four separate pipeline segment responses by Enbridge.
- On September 22. 2017, as requested by the EPA on August 8, 2017, the ITP submitted its review and evaluation of the June 22, 2017 *ILI Schedule* and the July 14, 2017 *Revised ILI Schedule*.
- On September 22, 2017, the ITP notified the EPA of the omission in their September 22, 2017 report and agreed to issue this Amended Report.

Summary of the Consent Decree Requirements

CD section VII.J, ¶132.b requires that the ITP review and evaluate all proposed plans, reports, and other deliverables that Enbridge is required to submit to the EPA under the CD. CD ¶132.b also provides that the ITP shall review and evaluate the completeness of the Enbridge submittal and its compliance with the requirements of the CD. CD ¶134.e requires that the ITP assess whether Enbridge submittals are supported by the facts and best engineering judgment. CD ¶132.b states that, if the EPA requests, the ITP is to submit to the EPA a written report of its evaluation within 45 days of the request.

CD ¶29 requires that, "within 30 days of the Effective Date of the Consent Decree, Enbridge shall submit to [the] EPA a schedule that will identify each ILI scheduled to be initiated on any pipeline during a 12 month period following the Effective Date of the Consent Decree," and that, each ILI schedule "shall be consistent with the re-inspection interval requirements" in CD ¶65 and CD ¶66.

CD ¶65 requires that, for each pipeline, "the maximum interval between successive ILIs to assess Crack features shall not exceed one-half of the shortest Remaining Life of any unrepaired Crack feature in the pipeline, calculated as provided above. For each pipeline, the maximum interval between successive ILIs to assess Corrosion features shall not exceed one-half of the shortest Remaining Life of any unrepaired Corrosion feature in the pipeline, calculated as provided above in this Subsection VII.D.(VI)".

CD ¶66 requires that, "the maximum interval between successive ILIs for any particular feature type (Crack, Corrosion, or Geometric feature) on each pipeline in the Lakehead System shall not exceed 5 years," except for Original US Line 3. Regarding the Original US Line 3, ¶66 states, "until Original US Line 3 is taken out of service and depressurized as provided in Paragraph 22.a, Enbridge shall complete ILIs for each feature type on an annual basis, except that Enbridge need not conduct ILIs during the final 12 months that Original US Line 3 is in operation".

Summary of Enbridge *Revised ILI Schedule*

The *Revised ILI Schedule* included as Table 1 lists ILIs that are required by the CD in the 12-month period following the CD Effective Date. This *Revised ILI Schedule* does not include planned or deadline dates for completing ILI runs as the CD requires. Enbridge has provided the ITP access to an internal database known as the Tool Run Report that includes these dates.

Upon receipt of the *ILI Schedule* on June 22, 2017, the ITP compared ILI runs scheduled in the Tool Run Report to the *ILI Schedule*. The ITP identified several inconsistencies between the two and reported those to Enbridge and the EPA on July 10, 2017. Enbridge issued the *Revised ILI Schedule* on July 14 and subsequently provided a detailed report on July 21[3] to explain the discrepancies.

Table 1 on the following page is the list of inspections provided by Enbridge in the *Revised ILI Schedule*.[4]

[3] *Rationale Document – Paragraph 29 ILI Schedule Resubmission*. July 21, 2017.

[4] The Enbridge supplied table spanned two pages in the Enbridge report. The ITP technical writer cosmetically merged the split table to create a single table image. The content within the table remained as Enbridge provided without revision.

Enbridge ILI Schedule for the Initial 12 Month Period

Amended Report

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Table 1: Revised ILI Schedule Provided by Enbridge – May 23, 2017 to May 22, 2018

ToolRunID	Line	Segment Name	Technology	Threat Monitored
2454	L0001	CLEARBROOK to SUPERIOR TERMINAL WEST	MFL and Geometry	Corrosion, Geometry
4045	L0001	CLEARBROOK to SUPERIOR TERMINAL WEST	UT Metal Loss	Corrosion
4395	L0002	CLEARBROOK to DEER RIVER	MFL and Geometry	Corrosion, Geometry
4396	L0002	DEER RIVER to SUPERIOR TERMINAL WEST	MFL and Geometry	Corrosion, Geometry
4394	L0002	GRETNA to CLEARBROOK	MFL and Geometry	Corrosion, Geometry
3712	L0003	CLEARBROOK to SUPERIOR TERMINAL WEST	UT Metal Loss	Corrosion
3830	L0003	CLEARBROOK to SUPERIOR TERMINAL WEST	Circumferential MFL	Corrosion
3831	L0003	CLEARBROOK to SUPERIOR TERMINAL WEST	UT Crack Detection	Crack
3711	L0003	GRETNA to CLEARBROOK	UT Crack and UT Metal Loss	Crack, Corrosion
3828	L0003	GRETNA to CLEARBROOK	Geometry	Geometry
3826	L0003	GRETNA to CLEARBROOK	Circumferential MFL	Corrosion
2309	L0004	CASS LAKE to DEER RIVER	Geometry	Geometry
2333	L0004	CASS LAKE to DEER RIVER	UT Crack and UT Metal Loss	Corrosion, Crack
2254	L0004	CLEARBROOK to CASS LAKE	UT Crack and UT Metal Loss	Corrosion, Crack
2346	L0004	DEER RIVER to FLOODWOOD	UT Crack and UT Metal Loss	Corrosion, Crack
2351	L0004	DONALDSON to VIKING	UT Crack and UT Metal Loss	Corrosion, Crack
2352	L0004	FLOODWOOD to WRENSHALL	UT Crack and UT Metal Loss	Corrosion, Crack
2344	L0004	GRETNA to DONALDSON	UT Crack and UT Metal Loss	Corrosion, Crack
2358	L0004	PLUMMER to CLEARBROOK	UT Crack and UT Metal Loss	Corrosion, Crack
2323	L0004	VIKING to PLUMMER	UT Crack and UT Metal Loss	Corrosion, Crack
2381	L0004	WRENSHALL to SUPERIOR TERMINAL WEST	UT Crack and UT Metal Loss	Corrosion, Crack
2164	L0005	BAY CITY to SARNIA TERMINAL WEST	Circumferential Crack Detection	Crack
2162	L0005	BAY CITY to SARNIA TERMINAL WEST	UT Crack Detection	Crack
2215	L0005	BAY CITY to SARNIA TERMINAL WEST	MFL and Geometry	Corrosion, Geometry
4356	L0005	IRON RIVER to NORTH STRAITS	Circumferential Crack Detection	Crack
4406	L0005	MACKINAW to BAY CITY	Circumferential MFL	Corrosion
3552	L0005	MACKINAW to BAY CITY	Circumferential Crack Detection	Crack
3752	L0005	NORTH STRAITS EAST (ENO) TO MACKINAW	MFL and Geometry	Corrosion, Geometry
3753	L0005	NORTH STRAITS EAST (ENO) TO MACKINAW	Circumferential Crack Detection	Crack
2371	L0005	NORTH STRAITS EAST (ENO) TO MACKINAW	MFL and Geometry	Corrosion, Geometry
3754	L0005	NORTH STRAITS WEST (WNO) TO MACKINAW	MFL and Geometry	Corrosion, Geometry
3755	L0005	NORTH STRAITS WEST (WNO) TO MACKINAW	Circumferential Crack Detection	Crack
2370	L0005	NORTH STRAITS WEST (WNO) TO MACKINAW	MFL and Geometry	Corrosion, Geometry
2140	L0005	SUPERIOR TERMINAL EAST to IRON RIVER	Circumferential MFL	Corrosion
2724	L0005	SUPERIOR TERMINAL EAST to IRON RIVER	UT Crack Detection	Crack
3662	L0005	SUPERIOR TERMINAL EAST to IRON RIVER	UT Metal Loss	Corrosion
4213	L0005	SUPERIOR TERMINAL EAST to IRON RIVER	Geometry	Geometry
2150	L0005	SUPERIOR TERMINAL EAST to IRON RIVER	Circumferential Crack Detection	Crack
2574	L0006A	ADAMS to GRIFFITH	UT Metal Loss	Corrosion
4334	L0006A	ADAMS to GRIFFITH	MFL and Geometry	Corrosion, Geometry
4182	L0006A	SUPERIOR TERMINAL EAST to ADAMS	MFL and Geometry	Corrosion, Geometry
3809	L0006A	SUPERIOR TERMINAL EAST to ADAMS	UT Crack	Crack
2616	L0006B	STOCKBRIDGE to SARNIA TERMINAL WEST	MFL	Corrosion
4079	L0006B	STOCKBRIDGE to SARNIA TERMINAL WEST	UT Metal Loss	Corrosion
3645	L0010	EAST NIAGARA RIVER to KIANTONE TAKE-OFF	UT Crack Detection	Crack
2242	L0010	GRAND ISLAND to EAST NIAGARA RIVER	UT Crack Detection	Crack
2459	L0064	GRIFFITH LATERAL to GRIFFITH	MFL and Geometry	Corrosion, Geometry
2369	L0067	GRETNA to CLEARBROOK	MFL and Geometry	Corrosion, Geometry

Analysis of the Enbridge *Revised ILI Schedule*

Scope

In its analysis of the *Revised ILI Schedule*, the ITP applied the following standards that are described in the CD:

1. Evaluate the *Revised ILI Schedule'*s compliance with the prescriptive requirements of the CD and applicable federal pipeline safety regulations.
2. Evaluate whether the *Revised ILI Schedule* is supported by the facts and best engineering judgement and is of sufficient detail and completeness so that the expected outcome will be achieved.

In assessing Enbridge's compliance with the CD and in preparing this report, the ITP has relied in part on data and information provided by Enbridge. The ITP has not yet completed its validation of Enbridge-supplied data or calculations, including but not limited to the following:

1. Detailed verification of Enbridge calculations of the remaining life of the worst remaining feature for each threat within each pipeline segment. Such assessment would address corrosion growth rate, crack fatigue analysis, and stress corrosion cracking growth rate, along with related calculation methodologies.
2. Verification of features included in the Crack Assessment Sheets and Corrosion Assessment Sheets that previously have been repaired.
3. Evaluation of Enbridge procedures relevant to the assessments and calculations identified above.

The ITP evaluation considered crack, corrosion, and geometry ILI runs which are the types of ILI runs addressed by the CD.[5]

Analysis Methodology

The ITP used information from the following documents or sources for the evaluation of the *Revised ILI Schedule*:

- Tool Run Report
- Line Specific Integrity Plans
- Corrosion Assessment Sheets and Crack Assessment Sheets

[5] CD ¶27 and CD ¶28

The ITP applied the following steps to all CD-covered pipeline segments in its analysis of the *Revised ILI Schedule*:

1. **Enbridge most recent inspection date** - The ITP compiled the most recent inspection dates for each tool type from the Tool Run Report.

2. **ITP crack and corrosion re-inspection interval** - Using the Enbridge-supplied Crack Assessment Sheets, Corrosion Assessment Sheets, and the Line Specific Integrity Plans, the ITP compiled the basic pipeline characteristics and operational environment as well as the remaining life assessments. From these sources, the re-inspection intervals for each ILI segment for corrosion and cracking were determined consistent with CD ¶65 and CD ¶66. Previously repaired features, which were identified based upon Enbridge-supplied data, were removed from consideration.

3. **ITP geometric re-inspection interval** - For geometric tool runs, the ITP applied a re-inspection interval of 5 years, consistent with CD ¶66.

4. **Enbridge Tool Run Report scheduled inspection date** - The ITP compiled, from the Enbridge Tool Run Report, the Enbridge-scheduled inspection dates for all pipeline segments and for each tool type for the initial 12-month period.

5. **Compare Enbridge *Revised ILI Schedule* and ITP-determined dates** - The ITP determined whether the Enbridge scheduled inspection dates for segments listed in the *Revised ILI Schedule* are within the re-inspection interval defined by both the calculated intervals based on remaining life (CD ¶65) and/or maximum time allowable within the CD (CD ¶66).

6. **Evaluate pipeline segments not listed in the *Revised ILI Schedule*** - The ITP evaluated the Tool Run Report schedule for all pipeline segments not listed in the *Revised ILI Schedule* to determine whether inspection within the initial 12-month period is required.

Findings

The ITP developed the tables included in the Appendix to enable its analysis of the Enbridge application of CD ¶65 and CD ¶66 to determine re-inspection intervals. The ITP used information provided by Enbridge as noted in the Analysis Methodology section of this report. The tables present the ITP's analysis for corrosion, crack, and geometry re-inspection intervals.

The ITP evaluated the *ILI Schedule* and the subsequent *Revised ILI Schedule* and has reached the following three findings where Enbridge does not conform to CD requirements.

Finding 1

***Revised ILI Schedule* has five inspections in four pipeline segments where the scheduled ILI runs do not meet CD re-inspection requirements** - Following the receipt of the *Revised ILI Schedule*, the ITP provided a *Preliminary Evaluation* to Enbridge and the EPA on August 9, 2017. These preliminary findings described four ILIs not meeting the requirements of either CD ¶65 or CD ¶66 as follows:

- "There are two geometry inspections in the [CD]¶29 submission that exceed 5 years as per [CD] ¶66, one by 6 months (Line 5 BC-RW) and one by 11 months (Line 2 GF-CR MFL/Geometry Combo).

- There are two crack inspections that do not meet the estimated remaining half life ([CD] ¶65) of their corresponding worst features as scheduled, one in Line 4 CR-CS, and one in Line 5 PE-IR that was just completed."[6]

- There is one corrosion inspection in the [CD]¶29 submission that exceed 5 years as per CD ¶66 by 11 months (Line 2 GF-CR MFL/Geometry Combo).

Enbridge's response was submitted to the EPA on August 24, 2017. This *Enbridge Letter* requested "EPA's guidance that will allow for a determination by the ITP in its final evaluation of the CD ¶29 report that the scheduled ILIs for the four segments at issue are in fact compliant with the terms of the CD".[7] The *Enbridge Letter* provided specific information, and explanation, to support its position for each of the four pipeline segments.

The ITP reviewed Enbridge's August 24th response and discussed it internally. The ITP's review of the *Enbridge Letter* was submitted to Enbridge and the EPA on August 29. The ITP's analysis for each of the four pipeline segments is duplicated below in Table 2.[8]

In Table 2 (page14) the ITP summarized each of Enbridge's four separate pipeline segment responses (left column) and the ITP's findings with regard to each such response (right column).[9]

[6] ITP August 9 submittal to EPA and Enbridge.
[7] Enbridge August 24, 2017 Letter to Matthew Moore, EPA.
[8] ITP August 28 Review, submitted via email to EPA and Enbridge on August 29.
[9] Enbridge responses, as shown in the table, are directly quoted from the August 24 letter and have not been edited by the ITP.

Table 2: Enbridge Response and ITP Findings (duplicated from ITP August 29 review)

Enbridge Response	ITP Findings
Line 2 GF – CR Geometry	
Enbridge acknowledges that the next Geometry ILI is scheduled for February 9, 2018, and that the scheduled date is over five years from the previous run. However, Enbridge asserts that the 2015 hydrostatic pressure test (hydrotest) of this segment in accordance with 49CFR195, Subpart E, served as the equivalent of an ILI inspection. Enbridge goes on to assert that Paragraph 71.b of the CD recognizes a hydrotest as a substitute for ILI, and that the maximum five year interval required under the Consent Decree would make the due date for re-inspection in March, 2017 – two months before the Effective Date of the CD, thus rendering the five year requirement inapplicable.	While 49CFR195, §452(c)(i)(B), does allow Subpart E hydrostatic pressure testing as a method for assessing the integrity of pipe, the ITP finds no allowance for hydrostatic pressure tests in lieu of ILI under the CD section VII.D. The ITP believes CD ¶71.b in subsection E is specific to the Line 5 segments under the Straits of Mackinac, and only applicable to hydrostatic pressure testing in lieu of ILI to detect axially aligned crack features. The ITP does not find CD ¶71.b germane to any other ILI requirement in the CD. Further, the ITP is concerned that a hydrostatic pressure test does not provide much of the data expected for OneSource data integration required under CD Subpart VII.F, as well as compliance with CD ¶58's requirement to determine interaction with feature types from previous ILI tool runs. It is also true that the CD's maximum 5-year interval under CD ¶66 results in a due date that predates the CD Effective Date, but the ITP believes that, during the period of negotiations and court review, Enbridge should have recognized that this ILI run would be past its due date, and therefore become non-compliant, on the CD Effective Date. The ITP would have expected Enbridge to take steps to complete the run earlier, or to use the administrative processes available under the CD to seek a remedy.

Enbridge Response	ITP Findings
Line 4 CR – CS Crack	
Enbridge acknowledges that the Crack Tool run for this segment is scheduled for October of 2017 and does not dispute the ITP's finding that the one half of the lowest Remaining Life on this segment is 1.5 years, nor that the previous Crack Tool run was in November of 2013. Enbridge asserts that the 2015 re-inspection requirement of the CD predates the CD's Effective Date and that the uncertainty of the Effective Date rendered Enbridge "unable to plan around the eventual Effective date." Enbridge also presents tool availability, field resources, and scheduling of compatible commodities as further complicating their planning. Enbridge requests that the EPA allow a transition period in which to implement the CD's ILI requirements.	While it is accurate that the CD's 1.5-year half-life interval would predate the CD Effective Date, the full remaining life interval of 3 years should have indicated a crack re-inspection on this line segment before the end of 2016. No technical basis is provided for exceeding the full remaining life. Further, the ITP has found no provision in the CD for a transition period after the CD Effective Date, nor any other provision that would supplant the one half of the remaining life re-inspection requirements of CD ¶65. The ITP believes that during the period of negotiations and court review, Enbridge should have been fully aware that the CD ¶65 requirements would apply on the CD Effective Date, and that Enbridge had the opportunity to recognize and respond to this line segment being past its due date during that time. The ITP also believes the scheduling complications do not provide a technical basis to support scheduling this crack tool run later than the CD Effective Date.
Line 5 PE – IR Crack	
Enbridge does not dispute the technical basis for the ITP's determination that, applying the criteria of CD ¶65, the Crack Tool Run for this segment would be due in February 2017, based on one half the Remaining Life determined to be 2.25 years from the previous run in November 2014. Enbridge does assert that this predates the CD's Effective Date, and that their completion of the tool run in July of 2017 was timely and driven by tool availability, field resources, and commodity availability. Enbridge further states that, given completion of this tool run, Enbridge should be determined to be compliant with CD ¶65. Enbridge requests that the EPA allow a transition period in which to implement the CD's ILI requirements.	The ITP has found no provision in the CD for a transition period after the CD Effective Date, nor any other provision that would supplant the one half of the remaining life re-inspection requirements of CD ¶65. The ITP believes that, during the period of negotiations and court review, Enbridge should have been fully aware that the CD ¶65 requirements would apply on the CD Effective Date, and that Enbridge had opportunity to recognize and respond to this line segment being past its due date during this time. The ITP also believes the scheduling complications do not provide a technical basis for scheduling this crack tool run later than the CD Effective Date.

Enbridge Response	ITP Findings
Line 5 BC – RW Geometry	
Enbridge does not dispute the ITP's determination that the previous Geometry Tool run on this segment was in February of 2012. Enbridge asserts that a reinspection date of February 2017 under CD ¶65 predates the CD's Effective Date, and thus, inapplicable. Further, Enbridge explains that the tool had been scheduled in early 2017, but was rescheduled to coincide with the August 2017 MFL Tool run. Enbridge requests that the EPA allow a transition period in which to implement the CD's ILI requirements.	Enbridge does not provide a technical basis to support re-scheduling the geometry tool run to coincide with the magnetic flux leakage (MFL) tool run, nor is the ITP aware of any. Further, the ITP has found no provision in the CD for a transition period after the CD Effective Date, nor any other provision that would supplant the 5-year re-inspection interval of CD ¶66. The ITP believes that, during the period of negotiations and court review, Enbridge should have been fully aware that the CD ¶66 requirements would apply on the CD Effective Date, and that Enbridge had opportunity to recognize and respond to this line segment being past its due date during this time.

Finding 2

***ILI Schedule* did not correctly identify scheduled ILI runs** - Enbridge was deficient in their *ILI Schedule* submission of June 22, 2017. On July 10, 2017, the ITP provided Enbridge and the EPA a review of the discrepancies identified between the *ILI Schedule* and the Enbridge Tool Run Report.

The following is a summary of the changes Enbridge included in the *Revised ILI Schedule* or their Tool Run Report to correct the discrepancies identified by the ITP:

- Four runs in Line 5 through the Straits of Mackinac, required by ¶70 to be run prior to July 30, 2017 and completed in April 2017, were added by Enbridge to the *Revised ILI Schedule*.
- One run in Line 3 (required by ¶22.d) was originally planned after the initial 12-month period, inconsistent with the CD. It was rescheduled to occur within the initial 12-month period and was listed in the Tool Run Report but omitted from the *ILI Schedule*.
- Two runs in Line 6A required in the initial 12-month period were listed in the Tool Run Report but were omitted from the *ILI Schedule*.

Finding 3

Re-inspection and scheduled ILI dates are not provided in *the Revised ILI Schedule* - As previously noted, the *ILI Schedule* and the *Revised ILI Schedule* submitted by Enbridge are lists of planned ILI runs in the 12-month period, not a "schedule" for completing runs as the CD requires. The ITP expects that the Enbridge *ILI Schedule* should include the planned run date and a deadline for re-inspection consistent with CD ¶65 and CD ¶66; however, Enbridge included neither of those dates (see Table 1). It is understood that the actual run dates may vary due to operational matters and scheduling, but the re-inspection deadline dates are fixed by CD requirements.

Through access to the Enbridge Tool Run Report and other ILI data, the ITP evaluated Enbridge ILI run activity and calculated the re-inspection deadline to evaluate compliance with the CD.

List of Information Considered

The EPA requested that the ITP apply CD ¶133.a and identify all information considered by the ITP, identify all persons interviewed by the ITP, and summarize all relevant oral communications.

Federal Documents and Regulations

Consent Decree: *United States of America v. Enbridge Energy, Limited Partnership, et al*; Civil Action No. 1:16-cv-914.

49CFR195: *Transportation of Hazardous Liquids by Pipeline*

Enbridge Documents

12-Month Lakehead ILI Schedule Rev 1. June 22, 2017.

12-Month Lakehead ILI Schedule Rev 1.1. July 14, 2017.

Crack Assessment Sheets and Corrosion Assessment Sheets for each Lakehead System pipeline segment.

Enbridge Tool Run Report.

Line Specific Integrity Plans for each Lakehead System pipeline segment.

Procedure PI-143: *Development of a Line Specific Integrity Plan v1.0*. January 6, 2017.

Rationale Document – Paragraph 29 ILI Schedule Resubmission. July 21, 2017.

Other Communications

The ITP, EPA, and Enbridge conduct regular weekly and monthly meetings to coordinate various compliance verification activities. Following are meetings where the *12-Month Lakehead System ILI Schedule* report was discussed:

1. July 12, 2017 Regular Monthly Meeting – Enbridge acknowledged receipt of the July 10, 2017 ITP document describing the discrepancies between the *ILI Schedule* and the Tool Run Report.
2. July 19, 2017 Regular Weekly Meeting – The ITP and Enbridge discussed the discrepancies identified in the July 10 ITP document. Enbridge committed to a response and agreed to provide a "rationale for changes" document to the ITP.
3. August 9, 2017 Regular Monthly Meeting – The ITP notified Enbridge of four pipeline segments which appeared not to meet the CD-required re-inspection intervals. The ITP committed to provide a written response in the form of a *Preliminary Evaluation*.
4. August 24, 2017 Monthly ILI Technical Meeting – Enbridge noted they would respond, later that day, to the EPA regarding the ITP's *Preliminary Evaluation*.

Appendix

The following tables pertain to all CD monitored Lakehead System pipeline segments. The tables highlight those pipeline segments noted in the CD ¶29 submission. The tables portray the information for corrosion, crack, and geometry inspections respectively. The tables were created by the ITP as a tool to verify that inspections are scheduled within their assessed re-inspection period as well as meeting the required CD re-inspection requirements. The re-inspection periods are based on remaining life estimates that are either from:

- Corrosion growth assessments for corrosion.
- The minimum remaining life from crack fatigue or stress corrosion cracking growth.

The maximum re-inspection interval for geometry features is 5 years. Previously repaired features, which were identified based upon Enbridge-supplied data, were removed from consideration. Table 3 is the legend that pertains to each of the tables on the following pages.

Table 3: Inspection verification table legend

3/14/2018	These ¶29 inspections are yet to be made
8/21/2017	These ¶29 inspections are completed
10/17/2017	Scheduled inspection date does not meet either ¶65 or ¶66
7/19/2017	Scheduled inspection date does not meet either ¶65 or ¶66 but has been completed
7/25/2017 1/2/2018	Failed inspection, must be re-inspected. Provides failed inspection date and re-run

Corrosion ILI Program Table

The Corrosion ILI program table on the following page provides the details of the Lakehead System corrosion ILI program. The column information is described as follows, starting from the left:

- Columns 1 through 4 detail the line number, launcher, receiver, and pipeline segment abbreviation.
- Columns 5 and 6 detail the latest inspection date for the axial MFL and ultrasonic metal loss ILI tools, respectively, as provided in Enbridge's OneSource database.
- Column 7 is the most recent inspection date from column 5 and 6.
- Column 8 is the lowest remaining half-life in years within each ILI segment (previously repaired features were removed from consideration). These were attained from the Corrosion Assessment Sheets provided by Enbridge.
- Columns 9 and 10 are the re-inspection dates required by CD ¶65 and CD ¶66, respectively.
- Column 11 is the scheduled inspection date as listed on the Tool Run Report.

				Corrosion ILI						
				Last Inspection			Lowest Remaining 1/2 Life	Required by CD		Scheduled Inspection as per Tool Run Report
Line	Launcher	Receiver	Segment	Axial MFL	UM	Latest		¶65 1/2 Life	¶66 5 Year	
1	GRETNA	CLEARBROOK	GF-CR	8/19/2014		8/19/2014	6.5	2/15/2021	8/18/2019	8/18/2019
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	9/26/2013		9/26/2013	5.0	9/25/2018	9/25/2018	3/14/2018
2	GRETNA	CLEARBROOK	GF-CR	3/26/2012		3/26/2012	6.5	9/23/2018	3/25/2017	2/9/2018
	CLEARBROOK	DEER RIVER	CR-DR	4/13/2013		4/13/2013	5.5	10/11/2018	4/12/2018	2/15/2018
	DEER RIVER	SUPERIOR TERMINAL WEST	DR-PW	3/2/2013		3/2/2013	5.0	3/1/2018	3/1/2018	2/23/2018
3	GRETNA	CLEARBROOK	GF-CR	11/17/2016	4/17/2014	11/17/2016	2.0	11/17/2018	Annual	9/15/2017
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	10/13/2015	10/1/2015	10/13/2015	3.8	7/12/2019	Annual	8/21/2017
4	GRETNA	DONALDSON	GF-DN	5/3/2016	4/20/2016	5/3/2016	2.0	5/3/2018	5/2/2021	2/6/2018
	DONALDSON	VIKING	DN-VG	3/31/2015	4/26/2016	4/26/2016	4.0	4/25/2020	4/25/2021	2/13/2018
	VIKING	PLUMMER	VG-PL	5/6/2016	3/4/2015	5/6/2016	2.0	5/6/2018	5/5/2021	2/20/2018
	PLUMMER	CLEARBROOK	PL-CR	5/10/2016	5/12/2016	5/12/2016	3.0	5/12/2019	5/11/2021	2/27/2018
	CLEARBROOK	CASS LAKE	CR-CS	7/13/2012	11/13/2013	11/13/2013	7.5	5/12/2021	11/12/2018	5/9/2017
	CASS LAKE	DEER RIVER	CS-DR	4/8/2015	3/11/2015	4/8/2015	2.5	10/6/2017	4/6/2020	3/6/2018
	DEER RIVER	FLOODWOOD	DR-FW	4/11/2015	3/28/2015	4/11/2015	4.0	4/10/2019	4/9/2020	3/13/2018
	FLOODWOOD	WRENSHALL	FW-WR	4/14/2015	4/7/2015	4/14/2015	4.0	4/13/2019	4/12/2020	3/20/2018
	WRENSHALL	SUPERIOR TERMINAL WEST	WR-PW	5/4/2015	5/14/2013	5/4/2015	14.0	4/30/2029	5/2/2020	3/29/2018
5	SUPERIOR TERMINAL EAST	IRON RIVER	PE-IR	6/7/2013		3/14/2017	Assessment Sheets not available			7/12/2017
	IRON RIVER	NORTH STRAITS	IR-NO	5/30/2013		4/12/2017	Assessment Sheets not available			1/1/2022
	WEST NORTH STRAITS	WEST MACKINAW	WNO-WMA	8/27/2013		4/11/2017	Assessment Sheets not available			3/6/2018
	EAST NORTH STRAITS	EAST MACKINAW	ENO-EMA	8/28/2013		4/12/2017	Assessment Sheets not available			3/7/2018
	MACKINAW	BAY CITY	MA-BC	2/23/2012		1/25/2017	Assessment Sheets not available			3/1/2022
	BAY CITY	SARNIA TERMINAL WEST	BC-RW	3/21/2012		8/24/2017	Assessment Sheets not available			3/27/2022
06A	SUPERIOR TERMINAL EAST	ADAMS	PE-AM	11/15/2015	4/21/2017	4/21/2017	2.0	4/21/2019	4/20/2022	9/29/2017
	ADAMS	GRIFFITH	AM-GT	2/19/2016	7/25/2017 1/2/2018	2/19/2016	2.0	2/18/2018	2/17/2021	1/19/2018
06B	GRIFFITH	STOCKBRIDGE	GT-SK	10/10/2014	5/19/2011	10/10/2014	9.0	10/8/2023	10/9/2019	10/11/2019
	STOCKBRIDGE	SARNIA TERMINAL WEST	SK-RW	10/23/2014	6/22/2011	10/23/2014	7.5	4/21/2022	10/22/2019	1/5/2018

				Corrosion ILI						
				Last Inspection			Lowest Remaining 1/2 Life	Required by CD		Scheduled Inspection as per Tool Run Report
Line	Launcher	Receiver	Segment	Axial MFL	UM	Latest		¶65 1/2 Life	¶66 5 Year	
10	WEST NIAGARA RIVER	GRAND ISLAND	WNR-EB	7/13/2015	12/15/2010	7/13/2015	12.5	1/8/2028	7/11/2020	6/12/2018
	GRAND ISLAND	EAST NIAGARA RIVER	EB-ENR	7/13/2015	12/9/2010	7/13/2015	4.0	7/12/2019	7/11/2020	6/14/2018
	EAST NIAGARA RIVER	KIANTONE TAKE-OFF	ENR-UT	7/16/2015	7/17/2015	7/17/2015	3.5	1/14/2019	7/15/2020	9/11/2018
14	SUPERIOR TERMINAL EAST	ADAMS	PE-AM	1/17/2016		1/17/2016	5.5	7/16/2021	1/15/2021	1/15/2021
	ADAMS	MOKENA	AM-MK	1/29/2016		1/29/2016	6.0	1/27/2022	1/27/2021	1/25/2021
61	SUPERIOR TERMINAL EAST	FLANAGAN	PE-FN	6/27/2014		6/27/2014	5.0	6/26/2019	6/26/2019	3/17/2019
62	FLANAGAN	HARTSDALE	FN-HD	3/12/2014		3/12/2014	4.0	3/11/2018	3/11/2019	3/12/2019
64	GRIFFITH LATERAL	GRIFFITH	GL-GT	11/21/2013		11/21/2013	7.5	5/20/2021	11/20/2018	1/16/2018
65	GRETNA	CLEARBROOK	GF-CR	5/4/2016		5/4/2016	7.0	5/3/2023	5/3/2021	5/4/2020
67	GRETNA	CLEARBROOK	GF-CR	4/19/2014		4/19/2014	5.5	10/17/2019	4/18/2019	5/10/2018
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	6/5/2015		6/5/2015	8.0	6/3/2023	6/3/2020	6/4/2020

Crack ILI Program Table

The Crack ILI program table provides the details of the Lakehead System crack ILI program. The column information is described as follows, starting from the left:

- Columns 1 through 4 detail the line number, launcher, receiver, and pipeline segment abbreviation.
- Column 5 details the latest inspection date for either the ultrasonic shear wave tools or the ultrasonic phased array tool as provided in Enbridge's OneSource database.
- Column 6 is the lowest remaining half-life in years for fatigue or stress corrosion cracking within each ILI pipeline segment (excavations removed). These were attained from the Crack Assessment Sheets provided by Enbridge.
- Columns 7 and 8 are the re-inspection dates required by CD ¶65 and CD ¶66, respectively.
- Column 9 is the scheduled inspection date as listed on the Tool Run Report.

Line	Launcher	Receiver	Segment	Crack ILI				
				Last Inspection	Lowest Remaining 1/2 Life	Required by CD		Scheduled Inspection as per Tool Run Report
						¶65 1/2 Life	¶66 5 Year	
1	GRETNA	CLEARBROOK	GF-CR	2/5/2015	9.0	2/3/2024	2/4/2020	7/24/2018
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	2/25/2014	8.0	2/23/2022	2/24/2019	6/1/2018
2	GRETNA	CLEARBROOK	GF-CR	7/19/2013	2015 HT>5	7/19/2018	7/19/2018	12/31/2019
	CLEARBROOK	DEER RIVER	CR-DR	7/2/2013	2015 HT>5	7/2/2018	7/2/2018	12/31/2019
	DEER RIVER	SUPERIOR TERMINAL WEST	DR-PW	8/3/2013	2015 HT>5	8/3/2018	8/3/2018	12/31/2019
3	GRETNA	CLEARBROOK	GF-CR	6/11/2014	3.5	12/9/2017	Annual	9/15/2017
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	10/24/2015	2.5	4/23/2018	Annual	2/15/2018
4	GRETNA	DONALDSON	GF-DN	4/20/2016	6.5	10/18/2022	4/19/2021	2/6/2018
	DONALDSON	VIKING	DN-VG	4/26/2016	5.0	4/25/2021	4/25/2021	2/13/2018
	VIKING	PLUMMER	VG-PL	3/4/2015	4.0	3/3/2019	3/2/2020	2/20/2018
	PLUMMER	CLEARBROOK	PL-CR	5/12/2016	3.5	11/10/2019	5/11/2021	2/27/2018
	CLEARBROOK	CASS LAKE	CR-CS	11/13/2013	1.5	5/14/2015	11/12/2018	10/17/2017
	CASS LAKE	DEER RIVER	CS-DR	3/11/2015	3.5	9/8/2018	3/9/2020	3/6/2018
	DEER RIVER	FLOODWOOD	DR-FW	3/28/2015	4.0	3/27/2019	3/26/2020	3/13/2018
	FLOODWOOD	WRENSHALL	FW-WR	4/7/2015	2.8	1/4/2018	4/5/2020	3/20/2018
	WRENSHALL	SUPERIOR TERMINAL WEST	WR-PW	5/14/2013	No Cracks Delineated		5/13/2018	3/29/2018
5	SUPERIOR TERMINAL EAST	IRON RIVER	PE-IR	11/14/2014	2.3	2/12/2017	11/13/2019	7/19/2017
	IRON RIVER	NORTH STRAITS	IR-NO	9/11/2013	4.5	3/11/2018	9/10/2018	4/19/2017
	WEST NORTH STRAITS	WEST MACKINAW	WNO-WMA	4/18/2017	Assessment Sheets not available			7/25/2022
	EAST NORTH STRAITS	EAST MACKINAW	ENO-EMA	4/19/2017	Assessment Sheets not available			7/25/2022
	MACKINAW	BAY CITY	MA-BC	9/25/2016	3.0	9/25/2019	9/24/2021	8/10/2019
	BAY CITY	SARNIA TERMINAL WEST	BC-RW	4/10/2014	3.5	10/8/2017	4/9/2019	8/8/2017
06A	SUPERIOR TERMINAL EAST	ADAMS	PE-AM	2/3/2015	3.5	8/3/2018	2/2/2020	10/4/2017
	ADAMS	GRIFFITH	AM-GT	11/5/2013	4.0	11/4/2017	11/4/2018	5/19/2017

Line	Launcher	Receiver	Segment	Crack ILI				
				Last Inspection	Lowest Remaining 1/2 Life	Required by CD		Scheduled Inspection as per Tool Run Report
						¶65 1/2 Life	¶66 5 Year	
06B	GRIFFITH	STOCKBRIDGE	GT-SK	6/26/2015	30.5	12/17/2045	6/24/2020	6/26/2019
	STOCKBRIDGE	SARNIA TERMINAL WEST	SK-RW	3/17/2015	15.0	3/13/2030	3/15/2020	3/17/2019
10	WEST NIAGARA RIVER	GRAND ISLAND	WNR-EB	7/16/2015	25.0	7/9/2040	7/14/2020	6/13/2018
	GRAND ISLAND	EAST NIAGARA RIVER	EB-ENR	10/20/2014	25.0	10/14/2039	10/19/2019	7/25/2017 1/2/2018
	EAST NIAGARA RIVER	KIANTONE TAKE-OFF	ENR-UT	7/24/2014	18.0	7/19/2032	7/23/2019	7/27/2017
14	SUPERIOR TERMINAL EAST	ADAMS	PE-AM	7/22/2016	5.5	1/19/2022	7/21/2021	7/22/2021
	ADAMS	MOKENA	AM-MK	7/26/2016	5.0	7/25/2021	7/25/2021	7/25/2021
61	SUPERIOR TERMINAL EAST	FLANAGAN	PE-FN	11/15/2014	11.0	11/12/2025	11/14/2019	11/15/2019
62	FLANAGAN	HARTSDALE	FN-HD	6/13/2013	No Cracks Delineated		6/12/2018	6/13/2018
64	GRIFFITH LATERAL	GRIFFITH	GL-GT	12/10/2014	29.0	12/3/2043	12/9/2019	6/12/2018
65	GRETNA	CLEARBROOK	GF-CR	4/7/2016	8.5	10/4/2024	4/6/2021	4/7/2020
67	GRETNA	CLEARBROOK	GF-CR	6/20/2014	17.5	12/15/2031	6/19/2019	6/26/2018
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	7/27/2015	5.5	1/23/2021	7/25/2020	6/12/2020

Geometry ILI Program Table

The Geometry ILI program table provides the details of the Lakehead System geometry ILI program. The column information is described as follows, starting from the left:

- Columns 1 through 4 detail the line number, launcher, receiver, and pipeline segment abbreviation.
- Column 5 details the latest inspection date for a geometry tool as provided in Enbridge's OneSource database.
- Columns 6 is the re-inspection dates required by CD ¶66.
- Column 7 is the scheduled inspection date as listed on the Tool Run Report.

Line	Launcher	Receiver	Segment	Geometry		
				Last Inspection	Required by CD ¶66 5 Yr	Scheduled Inspection as per Tool Run Report
1	GRETNA	CLEARBROOK	GF-CR	7/19/2014	7/18/2019	7/18/2019
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	8/18/2013	8/17/2018	3/14/2018
2	GRETNA	CLEARBROOK	GF-CR	3/6/2012	3/5/2017	2/9/2018
	CLEARBROOK	DEER RIVER	CR-DR	4/13/2013	4/12/2018	2/15/2018
	DEER RIVER	SUPERIOR TERMINAL WEST	DR-PW	3/2/2013	3/1/2018	2/23/2018
3	GRETNA	CLEARBROOK	GF-CR	4/12/2014	4/11/2019	2/8/2018
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	10/13/2015	10/11/2020	9/12/2018
4	GRETNA	DONALDSON	GF-DN	3/22/2016	3/21/2021	3/10/2020
	DONALDSON	VIKING	DN-VG	3/24/2016	3/23/2021	2/3/2020
	VIKING	PLUMMER	VG-PL	4/4/2016	4/3/2021	3/25/2021
	PLUMMER	CLEARBROOK	PL-CR	4/7/2016	4/6/2021	3/28/2020
	CLEARBROOK	CASS LAKE	CR-CS	8/23/2013	8/22/2018	4/25/2017
	CASS LAKE	DEER RIVER	CS-DR	4/28/2017	4/27/2022	1/31/2018
	DEER RIVER	FLOODWOOD	DR-FW	2/10/2015	2/9/2020	2/10/2020
	FLOODWOOD	WRENSHALL	FW-WR	2/11/2015	2/10/2020	2/11/2020
	WRENSHALL	SUPERIOR TERMINAL WEST	WR-PW	2/12/2015	2/11/2020	2/12/2020
5	SUPERIOR TERMINAL EAST	IRON RIVER	PE-IR	12/7/2014	12/6/2019	2/6/2018
	IRON RIVER	NORTH STRAITS	IR-NO	5/30/2013	5/29/2018	4/12/2017
	WEST NORTH STRAITS	WEST MACKINAW	WNO-WMA	4/11/2017	4/10/2022	3/6/2018
	EAST NORTH STRAITS	EAST MACKINAW	ENO-EMA	4/12/2017	4/11/2022	3/7/2018
	MACKINAW	BAY CITY	MA-BC	2/9/2012	2/7/2017	1/25/2017
	BAY CITY	SARNIA TERMINAL WEST	BC-RW	2/13/2012	2/11/2017	8/24/2017

Line	Launcher	Receiver	Segment	Geometry		
				Last Inspection	Required by CD ¶66 5 Yr	Scheduled Inspection as per Tool Run Report
06A	SUPERIOR TERMINAL EAST	ADAMS	PE-AM	2/19/2015	2/18/2020	9/29/2017
	ADAMS	GRIFFITH	AM-GT	2/20/2016	2/18/2021	2/6/2017
06B	GRIFFITH	STOCKBRIDGE	GT-SK	10/10/2014	10/9/2019	10/11/2019
	STOCKBRIDGE	SARNIA TERMINAL WEST	SK-RW	10/23/2014	10/22/2019	10/24/2019
10	WEST NIAGARA RIVER	GRAND ISLAND	WNR-EB	7/13/2015	7/11/2020	10/7/2020
	GRAND ISLAND	EAST NIAGARA RIVER	EB-ENR	7/13/2015	7/11/2020	7/13/2020
	EAST NIAGARA RIVER	KIANTONE TAKE-OFF	ENR-UT	7/16/2015	7/14/2020	8/1/2020
14	SUPERIOR TERMINAL EAST	ADAMS	PE-AM	1/17/2016	1/15/2021	1/15/2021
	ADAMS	MOKENA	AM-MK	1/8/2016	1/6/2021	1/25/2021
61	SUPERIOR TERMINAL EAST	FLANAGAN	PE-FN	3/17/2014	3/16/2019	3/17/2019
62	FLANAGAN	HARTSDALE	FN-HD	1/15/2014	1/14/2019	1/16/2019
64	GRIFFITH LATERAL	GRIFFITH	GL-GT	11/21/2013	11/20/2018	1/16/2018
65	GRETNA	CLEARBROOK	GF-CR	5/4/2016	5/3/2021	5/4/2020
67	GRETNA	CLEARBROOK	GF-CR	4/19/2014	4/18/2019	5/10/2018
	CLEARBROOK	SUPERIOR TERMINAL WEST	CR-PW	6/5/2015	6/3/2020	6/4/2020