Q. **Refurbishment of Tank 2.**

With reference to Schedule 2, page 5, lines 5-6 and line 9, please provide copies of the 2018 and 2020 remaining life assessment reports from the tank inspection contractor.

A. The 2018 and 2020 life extension reports are provided as IC-NLH-010, Attachment 1 and IC-NLH-010, Attachment 2, respectively.

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TISI Canada Inc.

ISO 9001: 2015

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Newfoundland and Labrador Hydro

Holyrood, NL

Fuel Oil Tank No.2

Inspection Interval Extension Report

October, 2018

TEAM® Industrial Services
TISI Canada Inc.

ISO 9001: 2015

Branch Office 149 McNamara Drive, Paradise, NL A1L 0A7 Canada Tel.: (709) 745-1818 Fax: (709) 745-5401

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1.0 Executive Summary

TISI Canada Inc. (TEAM) was engaged by Newfoundland and Labrador Hydro (NL Hydro) to determine if the out-of-service inspection interval for fuel oil storage Tank No.2 could be extended. The purpose of requesting this extension is to extend the inspection interval to coincide with NL Hydro's evaluation of the service life and future plans for the tank farm in which this tank is located. Based on data collected during previous inspections in addition to recently collected data, TEAM prepared a list of recommended items to be completed. These items have since been completed to TEAM's satisfaction. It is TEAM's recommendation that the next out-of-service inspection should be completed by December, 2021.

2.0 Introduction

During the last API 653 in-service inspection completed by TEAM, in July 2017, it was determined that the next API 653 out-of-service inspection is scheduled for December 2018. Since the tank farm is scheduled to be decommissioned in 2021, NL Hydro engaged TEAM to investigate if the out-of-service inspection date can be extended.

3.0 Tank Details

Client	NL Hydro	**Location**	Thermal Generation Plant, Holyrood, NL
Tank I.D.	Tank No. 2	**Tank Type**	Vertical, Uninsulated
Product	Bunker C Oil	**Roof Type**	Fixed
Tank Diameter	180'0"	**Tank Height**	48'0"
Year Built	1970	**Specific Gravity**	1.00
Capacity	217,000 Barrels	**Manufacturer**	McNamara Industries Ltd.

4.0 Tank History

This oil storage tank is an above ground uninsulated vertical tank with a fixed cone roof. As per the previous inspection report, the construction date is 1970. The tank features six (6) carbon steel butt welded courses. The overall dimensions are 180'0" diameter and 48'0" height.

5.0 Summary of Concerns

The main issues that were identified during previous inspections include:

1. Cracking and spalling of concrete ring beam (2017)
2. Corrosion and possible delamination of chine area (2017)
3. Corrosion concerns with floor (2008)

Since the tank was scheduled for an out-of-service inspection in December 2018, the inspection completed in 2017 was limited to an in-service (external) inspection.

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In order to determine if the next out-of-service inspection can be scheduled beyond the original December 2018 date, a detailed investigation into the three areas noted above was required.

6.0 Methodology

The methodology used to determine if extending the out-of-service inspection interval was a possibility is as follows:

1. TEAM would conduct a preliminary inspection to determine if any additional issues have developed since the last out-of-service inspection was conducted in 2017. This also included determining the extent of preparatory work required.
2. TEAM would recommend the type and extent of preparatory work prior to completing the required inspections.
3. TEAM would complete a 100% magnetic particle inspection (MPI) in the critical external corner weld to ensure it has not been compromised by the deterioration of the concrete ring beam
4. TEAM would complete an ultrasonic thickness survey (UT) of the chine area
5. TEAM would complete an assessment of the floor plate thickness from previous report data

7.0 Findings

The results of the inspection are as follows:

1. Derrick French, P. Eng. and Keith Gowan, CET, Authorized API Inspector, completed the preliminary assessment on June 15th. No additional issues were identified during the preliminary assessment.
2. TEAM prepared a list of preparatory work which was submitted to NL Hydro on June 13th, prior to the preliminary assessment. No further actions were added as a result of the preliminary assessment.
3. The MPI inspection commenced the week of June 16th. No rejectable indications were found during the time of inspection. The MPI report can be found in Appendix B.
4. The UT inspection commenced concurrently with the MPI inspection. The data indicated that there are no issues with the chine area with the exception of one (1) hole as shown on the reports in Appendix B. The area around the hole showed no signs of corrosion or stress.
5. Based on the floor assessment completed in 2008, any/all floor plates with corrosion loss greater than 40% were patched at that time. Without several sets of data, we can only assume a linear corrosion rate at this time. The areas that had experienced corrosion loss up to 40% would have experienced an estimated corrosion rate and remaining life of:

Original floor thickness = 0.250”

40% of original thickness = 0.10”

Corrosion Rate = 0.10” /(2008 – 1970) = 0.10”/38 year = 0.00263”/year

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According to API 653 Table 4.4, The minimum bottom plate thickness required at the next inspection is 0.100" when there is no means for detection and containment of a bottom leak.

Thickness remaining in 2008 (at 40% loss rate) = 0.250" – 0.100" = 0.150"

Allowable corrosion to meet requirements of Table 4.4 = 0.150" – 0.10" = 0.05"

Remaining life to minimum corrosion thickness = 0.05"/.00263"/year = 19 years

Remaining life for areas with up to 40% corrosion in 2008 = 2008 + 19 = 2027

It is also relevant to note that while a linear corrosion rate is assumed due to a lack of historical data, the corrosion rate has likely decelerated in recent years. This is due to improvements that have been made to the tank farm where Tank No. 2 is located. For the majority of the tanks service life, the bottom and several feet of the first shell course were submerged in water. In 2009 the tank farm was upgraded with a new drainage system which resulted in reconfiguring the tank compound. The geography was modified to promote drainage to the new drain locations. In summary, it is our opinion that the calculations above represent a worst-case scenario for the remaining floor life. Based on experience and industry standards, we expect the corrosion rate to be reduced now that the tank floor is no longer submerged in water.

8.0 Recommendations

The following items were recommended to be completed:

1. Repair cracked and spalling areas of concrete ring beam
2. Seal chine and ring wall interface following repair of ring beam
3. Reapply coatings to the tank chine area
4. Install tank nameplate in accordance with API 650
5. Complete all recommendations from the 2016 inspection report

9.0 Conclusion

All items on the list of recommendations have been completed at this time with the exception of installing the nameplate. TEAM recommends the next out-of-service inspection to be scheduled for December, 2021. Please refer to Appendix A for photographs of the completed repairs.

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Appendix A – Photographs

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Figure 1: View of concrete ring beam repairs.

Figure 2: View of concrete ring beam repairs.

Figure 3: View of concrete ring beam repairs.

Figure 4: View of sealant applied to tank chine and ring beam interface.

Figure 5: View of concrete repair and sealant applied to tank chine and ring beam interface.

Figure 6: View of concrete repair and sealant applied to tank chine and ring beam interface.

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Appendix B – NDE Results

TEAM® Industrial Services
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MAGNETIC PARTICLE EXAMINATION REPORT - Portable

Client Name	NL Hydro	**P.O. No.**	Verbal	**Team Job No.**	5208-3696
Work Location	Holyrood , NL	**Client Job No.**	Verbal	**Report No.**	MT-002 SR
Code / Specification / CED	CSA W59 Clause 12	**Technique No.**	ASTM E709	**Date of Exam**	June 22nd 2018
Acceptance / CED	CSA W59 Clause 12	**Procedure**	CSA MT-1 Rev 5		

Part Description

Part / Assy No.	NL Hydro Tank #2	**Material**	CS	**Qty Inspected**	1	**Qty Accepted**	1
DWG No.	N/A	**Material Thickness**	N/A	**Heat No.**	N/A	**Qty Rejected**	N/A

Type of Fabrication

☐ Piping ☐ Vessel ☑ Tank ☑ Weld ☐ Casting ☐ Forging ☑ Plate ☐ Other ☑ Surface Acceptable for Inspection

Inspection Parameters

Magnetic Equipment: Parker Yoke **S/N:** 22667 **Calibration Date:** Sept 8th 2018 ☑ AC ☐ DC ☑ Continuous ☐ Residual

Daily Yoke Verification ☑ Yes **Weight S/N:** 15385 **Yoke Leg Spacing:** 6" **Prod Spacing Amps:** N/A **Permanent Magnet Spacing:** N/A

Testing Medium	**Product:** 7HF	**Type:**	☐ Fluorescent	☐ Dry Powder	☑ Colour Contrast	**Colour:** BLACK	**Batch No.:** 17H03K	**Expiry Date:**	08-01-22
Testing Medium	**Product:** WCP2	**Type:**	☐ Fluorescent	☐ Dry Powder	☑ Colour Contrast	**Colour:** WHITE	**Batch No.:** 17L10K	**Expiry Date:**	11-01-22
Bath Concentration	☐ Fluorescent ☐ Non-Fluorescent **ml / 100ml**				☑ Aerosol		**Part Temperature:** Ambient	☑ °F ☐ °C	
	Demagnetization ☐ Yes ☑ No						**Number of Oersteds:** N/A		

Lighting Equipment

Black Light Equipment used:			**White Light Equipment used:**	Accumax XP-2000	
Black Light Meter S/N:	**Cal. Date:**	**Due Date:**	**Light Meter S/N:** 1964247	**Cal. Date:** Mar 5th 2018	**Due Date:** Sept 5th 2018
Black Light Sensor S/N:	**Cal. Date:**	**Due Date:**	**Light Sensor S/N:**	**Cal. Date:**	**Due Date:**
Black Light Intensity at the time of inspection:	$\mu W / cm^2$		**White Light Intensity at the time of inspection:**	105 *fc*	
Min. Black Light intensity to be > 1000 $\mu W / cm^2$ **:** ☑ at examination surface			**Min. White Light Intensity to be >** *100 fc* **:** ☑ at examination surface		
☐ Ambient White Light in Darkened Area < 2 fc at inspection surface					

Inspection Scope

Perform 100% MT on weld going around full circumference of Tank Fin on Tank #2

Welder ID : N/A

Signature and Certification

Technician	Sid Ransome	**Reg. No.**	17346	**Client Final Acceptance**		**Signature**	**Date**
Signature	Sid Ransome	**Expiry Date**	Nov 15th 2021	**Authorized Inspector**		**Signature**	**Date**
Certification	**CGSB:** ☑ Level 2 ☐ Level 3	**SNT-TC-1A:**	☐ Level 2 ☐ Level 3	**CSA Supervisors Review**		**Signature**	**Date**

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TEAM® Industrial Services
TISI Canada Inc.

MAGNETIC PARTICLE EXAMINATION REPORT - Portable

Client Name	NL Hydro	**P.O. No.**	Verbal	**Team Job No.**	5208-3696
Work Location	Holyrood , NL	**Client Job No.**	Verbal	**Report No.**	MT-002 SR
Code / Specification / CED	CSA W59 Clause 12	**Technique No.**	ASTM E709	**Date of Exam**	June 22nd 2018
Acceptance / CED	CSA W59 Clause 12	**Procedure**	CSA MT-1 Rev 5		

Inspection Results

At the time of inspection of weld , there were no recordable indications. Acceptable to code.

For additional notes. As shown in the picture below, 1 hole was noted in the Tank Fin.

Additional Optional Information - Sketches, Graphs etc.

Signature and Certification

Technician	Sid Ransome	**Reg. No.**	17346	**Client Final Acceptance**		**Signature**	**Date**
Signature	Sid Ransome	**Expiry Date**	Nov 15th 2021	**Authorized Inspector**		**Signature**	**Date**
Certification	**CGSB:** ☑ Level 2 ☐ Level 3	**SNT-TC-1A:**	☐ Level 2 ☐ Level 3	**CSA Supervisors Review**		**Signature**	**Date**

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TEAM® Industrial Services
TISI Canada Inc.

ULTRASOUND EXAMINATION REPORT

Client Name	NL Hydro	**PO No.**	Verbal	**Team Job No.**	5208-3696
Work Location	Holyrood , NL	**Client Job No.**	Verbal	**Report No.**	UT-002 SR
Code / Specification / CED	Client Information	**Technique No.**	ASME V Article 4	**Date of Exam**	June 22nd 2018
Acceptance / CED	Client Information	**Procedure**	UT.ASME.11 5200 Rev 2		

Part Description

Part / Assy No.	Tank #2	**Material**	CS	**Qty Inspected**	N/A	**Qty Accepted**	N/A
DWG No.	N/A	**Material Thickness**	N/A	**Heat No.**	N/A	**Qty Rejected**	N/A

Inspection Parameters

Type of Fabrication ☐ Piping ☐ Vessel ☑ Tank ☐ Weld ☐ Casting ☐ Forging ☑ Plate ☐ Other ☑ Surface Acceptable for Inspection

Ultrasonic Equipment

Make:	Panametrics	**Model:**	37 DL Plus	**S/N:**	071524109	Cal. Date	Daily				
Presentation	☑ A-Scan	☐ B-Scan	☐ C-Scan			Cal. Due Date	Daily				
Cable Type	☐ BNC	☐ Microdot	☑ Limo	☐ Other		Cable Length	6'				
	Reject	☐ Yes	☑ No	**Damping**	☐ Yes	☑ No					
Inspection Method	☑ Contact	☐ Pulse Echo	☐ Immersion	☐ Resonance	☐ Through Transmission						
Calibration Block	Type	IIW Type I				Ref. Reflector	1" & 4" Thickness				
Calibration Block	Type	Step Wedge				Ref. Reflector	0.100" & 0.500" Thickness				
Post Clean	Method:	N/A	Material:	N/A	Batch No.:	N/A					

Transducer

Angle °	**Size**	**Freq. MHz**	**S/N**	**Reference dB**	**Transfer dB**	**Scan dB**
0	0.5" Diameter	5 Mhz	936358	80 % FSH	0	80% FSH

Couplant:	Sonoglide		Material	Carbon Steel	
S/N	3175		Material	Carbon Steel	
S/N	16-1769	**Batch No.:**	11382F		

Inspection Scope

Perform Ultrasonic thickness readings on Tank Fin around the full circumference of Tank #2

Signature and Certification

Technician	Sid Ransome	**Reg. No.**	17346	**Client Final Acceptance**		**Signature**	**Date**
Signature	Sid Ransome	**Expiry Date**	Nov 15th 2021	**Authorized Inspector**		**Signature**	**Date**
Certification	**CGSB:** ☐ Level 2 ☐ Level 3	**SNT-TC-1A:**	☐ Level 2 ☐ Level 3	**CSA Supervisors Review**		**Signature**	**Date**

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TEAM® Industrial Services
TISI Canada Inc.

ULTRASOUND EXAMINATION REPORT

Client Name	NL Hydro	**PO No.**	Verbal	**Team Job No.**	5208-3587
Work Location	Holyrood , NL	**Client Job No.**	Verbal	**Report No.**	UT-002 SR
Code / Specification / CED	ASME B31.1	**Technique No.**	ASME V Article 4	**Date of Exam**	June 22nd 2018
Acceptance / CED	Client Information	**Procedure**	UT.ASME.11 5200 Rev 2		

Inspection Results

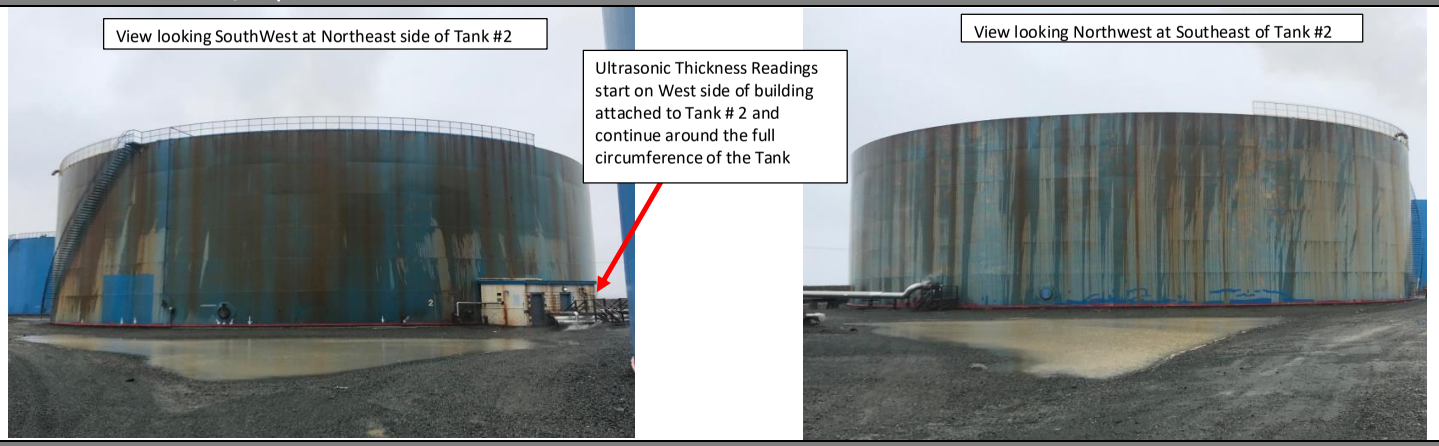
Tank # 2

Readings are taken starting at North of Tank on West side of Shack (Facing Plant) around the circumference

0.347	0.242	0.347	0.305	0.316	0.334	0.316	0.268	0.233	0.292	0.353	0.364	0.345	0.328
0.344	0.321	0.390	0.360	0.331	0.343	0.292	0.298	0.356	0.241	0.311	0.306	0.280	0.301
0.299	0.323	0.331	0.306	0.354	0.298	0.354	0.367	0.264	0.364	0.296	0.291	0.341	0.322
0.355	0.281	0.280	0.321	0.333	0.365	0.266	0.260	0.282	0.311	0.312	0.299	0.294	0.281
0.276	0.300	0.284	0.291	0.345	0.333	0.328	0.316	0.314	0.288	0.298	0.304	0.333	0.296
0.291	0.286	0.334	0.315	0.298	0.320	0.318	0.299	0.330	0.286	0.291	0.310	0.307	0.346
0.339	0.348	0.358	0.371	0.301	0.298	0.312	0.318	0.329	0.331	0.341	0.326	0.314	0.309
0.335	0.325	0.302	0.284	0.226	0.221	0.309	0.301	0.307	0.350	0.335	0.276	0.270	0.281
0.288	0.299	0.296	0.366	0.358	0.304	0.321	0.319	0.312	0.332	0.321	0.308	0.309	0.301
0.301													

Readings are going from left to right

Additional Optional Information - Sketches, Graphs etc.



Signature and Certification

Technician	Sid Ransome	**Reg. No.**	17346	**Client Final Acceptance**		**Signature**	**Date**
Signature	Sid Ransome	**Expiry Date**	Nov 15th 2021	**Authorized Inspector**		**Signature**	**Date**
Certification	**CGSB:** ☐ Level 2 ☐ Level 3	**SNT-TC-1A:**	☐ Level 2 ☐ Level 3	**CSA Supervisors Review**		**Signature**	**Date**

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TEAM® Industrial Services
TISI Canada Inc.

ULTRASOUND EXAMINATION REPORT

Client Name	NL Hydro	**PO No.**	Verbal	**Team Job No.**	5208-3696
Work Location	Holyrood , NL	**Client Job No.**	Verbal	**Report No.**	UT-003 SR
Code / Specification / CED	Client Information	**Technique No.**	ASME V Article 4	**Date of Exam**	June 22nd 2018
Acceptance / CED	Client Information	**Procedure**	UT.ASME.11 5200 Rev 2		

Part Description

Part / Assy No.	Tank #1 & #2	**Material**	CS	**Qty Inspected**	N/A	**Qty Accepted**	N/A
DWG No.	N/A	**Material Thickness**	N/A	**Heat No.**	N/A	**Qty Rejected**	N/A

Inspection Parameters

Type of Fabrication ☐ Piping ☐ Vessel ☑ Tank ☐ Weld ☐ Casting ☐ Forging ☑ Plate ☐ Other ☑ Surface Acceptable for Inspection

Ultrasonic Equipment					Transducer						
Make: Panametrics **Model:** 37 DL Plus **S/N:** 071524109			Cal. Date	Daily	**Angle °**	**Size**	**Freq. MHz**	**S/N**	**Reference dB**	**Transfer dB**	**Scan dB**
Presentation	☑ A-Scan ☐ B-Scan ☐ C-Scan		Cal. Due Date	Daily	0	0.5" Diameter	5 Mhz	936358	80 % FSH	0	80% FSH
Cable Type	☐ BNC ☐ Microdot ☑ Limo ☐ Other		Cable Length	6'							
	Reject ☐ Yes ☑ No	**Damping** ☐ Yes ☑ No									
Inspection Method	☑ Contact ☐ Pulse Echo ☐ Immersion ☐ Resonance ☐ Through Transmission										
Calibration Block	Type	IIW Type I	Ref. Reflector	1" & 4" Thickness		S/N	3175		Material	Carbon Steel	
Calibration Block	Type	Step Wedge	Ref. Reflector	0.100" & 0.500" Thickness		S/N	16-1769		Material	Carbon Steel	
Post Clean	Method: N/A	Material: N/A	Batch No.: N/A			Couplant:	Sonoglide		Batch No.:	11382F	

Inspection Scope

Perform Ultrasonic thickness readings on Tank Fin around the voids that were discovered during inspection.

Signature and Certification

Technician	Sid Ransome	**Reg. No.**	17346	**Client Final Acceptance**		**Signature**	**Date**
Signature		**Expiry Date**	Nov 15th 2021	**Authorized Inspector**		**Signature**	**Date**
Certification	**CGSB:** ☐ Level 2 ☐ Level 3	**SNT-TC-1A:**	☐ Level 2 ☐ Level 3	**CSA Supervisors Review**		**Signature**	**Date**

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TEAM® Industrial Services
TISI Canada Inc.

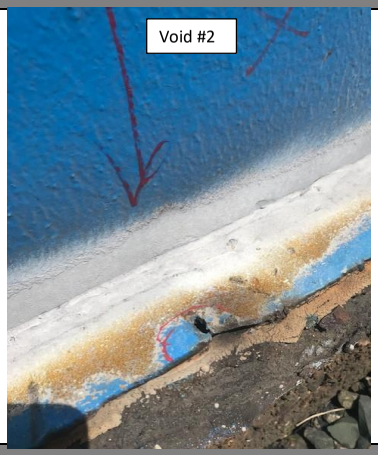
ULTRASOUND EXAMINATION REPORT

Client Name	NL Hydro	**PO No.**	Verbal	**Team Job No.**	5208-3696
Work Location	Holyrood , NL	**Client Job No.**	Verbal	**Report No.**	UT-003 SR
Code / Specification / CED	Client Information	**Technique No.**	ASME V Article 4	**Date of Exam**	June 22nd 2018
Acceptance / CED	Client Information	**Procedure**	UT.ASME.11 5200 Rev 2		

Inspection Results

Tank #1				Tank #2	
Void #1		Void #2		Void #3	
0.266	0.288	0.291	0.304	0.311	0.286
0.277	0.291	0.331	0.289	0.280	0.313
0.314	0.301	0.325	0.305	0.310	0.279

Additional Optional Information - Sketches, Graphs etc.



Signature and Certification

Technician	Sid Ransome	**Reg. No.**	17346	**Client Final Acceptance**	**Signature**	**Date**
Signature	Sid Ransome	**Expiry Date**	Nov 15th 2021	**Authorized Inspector**	**Signature**	**Date**
Certification	**CGSB:** ☐ Level 2 ☐ Level 3	**SNT-TC-1A:**	☐ Level 2 ☐ Level 3	**CSA Supervisors Review**	**Signature**	**Date**

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TEAM® Industrial Services

18 February, 2021

Newfoundland and Labrador Hydro
Holyrood, NL

Attention:- **Ms. Joanne Norman**

Subject: **Tank No. 2 Inspection Interval**

Dear **Ms. Norman,**

We have conducted a review of the API Recommended Practice 575. The review of API RP 575 was recommended in an email response provided by the Department of Environment, Climate Change and Municipalities dated February 12, 2021, regarding the previously requested internal inspection interval for Tank No.2.

In API RP 575 Third Edition, Section 7.2 Condition-based Inspection Scheduling and Minimum Acceptable Thickness, an equation is provided to calculate the remaining life of a tank and its components. Please refer to the equation and defined variables below.

$$\text{remaining life (years)} = \frac{t_{actual} - t_{minimum}}{\text{corrosion rate}} = \text{the remaining life of a tank component in years,}$$

where

t_{actual} is the thickness measured at the time of inspection for a given location or component used to determine the minimum acceptable thickness, in inches (mm),

$t_{minimum}$ is the minimum acceptable thickness for a given location or component, in inches (mm),

$$\text{corrosion rate} = \frac{t_{previous} - t_{actual}}{\text{time (years) between } t_{previous} \text{ and } t_{actual}} = \text{in inches (mm) per year,}$$

where

$t_{previous}$ is the thickness at the same location as t_{actual} measured during a previous inspection, in inches (mm).

TEAM® Industrial Services

Based on the available data from the Out-of-service inspection completed on Tank No.2 in 2008, we can complete the calculations as shown above to determine the remaining life of the tank floor.

The drawings for the original tank construction indicate that the tank floor was constructed from ASTM A 283 Grade C material. As per ASTM A 283/ ASTM A 6 Standards, the maximum permitted mill tolerance in thickness over nominal thickness for plate specified as 0.25in thick for widths up to 8'0", as utilized in the construction of the tank floor of Tank No.2 is 0.03in. We can use this maximum permissible thickness to calculate the worst-case corrosion rate that could have occurred between construction and the inspection completed in 2008. The MFL scanner used during the 2008 inspection was calibrated based on the nominal plate thickness of 0.25in. All percentage of discontinuities recorded by the MFL scanner were in relation to this nominal thickness used for calibration. Based on all areas with >40% discontinuities being repaired, the minimum remaining thickness following repairs, t_{actual} is as follows.

$$t_{actual} = 0.6 * t_{nominal}$$

$$t_{actual} = 0.6 * 0.25in$$

$$t_{actual} = 0.15in$$

$t_{minimum} = 0.10in$ (As per API 653, Table 4.4 – Bottom Plate Minimum Thickness)

$$t_{previous} = t_{nominal} + Max\ Mill\ Tolerance$$

$$t_{previous} = 0.25in + 0.03in$$

$$t_{previous} = 0.28in$$

$$corossion\ rate = \frac{0.28 - 0.15}{2008 - 1970}$$

$$corossion\ rate = \frac{0.13}{38}$$

$$corossion\ rate = 0.00342in/year$$

$$remaining\ life\ (years) = \frac{0.15 - 0.10}{0.00342}$$

$$remaining\ life\ (years) = 14.6$$

TEAM® Industrial Services

If we add the remaining life to the date of inspection (November, 2008 = 2008.9) we get the following:

$$2008.9 + 14.6 = 2023.5$$

Based on this calculation following API RP 575 Section 7.2, it is our recommendation that Tank No.2 remain in service through June, 2023.

Derrick French , P.Eng., IWE

Senior Mechanical Engineer

REGISTERED PROFESSIONAL ENGINEER
PEG Newfoundland and Labrador PROFESSIONAL ENGINEERS AND GEOSCIENTISTS
DERRICK FRENCH
SIGNATURE
18/FEB/2021
DATE
NEWFOUNDLAND & LABRADOR

PROVINCE OF NEWFOUNDLAND AND LABRADOR
PERMIT HOLDER
THIS PERMIT ALLOWS
Custom Fabricators And Machinists Limited (CFM)
To practice Professional Engineering in Newfoundland and Labrador.
Permit No. as issued by PEG 52798
which is valid for the year 2021
by Permit Holder (MIRC No.) 02869