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October 12, 2012

David Barrett
Director, Central Region
Office of Pipeline Safety
901 Locust Street, Room 462E
Kansas City MO 64106

Re: CPF 3-2012-5020 Notice of Proposed Violation, Proposed Civil Penalty and Proposed Compliance Order

Dear Mr. Barrett:

This response is to PHMSA's Notice of Probable Violation and Proposed Civil Penalty and Proposed Compliance Order dated September 13, 2012. The audit was conducted on Enbridge's Line 17 during the period of July 12-15, 2010.

Enbridge appreciates the opportunity to respond and has outlined below our specific response to the inspection findings and proposed enforcement.

PHMSA Finding

1. §195.412 Inspection of rights-of-way and crossings under navigable waters.

(a) Each operator shall, at intervals not exceeding 3 weeks, but at least 26 times each calendar year, inspect the surface conditions on or adjacent to each pipeline right-of-way. Methods of inspection include walking, driving, flying or other appropriate means of traversing the right-of-way.

Enbridge Pipelines (Toledo) Inc. {Enbridge} failed to adequately inspect the surface conditions at the main line valve located at Hoffman Road (Toledo) at an interval not exceeding 3 weeks, but at least 26 times each calendar year. The valve location was overgrown with brush.

Records indicate the pipeline was inspected by aerial patrol. During PHMSA's field inspection, the main line valve located at Hoffman Road was observed to be overgrown with small trees and brush; therefore, the surface conditions of this section of pipeline was not adequately inspected during the aerial patrols.

Enbridge Response

Enbridge inspected the surface conditions of Line 17 by aerial patrol at intervals not exceeding 3 weeks, but at least 26 times each calendar year, in full compliance with the requirements of §195.412 - Inspection of rights-of-way and crossings under navigable waters. It is acknowledged that at the time of the PHMSA inspection (July 12-15, 2010), the specific mainline valve located at Hoffman Road had not been recently brushed. However, Enbridge completed inspections in compliance with §195.412, and upon identification of the growth at this location, immediately cleared the area to ensure that we maximize the effectiveness of surface condition inspections during on-going aerial patrols. We do not agree however, with the determination that this renders the inspection inadequate and translates to a probable violation.

Corrective Action Taken

The mainline valve site at Hoffman Road was cleared within the week after being identified during the 2010 PHMSA inspection.

PHMSA Finding

2. 195.428 Overpressure safety devices and overfill protection system

(a) Except as provided in paragraph (b) of this section, each operator shall, at intervals not exceeding 15 months, but at least once each calendar year, or in the case of pipelines used to carry highly volatile liquids, at intervals not to exceed 7 1/2 months, but at least twice each calendar year, inspect and test each pressure limiting device, relief valve, pressure regulator, or other item of pressure control equipment to determine that it is functioning properly, is in good mechanical condition, and is adequate from the standpoint of capacity and reliability of operation for the service in which it is used.

Enbridge failed to inspect the overpressure safety devices at intervals not exceeding 15 months, but at least once each calendar year. The inspection intervals exceeded the maximum 15 month interval by 14-24 days for each of the following overpressure safety devices:

Enbridge Response

In 2006, the individual responsible for the annual safety device inspections performed the tasks in the spring of that year (rather than the fall cycle for annual activities) with other semi-annual tasks and alternated back to the fall in 2007, inadvertently exceeding the 15 month interval by 14-24 days. This was brought to the attention of the PHMSA inspector during the 2010 inspection, with the explanation of improvement initiatives to the maintenance work management process since then.

Corrective Action Taken

Enbridge utilizes the Maximo work management system to schedule compliance related tasks such as pressure limiting devices. Since the time of this noted deficiency, employees have undergone additional training and become more proficient in the use of the Maximo system to appropriately assign and complete maintenance tasks.

PHMSA Finding

3. *195.432 (d) Inspection of in-service breakout tanks*
(d) The intervals of inspection specified by documents referenced in paragraphs (b) and (c) of this section begin on May 3, 1999, or on the operator's last recorded date of the inspection, whichever is earlier.

Enbridge failed to perform internal inspections or establish a corrosion rate for the bottom plates of the following tanks within the 10 year period prescribed by API Standard 653, and exceeded the maximum internal inspection interval for tanks 300-TK-80 and 300-TK-81. API 653 Section 6.4.2 describes the method for establishing the inspection intervals for internal inspections. Section 6.4 .2 requires the calculation of the internal inspection intervals in accordance with Section 4.4.7 of the standard, with a maximum internal inspection interval of 20 years. If, however, the corrosion rates are unknown, the maximum inspection interval is not to exceed 10 years, unless similar service experience is available to estimate the bottom plate thickness at the next inspection. Enbridge failed to demonstrate that they had established a basis for the corrosion rate for the tank bottoms listed above; and exceeded the 10 year maximum internal inspection interval for unknown corrosion rates. Additionally, Enbridge did not have similar service experience, or procedures to apply similar service experience available to make this inspection interval determination.

The records reviewed demonstrate the last internal inspection performed for Tank #300-TK-80 was performed on June 25, 1998. Tank #300-TK-81 was put into service in 1999 and an internal inspection was not performed until 2011. No calculations were provided that establishes a corrosion rate for the bottom plate. Inspection dates for future internal and external inspections on these tanks have been provided to PHMSA

Enbridge Response

In October of 2009, PHMSA Southwest (SW) Region completed a standard inspection of the Cushing, Oklahoma tank farm. As a result of the inspection, Enbridge was issued a Notice of Amendment on March 8, 2010. This Notice proposed amendment to Enbridge procedures, one of which included changing our out-of-service tank re-inspection criteria which led to more accelerated intervals for select tanks.

During this inspection it was determined that Enbridge’s breakout tank inspection procedures were not compliant with the revised API 653 standard in regards to the assessment of bottom side corrosion rates and corresponding inspection intervals.

Enbridge submitted amended procedures to SW Region on September 7, 2010, and additional amendments and clarifications on November 24, 2010. SW Region staff reviewed the amended procedures, and concluded that "the inadequacies outlined in this Notice of Amendment have been corrected". SW Region also issued a Corrective Action Order (CAO) which required Enbridge to accelerate select breakout tank inspections per the modified procedure under a three year program outlined in the CAO.

Enbridge recognized the internal procedural change was a departure from past practice which created a historical timing issue for other breakout tanks in the Enbridge system. On June 29, 2010, Enbridge proactively met with Central Region to discuss the results of the recent SW Region finding, and corresponding changes were made to Enbridge's procedure, specifically related to the tank re-inspection interval. Enbridge communicated the procedural changes and the breakout tank accelerated inspection schedule including the acceleration of tanks 80, 81, and 82 located at the Stockbridge Terminal (presentation attached electronically).

Microsoft PowerPoint Presentation

Based on the various communications with Central Region, Enbridge understood the inspection schedule was mutually agreed to, and would mitigate any safety or compliance risk. As such, Enbridge proceeded with the accelerated breakout tank inspection schedule presented in June, 2010 to Central Region. Enbridge would ask that PHMSA consider these communications in relation to this alleged violation. Furthermore, perhaps a further meeting to discuss the accelerated inspection schedule would be in order to ensure both Enbridge and PHMSA have similar records and agreement on this particular issue to ensure any future misunderstandings.

Enbridge respectfully requests reconsideration of the alleged violations, proposed civil penalties and compliance order, based on the additional information provided within this response. Should you have any questions or require further information, please contact me at (715) 394-1445.

Sincerely,

Shaun Kavajecz
Senior Manager, U.S. Pipeline Compliance
Enbridge Energy Company, Inc.

Tank Management Program Update June 29, 2010

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Outline

- Background
- Tank Program Changes
- Implementation Plans
- Areas for Further Development

Background

- SW PHMSA Terminal Audit:
    - Cushing, OK
    - September, December 2009
- API 653 Tank Management Program findings
    - Established procedures & programs
    - Technical interpretations

Enbridge Updates and Revisions

- Enbridge completed draft revisions of O&MP Book 3 09-02-02 “Tank Inspections” and Facilities Integrity “Aboveground Tank Integrity Management Program”
- Enbridge developed a draft Similar Service Program to apply as applicable going forward.
- Enbridge completing review of remaining system against revised procedures

- **Original Table 1 of O&MP Book 3 09-02-02 "Tank Inspections" during 2009 PHMSA audit.**

Table 1
Summary of Atmospheric Tank Inspections

Type	Frequency	Who
Routine In-Service	monthly	employee[1]
Annual In-Service	annually	site supervisor or designate
Formal In-Service	5 years[2]	employee[3] or contract inspector (preferred)[3]
Formal Out-Of-Service	20 years[2, 4, 5] 15 years[2] (field tanks)	employee[3] or contract inspector (preferred)[3]

NOTES

1 Knowledgeable in tank farm operations, specifics of the tank, and characteristics of the product stored; or, for field tanks, competent person in accordance with API RP 12R1, Appendix A.2.
2 More frequent inspections may be required due to corrosion growth rates or inspection results.
3 Certified to API 653, Appendix D; or, for field tanks, qualified to API RP 12R1, Appendix A.1.
4 Frequency may be adjusted if a risk-based inspection (RBI) assessment is done in accordance with API 653.
5 When corrosion rates are not known and similar service experience is not available, the next out-of-service inspection must be complete within 10 years.

- **Revised Table 1 of O&MP Book 3 09-02-02 "Tank Inspections"**

Table 1
Summary of Atmospheric Tank Inspections

Type	Max. Interval	Who
Routine	monthly	employee[1]
Annual	annually	site supervisor or designate
External	5 years[2,3]	Employee[4] or contract inspector (preferred)[4]
Ultrasonic Thickness	15 years[2,3]	Employee[4] or contract inspector (preferred)[4]
Initial Internal	10 years[5]	Employee[4] or contract inspector (preferred)[4]
Subsequent Internal	20 years[2,3,5,6] 15 years[2,3] (Field Tanks)	Employee[4] or contract inspector (preferred)[4]

NOTES

1 Knowledgeable in tank farm operations, specifics of the tank, and characteristics of the product stored; or, for field tanks, competent person in accordance with API RP 12R1, Appendix A.2.

2 The inspection interval shall be measured from the date of the previous inspection.

3 More frequent inspections may be required due to corrosion growth rates or inspection results.

4 Certified to API 653, Annex D; or, for field tanks, qualified to API RP 12R1, Appendix A.1.

5 When either a risk-based inspection (RBI) assessment to API 653, 6.4.2.4; or, a similar service assessment to API 653, Annex H, is performed the inspection interval may be adjusted in accordance with API 653.

6 When inadequate information exists to determine a subsequent internal inspection interval by corrosion rate or RBI procedures, the maximum inspection interval shall be governed in accordance with API 653 6.4.2.1 Initial Inspection Interval.

- **Several changes were made to Table 1 in 09-02-02 to incorporate the findings from the PHMSA audit and bring 09-02-02 further inline with API 653 4th Edition released in April 2009.**
  - **Table 1 now includes a new "Note 2" indicating intervals between Inspections are date to date.**

    2 The inspection interval shall be measured from the date of the previous inspection.

  - **Table 1 was also revised to denote Maximum Interval as compared previously to Frequency.**

Table 1
Summary of Atmospheric Tank Inspections

	Frequency	Who
	monthly	employee[1]

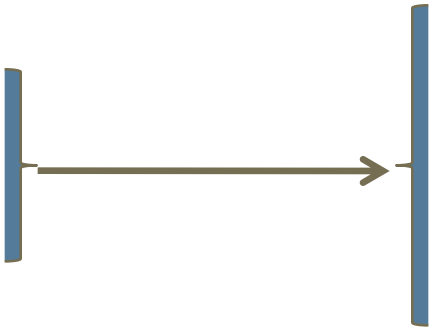
Table 1
Summary of Atmospheric Tank Inspections

	Max. Interval	Who
	monthly	employee[1]

Revisions to O&MP

- **Table 1 now further breaks down the "formal" inspections and uses the inspection naming conventions of API 653.**

Type
Routine In-Service
Annual In-Service
Formal In-Service
Formal Out-Of-Service



Type
Routine
Annual
External
Ultrasonic Thickness
Initial Internal
Subsequent Internal

Revisions to O&MP Book 3 09-02-02 “Tank Inspections”

- **An Initial Internal Inspection was added with a 10 year maximum interval unless an RBI or Similar Service Assessment is performed.**

Table 1
Summary of Atmospheric Tank Inspections

Type	Max. Interval	Who
Routine	monthly	employee[1]
Annual	annually	site supervisor or designate
External	5 years[2,3]	Employee[4] or contract inspector (preferred)[4]
Ultrasonic Thickness	15 years[2,3]	Employee[4] or contract inspector (preferred)[4]
Initial Internal	10 years[5]	Employee[4] or contract inspector (preferred)[4]

5 When either a risk-based inspection (RBI) assessment to API 653, 6.4.2.4; or, a similar service assessment to API 653, Annex H, is performed the inspection interval may be adjusted in accordance with API 653.

Revisions to O&MP Book 3 09-02-02 “Tank Inspections”

- **A note was added regarding unknown corrosion rates updated to reflect latest edition of the API 653.**

Table 1
Summary of Atmospheric Tank Inspections

Type	Max. Interval	Who
Routine	monthly	employee[1]
Annual	annually	site supervisor or designate
External	5 years[2,3]	Employee[4] or contract inspector (preferred)[4]
Ultrasonic Thickness	15 years[2,3]	Employee[4] or contract inspector (preferred)[4]
Initial Internal	10 years[5]	Employee[4] or contract inspector (preferred)[4]
Subsequent Internal	20 years[2,3,5,6] 15 years[2,3] (Field Tanks)	Employee[4] or contract inspector (preferred)[4]

6 When inadequate information exists to determine a subsequent internal inspection interval by corrosion rate or RBI procedures, the maximum inspection interval shall be governed in accordance with API 653 6.4.2.1 Initial Inspection Interval.

Revisions to Facilities Integrity Management Program

- Enbridge corrosion assessment spreadsheet reviewed and revised.
  - **Additional area added for rationale of data used in calculations.**
  - **Allows for greater flexibility in differentiating product side corrosion from soil side corrosion.**
  - **Now indicates month, day, year, for next internal inspection**

Revised Corrosion Assessment Spreadsheet

ABOVEGROUND TANK BOTTOM CORROSION GROWTH ASSESSMENT
API-653 SECTION 4.4.5

Facility: Cushing Terminal | **Tank#:** 2220 | **Inspection Year:** 2000

Inspection Report Company	Tank Consultants Inc.	Approximate years in-service (years of corrosion growth bottom side) =	25
Inspection Report #	TC2028		
Inspection Date	February 2, 2000	Years since last out-of-service (years of corrosion growth top side) =	25

Data				Rationale
Minimum allowable bottom plate thickness at next internal inspection from API-653 Table 4.4 **(MBPT)**	=	0.100	inches	*From Table 4.4 MBPT = 0.05" for an applied tank bottom with reinforced lining > 0.05 in thick (API 652). Repair docs indicate an Epoxy mastic was applied.*
Floor plate thickness from last inspection **(To)**	=	0.250	inches	*1/4" thick floor as indicated as the nominal thickness by the inspection report.*
Year the last inspection was performed	=	1975	(year)	*No records of any previous inspections on file. Tank was formerly owned by Equilon Enterprises*
Year the current tank bottom was installed	=	1975	(year)	*Original tank floor.*
Deepest product side pit found before repairs	=	0.070	inches	*From 2000 inspection report. "there were two topside gouges found with pit depths of 0.060 and 0.070 in"*

Revised Corrosion Assessment Spreadsheet

Deepest bottom side pit found before repairs	=	0.070	inches	*From 2000 inspection report. A remaining wall threshold of 0.180" used. "One area of soil side corrosion was found with 0.180 inches or remaining wall thickness on plate 3*
Deepest product side pit remaining after repairs	=	0.070	inches	*No repair report on file. Assumed no repairs completed.*
Deepest bottom side pit remaining after repairs	=	0.070	inches	*No repair report on file. Assumed no repairs completed.*
Is the tank internally lined?, Yes sets StPr = 0 The expected life of the coating must equal or exceed Or to use StPr = 0	=	Yes	(Yes/No)	*A thick fiberglass coating was removed during the inspection. The repair docs indicate a 2 coat epoxy mastic coating was installated by Equilon*
Does the tank have "effective" cathodic protection?, Yes sets UPr =0	=	No	(Yes/No)	*While cathodic protection is installed it will be conservatively assumed that it does not completely remove the soil side corrosion.*
Minimum remaining thickness from topside corrosion after repairs (product side) **(RTip)**	=	0.180	inches	
Minimum remaining thickness from bottom side corrosion after repairs (soil side) **(RTbc)**	=	0.180	inches	
Maximum rate of corrosion on the topside. **(StPr)**	=	0.00000	in/yr	*StPr = 0 for coated areas of the bottom. The expected life of the coating must equal or exceed Or to use StPr = 0.*

Revised Corrosion Assessment Spreadsheet con't

use StPr = 0				*coating was installated by Equilon*
Does the tank have "effective" cathodic protection?, Yes sets UPr =0	=	**No**	(Yes/No)	*While cathodic protection is installed it will be conservatively assumed that it does not completely remove the soil side corrosion.*
Minimum remaining thickness from topside corrosion after repairs (product side) **(RTip)**	=	**0.180**	inches	
Minimum remaining thickness from bottom side corrosion after repairs (soil side) **(RTbc)**	=	**0.180**	inches	
Maximum rate of corrosion on the topside. **(StPr)**	=	**0.00000**	in/yr	*StPr = 0 for coated areas of the bottom. The expected life of the coating must equal or exceed Or to use StPr = 0.*
Maximum rate of corrosion on the bottom side. **(Upr)**	=	**0.00280**	in/yr	*This rate is the minimum remaining thickness after repairs. Assumed a linear rate based upon the age of the tank. UPr = 0 for areas have effective cathodic protection.*
Estimated time to reach Minimum Plate Thickness at the current calculated corrosion rate	=	**28.57**	years	**Comments:**
Anticipated in-service interval (years to next internal inspection) not to exceed that allowed by 6.4.2 **(Or)**	=	**20.00**	years	
Minimum remaining thickness at the end of interval Or. This value must meet the requirements of Table 4.4 **(MRT)**	=	**0.12400**	inches	
On or Before Inspection Date	=	**February 2, 2020**		

- All available historical documentation was reviewed for accuracy and scheduling.
- Revised corrosion assessment spreadsheets were completed for all tanks.
- All tank assessments had a calculated UPr as effective CP could not be proven over the entire in-service interval.

Stockbridge Terminal

- Tank 80
  - Constructed 1973, Out of Service 1998
  - Revised schedule: 2012 Out of Service inspection
  - Accelerated ~$2.0MM from 2018 to 2012
- Tank 81
  - Constructed 1999
  - Revised schedule: 2011 Out of Service inspection
  - Accelerated ~$2.0MM from 2019 to 2011
- Tank 82
  - Constructed 2003
  - Revised schedule: 2013 Out of Service inspection
  - Accelerated ~$2.0MM from 2023 to 2013

Further Development

- Define effective tank bottom CP
- Similar Service Program
- Known corrosion growth rates on new tanks
- Atmospheric corrosion
- Risk based inspection programs

Outline

- Background
- Tank Program Changes
- Implementation Plans
- Areas for Further Development

Tank Management Program Update June 29, 2010

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