PITTSBURG TANK & TOWER GROUP
MAINTENANCE DIVISION Since 1919

1 Watertank Place
PO Box 1849
Henderson, KY 42419
P: (270) 826-9000
F: (270) 767-6912
www.pttg.com

Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541
RE: 99 Everett Road; Mahopac, NY
300,000 Gallon GST
March 25, 2019
Mr. Rich Franzetti
Engineer
(845) 628-1500 x181
Job No. 319099-C

If you would like to speak with Patrick Heltsley concerning this report, call (270) 826-9000, Ext. 4601

For additional copies of this report call (270) 826-9000, Ext. 4601

Town of Carmel
RE: Mahopac, NY
300,000 Gallon GST
Job No. 319099-C

Photo shows the tank is secured with fencing. We recommend posting a **Warning, Tampering With This Facility is a Federal Offense** (US code title 42, section 300i-1) sign.

Photo shows the area around the tank foundation is properly graded and in compliance with AWWA D100-11; 12.7.1 Height aboveground.

Photo shows the condition of the foundation. We recommend repairing any cracks and spalling in the concrete with a commercial non-shrinking grout, caulking/grouting around the base of the tank to foundation connection to prevent water from entering under the tank, then sealing the foundation with a sealant.

We further recommend inserting sacrificial cathodic protection rods radially every 15' beneath the floor of the tank.

Photo shows the tank is electrically grounded for lightning protection as required by OSH Act of 1970 Section 5 and appears to be in good condition.

Photo shows the condition of the shell. Currently there is no drain valve. We recommend installing a frost proof drain valve near the shell-to-floor connection, complete with a locking device to prevent unauthorized draining of the tank and a splash pad to direct water away from the foundation.

**Splash pad to be installed by owner.*

Photo shows the condition of the 24” primary shell manway. The following is required for the tank to be in compliance with AWWA D100-11; 7.4.4 Shell manholes and OSHA 1910.146(c)(2) Confined spaces.

We recommend:

Install 30” secondary shell manway 180º from primary manway
Post **Confined Space Entry** signs
Install maintenance free galvanized steel bolts

Photos show the 12” overflow pipe system, which is not equipped with a flapper valve as required by AWWA D100-11; 7.3 Overflow. We recommend installing a flapper valve and new screen on the existing overflow pipe elbow, and a splash pad to direct the water away from the tank foundation.

**Splash pad to be installed by owner.*

Shell access ladders in above photos are 16” wide, but are not equipped with anti-skid rungs. We recommend installing anti-skid rung covers, cable type ladder safety devices and posting a **Fall Protection Required** sign at the base of the ladder.

Photo shows the condition of the shell access standoff platform, which is equipped with an anti-skid floor and a 42” high OSHA compliant handrail system, complete with an intermediate rail and toeboard. We recommend installing a swing gate at the access standoff platform.

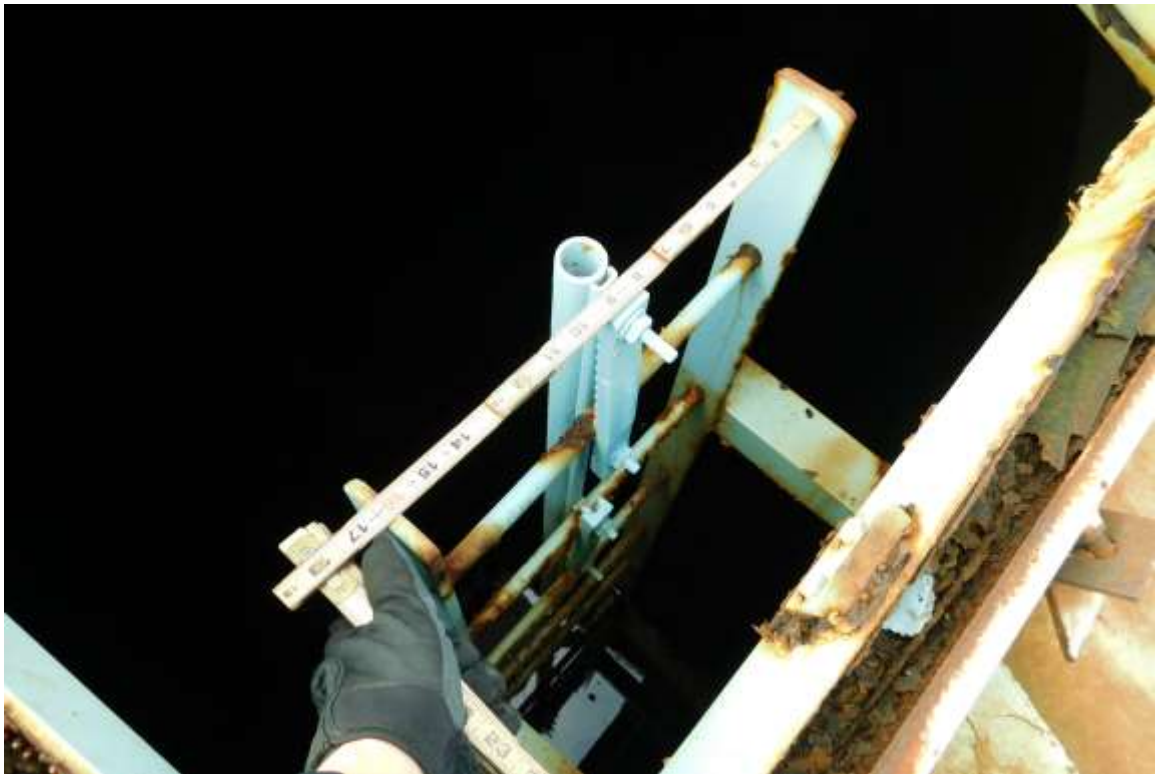
Photo shows the tank is not equipped with a liquid level indicator. We recommend installing a float-type liquid level indicator.

Photos show the tank roof edge is not equipped with a required handrail system for fall protection. OSHA 1910.28(b)(1)(i) states, "...the employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is 4 feet (1.2 m) or more above a lower level is protected from falling by one or more of the following: 1910.28(b)(1)(i)(A) Guardrail systems." The tank is equipped with 42" high handrails to the left and right of the access ladder. We recommend extending the handrails around the circumference of the tank roof, complete with an intermediate rail, a toeboard, and a swing gate at the junction of the shell-to-roof access ladder and tank roof.

Photo shows the condition of the 30” primary roof hatch. Roof openings on this tank require the following to be in compliance with AWWA D100-11; 7.4.3 Roof openings and OSHA 1910.146(c)(2) Confined spaces.

We recommend:

Replace 30” primary hatch cover with a 2” overlapping cover
Post **Confined Space Entry** sign



Primary interior access ladder in above photo is 16” wide, but is not equipped with anti-skid rungs. We recommend installing anti-skid rung covers and replace existing safety device with a cable type ladder safety device on the primary interior access ladder.

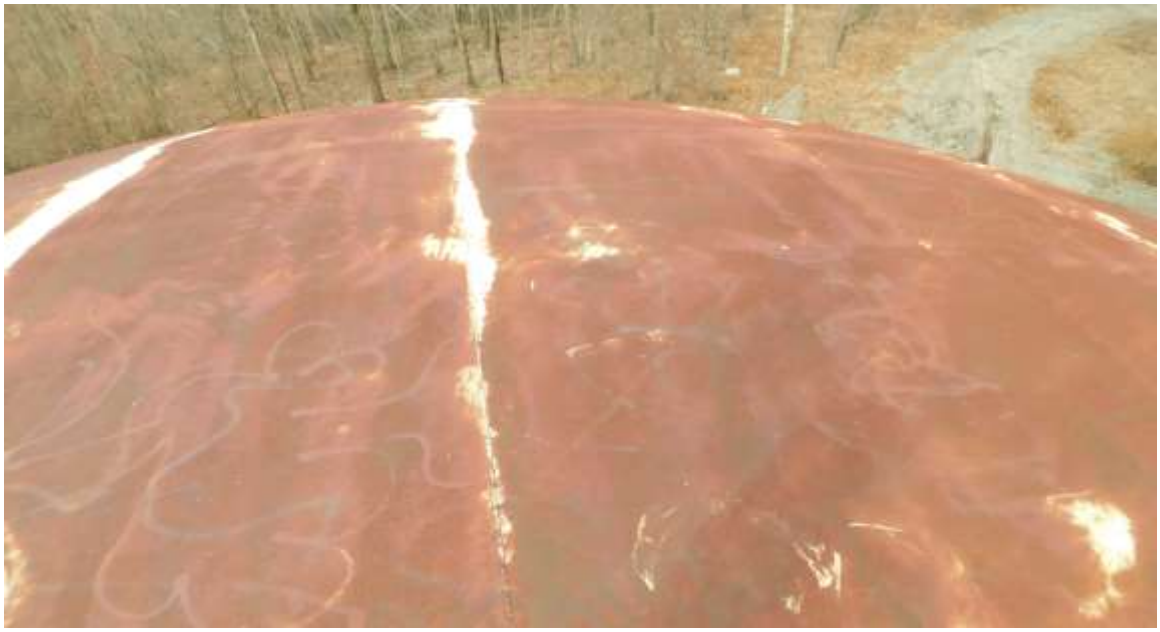
Photo shows the condition of the 24” secondary access point / fan mount. Roof openings on this tank require the following to be in compliance with AWWA D100-11; 7.4.3 Roof openings and OSHA 1910.146(c)(2) Confined spaces.

We recommend:

Post **Confined Space Entry** sign

Photos show the condition of the existing 14" roof vent. This vent is allowing the ingress of rain and wind-borne contaminants into the water system. **An improperly vented tank may cause external pressure to act on the tank which can cause buckling even at low pressure differential.** We recommend replacing the existing roof vent with a vacuum-pressure, frost proof vent and screen.

This work should be performed on an emergency basis.



Photos show the tank exterior coating system. We recommend pressure washing the tank exterior and support structure using an anti-fungal biodegradable solution, hand tool cleaning as necessary, then applying a full prime coat of Macropoxy 5000, followed by an intermediate coat of Sherwin Williams Dura-Plate 235, and one (1) full finish coat of Sherwin Williams Acrolon 218 HS.

This work should be performed on an emergency basis.

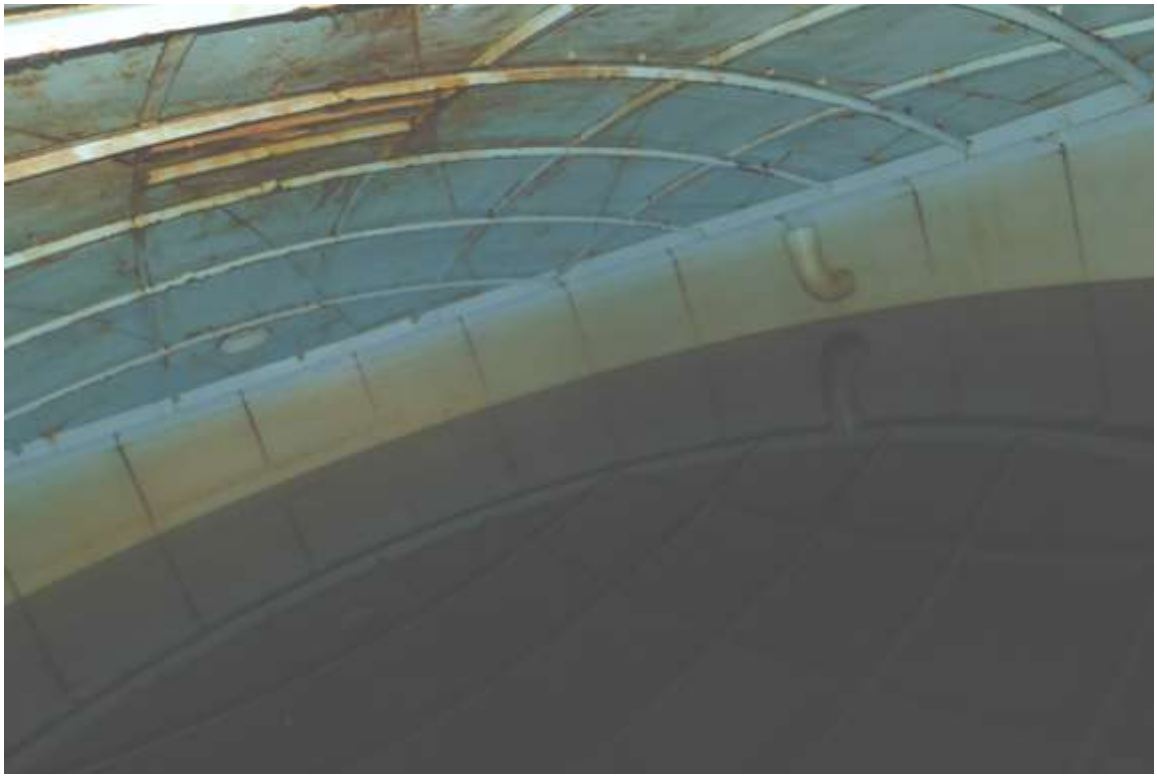


Photo shows the condition of the interior roof. Notice the rust forming at the roof lap seams. We recommend seam sealing using Sikaflex® 1a on all un-welded interior roof lap seams to prevent failure of a new interior liner. This work is to be performed in conjunction with application of new interior liner.

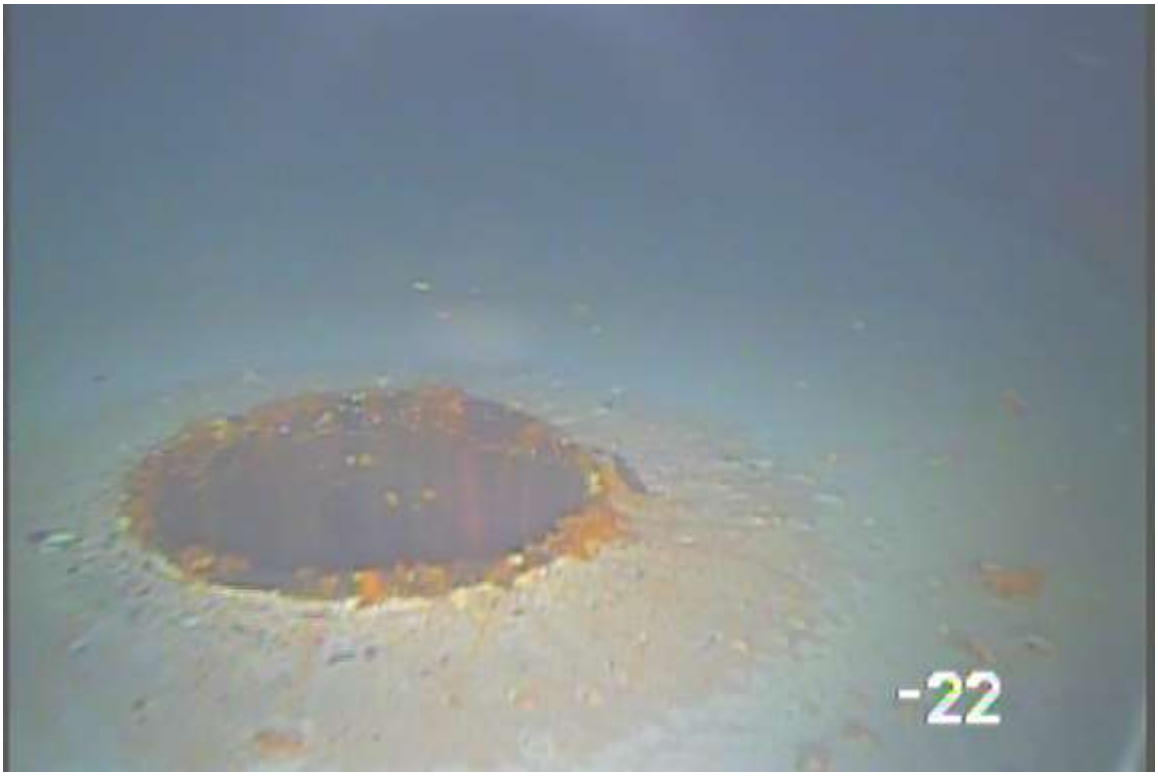
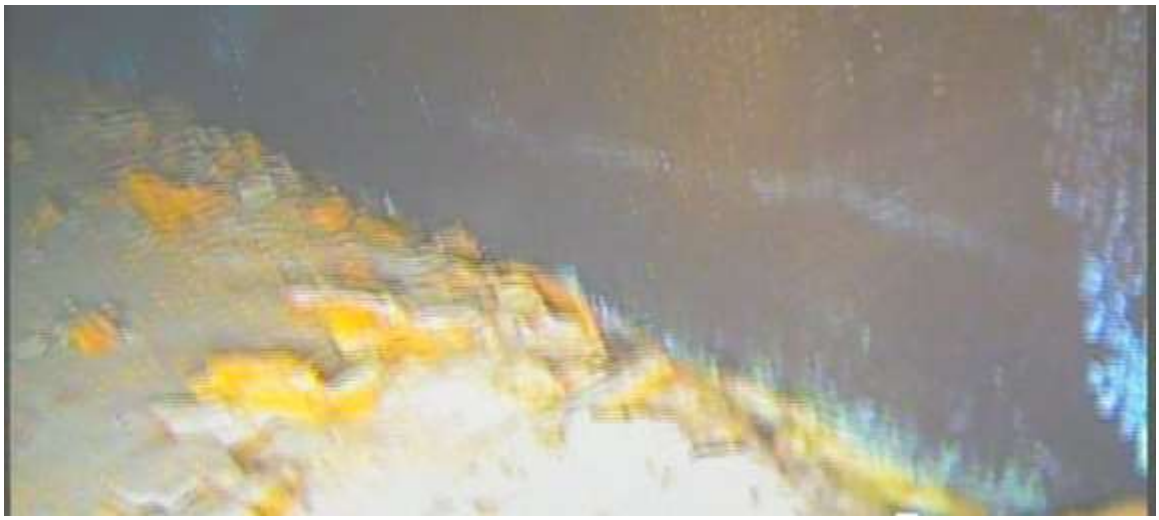


Photo shows a fill pipe on the tank interior. A temperature difference between the water in the top and bottom of a tank, even as little as 1-2 degrees Fahrenheit, is an indication of thermal stratification and the tank water not being completely mixed. Incomplete mixing would result in short-circuiting, and localized increase in water age would develop inside the tank. This typically leads to water quality problems, such as loss of residual, DBP spikes, HPC spikes, bacteria regrowth, formation of bio-film, changes in pH and dissolved oxygen. We recommend installing a mixing system. Electrical work to be done by others if required.



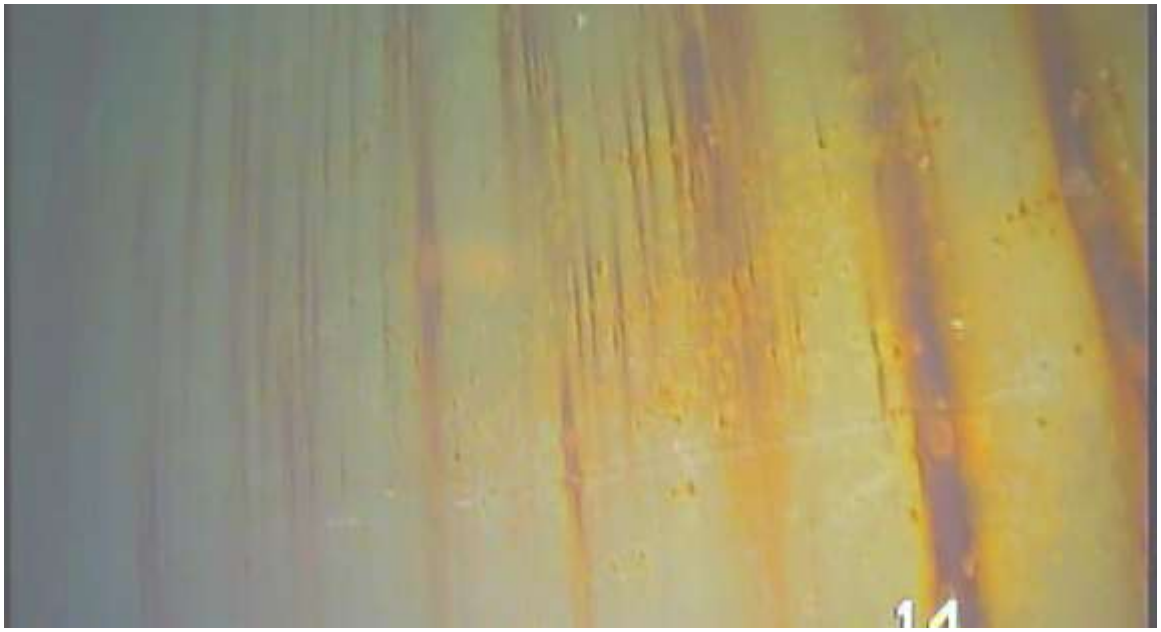
Photos show sediment in the tank. We recommend performing a dry interior cleanout in order to prevent contamination issues associated with excessive sediment buildup.

This work should be performed on an emergency basis.

**Please note price for interior cleanout is based on removing 1" – 3" of sediment. Any additional accumulation discovered will be removed in the amount of $300 per hour. In the event the tank has to be drained, tank will need to be drained by the owner, prior to our arrival.*

We further recommend installing a passive cathodic protection system.

Due to amount of sediment and debris, a robotic in-service cleanout can not be performed.



Photos show the condition of the interior coating system. We recommend sand-blasting all rusted and abraded interior areas to SSPC-SP10 (near white), and brush blasting all remaining interior areas to SSPC-SP7; then applying one (1) spot coat of epoxy primer to all areas sandblasted to #10, stripe coating all weld seams, and applying epoxy to the entire tank, to achieve 8 to 10 mils of total dry film thickness. Total mil thickness will include a combination of the existing and new coating.

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GROUND STORAGE INSPECTION REPORT

JOB NO: 319099-C INSPECTOR: Brian Alsup (CE)

TANK OWNER: Town of Carmel

OWNER'S REPRESENTATIVE: Mr. Rich Franzetti

TITLE: Engineer

MAILING ADDRESS: 60 McAlpin Avenue Mahopac, NY 10541

PHYSICAL ADDRESS: 60 McAlpin Avenue Mahopac, NY 10541

E-MAIL: rjf@ci.carmel.ny.us

CITY, STATE: Mahopac, NY ZIP: 10541 COUNTY: Putnam County

TELEPHONE: (845) 628-1500 x181 FAX: Not Provided

LOCATION OF TANK: 99 Everett Road Mahopac, NY 10541

Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541
March 25, 2019
Mr. Rich Franzetti
Engineer
(845) 628-1500 x181

ORIGINAL CONTRACT NO: 3031 YEAR BUILT: 1976

ORIGINAL MANUFACTURER: Fisher Tank Co. CAPACITY: 300,000 Gallon

DATE OF LAST INSPECTION: Not Provided TYPE: Potable

DIAMETER: 40'-9" HEIGHT: 32'-0"

OVERFLOW: 12" INLET: Not Provided

TYPE CONSTRUCTION: WELDED: X RIVETED: BOLTED:

ACCOUNT EXECUTIVE: Nick Nation

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Testing	Exterior
Lead	Negative
Adhesion	A2@10.0

Mil Thickness Testing								
Roof	1.8	6.6	6.1	3.1	3.0	2.5	4.8	3.3
	2.5	5.3						
Shell 4	15.1	6.6						
Shell 3	12.3	19.8						
Shell 2	7.4	13.3						
Base	8.4	6.9	5.9	11.0	8.3	8.4	7.6	10.4
	7.5	6.2	6.8	8.3				

Ultrasonic Thickness Testing								
Roof	0.287	0.274	0.264	0.267	0.263	0.254	0.269	0.252
	0.265	0.266						
Shell 4	0.278	0.281						
Shell 3	0.271	0.271						
Shell 2	0.377	0.349						
Base	0.400	0.412	0.409	0.405	0.408	0.402	0.401	0.406
	0.416	0.403	0.412	0.409				

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Page #	Work Proposed	Critical Deficiency	NON-Critical Deficiency	OSHA	Structural	Preventive Maintenance
2	Post a Warning, Tampering With This Facility is a Federal Offense (US code title 42, section 300i-1) sign.		X			
4	Repair any cracks and spalling in the concrete with a commercial non-shrinking grout.					X
	Caulk/Grout around the base of the tank to foundation connection.					X
	Seal the foundation with a sealant.					X
	Insert sacrificial cathodic protection rods radially every 15' beneath the floor of the tank.					X
6	Install a frost proof drain valve near the shell-to-floor connection, complete with a locking device and a splash pad. *Splash pad to be installed by owner.*		X			
7	Install 30" secondary shell manway 180° from primary manway.		X	X		
	Post Confined Space Entry signs on primary and secondary shell manways.			X		
	Install maintenance free galvanized steel bolts on primary shell manway.					X
8	Install a flapper valve and new screen on the overflow pipe elbow and a splash pad. *Splash pad to be installed by owner.*		X			
9	Install anti-skid rung covers on exterior shell access ladder.		X			
	Install a cable type ladder safety device on exterior shell access ladder.			X		
	Post Fall Protection Required sign at base of exterior shell access ladder.			X		
10	Install a swing gate at the exterior shell access standoff platform.			X		
11	Install a float-type liquid level indicator.		X			
12	Extend the handrails around the circumference of the tank roof, complete with intermediate rail, toeboard and a swing gate at the junction of the shell-to-roof access ladder and tank roof.			X		
13	Replace 30" primary hatch cover with a 2" overlapping cover.		X			
	Post Confined Space Entry sign on primary roof hatch.			X		
14	Install anti-skid rung covers on primary interior access ladder.		X			
	Replace existing safety device with a cable type ladder safety device on primary interior access ladder.			X		

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15	Post Confined Space Entry sign on secondary access point / fan mount.			X		
16	Replace the existing roof vent with a vacuum-pressure, frost proof vent and screen. This work should be performed on an emergency basis.	X			X	
17	Pressure wash the tank exterior and support structure using an anti-fungal biodegradable solution, hand tool clean as necessary, then apply a full prime coat of Macropoxy 5000, followed by an intermediate coat of Sherwin Williams Dura-Plate 235, and one (1) full finish coat of Sherwin Williams Acrolon 218 HS. This work should be performed on an emergency basis.	X				
18	Seam seal all un-welded interior roof lap seams using Sikaflex® 1a.					X
19	Install a mixing system. Electrical work to be done by others if required.		X			
20	Perform a dry interior cleanout, up to 3" of sediment. Due to amount of sediment and debris, a robotic in-service cleanout can not be performed. This work should be performed on an emergency basis. Additional accumulation will be $300 per hour to remove. In the event the tank has to be drained, it should be drained by the owner prior to our arrival.	X				
	Install a passive cathodic protection system.					X
21	Sandblast all rusted and abraded interior areas to SSPC-SP10 (near white), and brush blast all remaining interior areas to SSPC-SP7; then apply one (1) spot coat of epoxy primer to all areas sandblasted to #10, stripe coat all weld seams, and apply one (1) full coat of epoxy to the entire tank, to achieve 8 to 10 mils of total dry film thickness. Total mil thickness will include a combination of the existing and new coating.					X