HOUSTON INSPECTIONS

INSPECTED FOR

MUD District
Water Plant GST & HPT
123 Street
Houston, TX 77094

January 5, 2021

Inspection Site Information	
MUD District	**MUD District**
Site	**123 Street**
Operating Company	ABC
Inspector	**Michael Bell** **NACE Coating Inspector Level 1 - Certified, Cert. No. 102196**

INFORMATION

We recommend that the district elect to continue an annual preventative maintenance program to prevent major repairs in the future and to stay within compliance of TCEQ section 290.46(f)(3)(D)(ii).

Section 290.46(f)(3)(D)(ii)" states for POTABLE WATER STORAGE TANKS under "290.46(m)(1) and 290.46(m)(2)":

(m) Maintenance and housekeeping. The maintenance and housekeeping practices used by a public water system shall ensure the good working condition and general appearance of the system's facilities and equipment. The grounds and facilities shall be maintained in a manner so as to minimize the possibility of the harboring of rodents, insects, and other disease vectors, and in such a way as to prevent other conditions that might cause the contamination of the water.
(1) Each of the system's ground, elevated, and pressure tanks shall be inspected annually by water system personnel or a contracted inspection service.
(A) Ground and elevated storage tank inspections must determine that the vents are in place and properly screened, the roof hatches closed and locked, flap valves and gasketing provide adequate protection against insects, rodents, and other vermin, the interior and exterior coating systems are continuing to provide adequate protection to all metal surfaces, and the tank remains in a watertight condition.
(B) Pressure tank inspections must determine that the pressure release device and pressure gauge are working properly, the air-water ratio is being maintained at the proper level, the exterior coating systems are continuing to provide adequate protection to all metal surfaces, and the tank remains in watertight condition. Pressure tanks provided with an inspection port must have the interior surface inspected every five years.
(C) All tanks shall be inspected annually to determine that instrumentation and controls are working properly.

Potable Water Storage Tank
Inspection Form

Section 290.46(f)(3)(D)(ii) of the Texas Commission on Environmental Quality Rules and Regulations for Public Water Systems requires documentation of annual ground, elevated, and pressure storage tank maintenance inspections. (See also 290.46(m)(1) and 290.46(m)(2)

Location: 123 Street
Description: Bolted Tank with Coating System
Date & Material of Exterior System: Refer to Records
Date & Material of Interior Coating System: Refer to Records

Exterior of Tank

O.K.	Problem	NA	Description
X			**Foundation:** settling, cracks, deterioration
	Corrosion and leaks were found		**Protective Coating:** rust, pitting, corrosion, leaks
X			**Water Level Indicator:** operable, cable access opening protected
X			**Overflow Pipe:** flap valve cover accessible, operable, sealed
X			**Access Ladder:** lose bolts or rungs
	Rust noted on roof		**Roof:** low spots for ponding water, holes along seams, rust
X			**Air Vents:** proper design, screened, sealed edges and seams
		X	**Cathodic Protection Anode Plates:** secured and sealed
	Gasket missing		**Roof Hatch:** proper design, locked, hinge bolts secured, gasket
X			**Pressure Tank Operational Status:** pressure release device, pressure gauge, air-water volume device

Interior of Tank

O.K.	Problem	NA	Description
X			**Water Quality:** insects, floating debris, sediment on bottom
	Rust/corrosion noted on the interior of the tank		**Protective Coating:** rust, corrosion, scaling
Date: January 5, 2021			**Last Inspection of Pressure Tank Interior:** TBD

Comments

Per TCEQ requirements (Section 290.46 of the Texas Commission on Environmental Quality's Rules and Regulations for Public Water Systems), an interior inspection of the pressure tank should be performed every 5 years. There are no records indicating that an interior inspection has been performed within the last 5 years. It is recommended that an interior inspection of the pressure tank be performed.

Name of Inspector: Michael Bell
Date of Inspection: January 5, 2021

Tank Information:

Tank Size / Build Date:

The tanks data plate was not present at the time of inspection. Refer to previous records for this information.

Exterior

Foundation:

The foundation of the tank appears to be in acceptable condition.




Protective Coating:

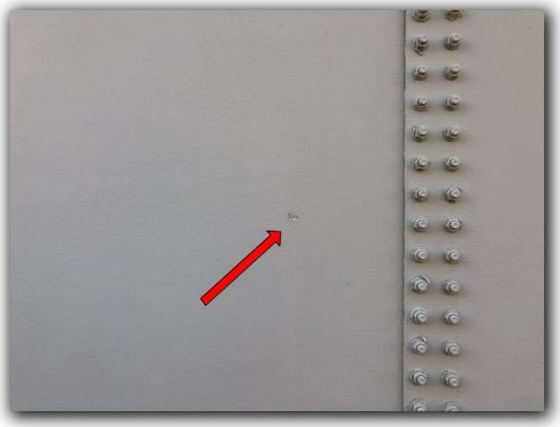
Chalking was noted on the tank at the time of the inspection. This is a common failure in coatings that are exposed to UV light. Typically, this is a cosmetic defect. However, if overcoating is desired then removing the powdery layer prior to applying the overcoat is recommended.

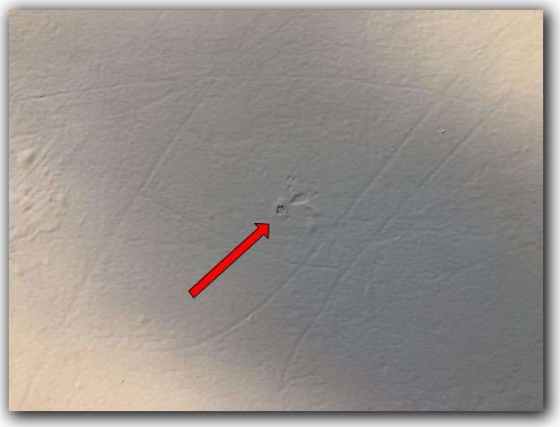

It appears that leaks are present at the tanks sidewall as evident by calcium build up on the exterior of the tank. These areas should be pressure washed to remove the calcium build up, and the leaks should be sealed/repaired.

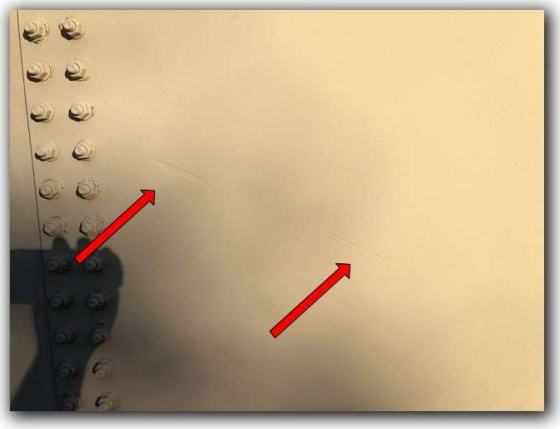
Areas of the sealer fillets along panel edges show evidence of sealer deterioration which is common due to aging of the sealant and weathering from the elements. The sealer provides the coating protection for the panel edges and maintenance of the sealer fillet is critical to the extended life of the tank. As the sealer degrades, corrosion along panel edges may become evident. A maintenance re-caulk service should be performed as the exterior sheet edges become exposed.

Crevice corrosion (bolts, flanges, metal to metal) was found at areas of the tanks exterior. It is recommended that these areas be cleaned with a wire brush to remove the rust and the areas be properly sealed.

Gouges/chipped areas were noted in the tanks coating system at the time of the inspection. This is caused by mechanical damage to the area. If the substrate is exposed due to the gouge/chip, localized rusting may occur in this area. If the gouge or chipped area is down to the substrate material, it is recommended that the area be sanded down to the bare substrate and the coating be reapplied to prevent corrosion from occurring.





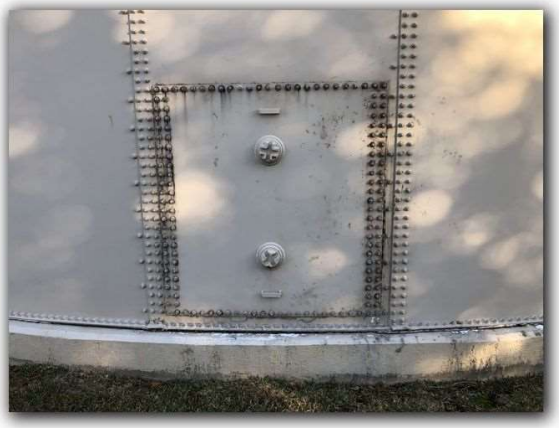


Overflow Piping / Flap:

Water was leaking from the overflow drain at the time of the inspection.

The drain flap is present and was operational during the inspection.

Manway:
No major defects noted at manway. Minor crevice corrosion was noted at the bolts at the manway.



Access Ladder:
The exterior tank ladder is present with a cage. The ladder was performing its intended function.


Roof:
Gouges/chipped areas were noted at the tanks roof at the time of the inspection. This is caused by mechanical damage to the area. If the substrate is exposed due to the gouge/chip, localized rusting may occur in this area. If the gouge or chipped area is down to the substrate material, it is recommended that the area be sanded down to the bare substrate and the coating be reapplied to prevent corrosion from occurring.




Rust stains were noted on the surface of the tank coating. The stains are caused by an item rusting in the area and bleeding onto the coating. If repairs are desired, it is recommended to replace the item that is rusting and bleeding onto the coating. The stains can be cleaned by sanding down and over coating the area.

Crevice corrosion (bolts, flanges, metal to metal) was noted at the seams of the roof. Areas of the sealer fillets along panel edges show evidence of sealer deterioration which is common due to aging of the sealant and weathering from the elements. The sealer provides the coating protection for the panel edges and maintenance of the sealer fillet is critical to the extended life of the tanks roof. As the sealer degrades, corrosion along panel edges may become evident. A maintenance re-caulk service should be performed as the exterior sheet edges become exposed.






Visible cracks were noted in the tanks coating system. These cracks may either penetrate down to the substrate, or just penetrate through a single coat of the system. This is typically caused by aging, movement in the substrate material, or applying the coating system to thick. Absorption and desorption of moisture can also cause this defect. It is recommended that the coating system be removed and replaced.

There is no non slip material installed at areas of the roof surface that are commonly walked on for maintenance/inspection purposes. Recommend installing a non slip surface at all areas of the roof that are commonly accessed.

Air Vents:

Damaged and missing screens were found at the roof vents. Recommend installing the vent screens.

Roof Hatch:

A gasket is not installed at the tank roof hatch. Recommend installing the gasket at the roof hatch.

Interior

Interior of Tank:

The interior tank inspection was performed from the roof hatch, no entry was made into the tank.

Overall, the interior of the tank was in poor condition. Rust/corrosion was noted at various areas inside of the tank. Crevice corrosion was noted at the interior seams of the tank. It is recommended that the interior seams be re-sealed and all areas of corrosion on the tanks interior be cleaned and re coated.

Bottom of Tank / Viewed from Hatch:
Inspection of the floor was limited due to an obscure view of the floor.

Interior Ladder:
Corrosion was noted at the interior ladder. It is recommended that the corrosion be cleaned and re coated. If areas of corrosion at the interior ladder are beyond repair, it is recommended that these items be replaced.

Water Level Indicator:
The water level indicator was present at the time of the inspection.

Hydropneumatic Storage Tank

Tank Location at Facility:
The HPT located at 219 Barker-Clodine Rd at the front of the property was inspected.

Tank Information / Data Plate:
Permian Tank & MFG.
Length: 41'
Diameter: 10'
Head Thickness: .500"
Wall Thickness: .4375"
Max Working Pressure: 100 PSI a 100 F
Serial #: 053
Year Built: 1986

Overview:
An inspection was performed on the exterior of the tank only. Based on the findings during the exterior inspection, it is recommended that an interior inspection be scheduled.

Exterior

Coatings:

Chalking was noted on the tank at the time of the inspection. This is a common failure in coatings that are exposed to UV light. Typically, this is a cosmetic defect. However, if overcoating is desired then removing the powdery layer prior to applying the overcoat is recommended.

Gouges/chipped areas were noted in the tanks coating system at the time of the inspection. This is caused by mechanical damage to the area. If the substrate is exposed due to the gouge/chip, localized rusting may occur in this area. If the gouge or chipped area is down to the substrate material, it is recommended that the area be sanded down to the bare substrate and the coating be reapplied to prevent corrosion from occurring.






Flaking of the coating material was noted on the tank at the time of the inspection. This defect is typically caused by poor surface preparation of the substrate prior to applying the coating.

Crevice corrosion (bolts, flanges, metal to metal) was noted at the tank footings. It is recommended that these areas be cleaned with a wire brush to remove the rust and the areas be properly sealed.

Visible cracks were noted in the tanks coating system at the footings. These cracks may either penetrate down to the substrate, or just penetrate through a single coat of the system. This is typically caused by aging, movement in the substrate material, or applying the coating system to thick. Absorption and desorption of moisture can also cause this defect. It is recommended that the coating system be removed and replaced.

Pressure Relief Device:

A pressure device is present at the high pressure tank.

Pressure Gauge / Air-Water Volume Device:
The pressure gauge and air water devices are present with no visible deficiencies.

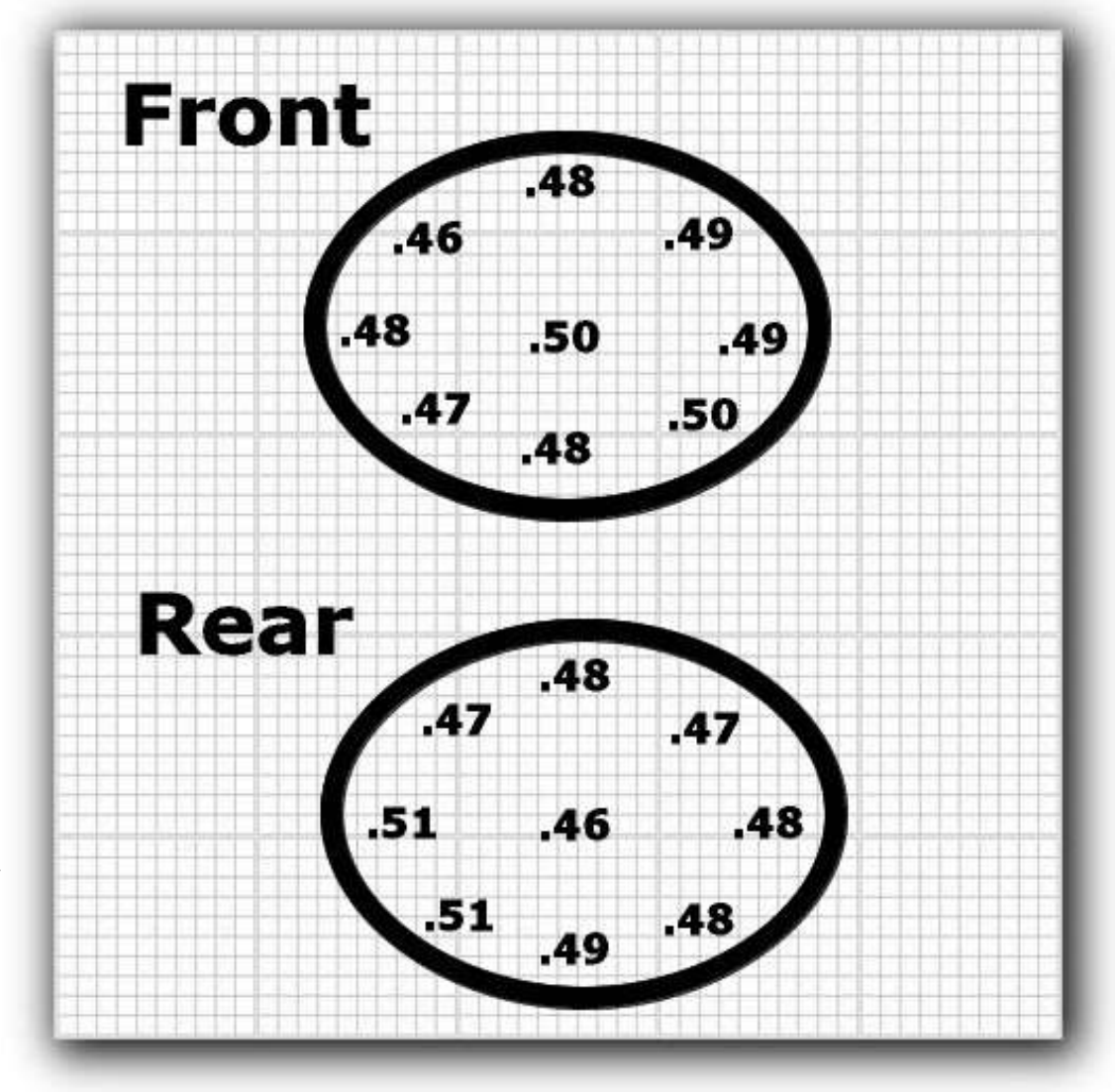
Foundation:
The foundation of the tank appears to be in acceptable condition.

Manway:
Crevice corrosion (bolts, flanges, metal to metal) It is recommended that these areas be cleaned with a wire brush to remove the rust and the areas be properly sealed.

Interior
The interior protective coating was not evaluated / inspected (exterior only). It is recommended that the interior of the tank be performed every 5 years.

Per the records provided, an interior inspection of the pressure tank has not been performed in the last 5 years as required by TCEQ (Section 290.46 of the Texas Commission on Environmental Quality's Rules and Regulations for Public Water Systems). Due to the limitations of an exterior inspection, we recommend that the district perform an interior inspection of the pressure tank as soon as possible.

Ultrasonic Readings



Left

Top of Tank

.45	.43	.33	.33	.46
.45	.46	.45	.44	.16
.47	.45	.44	.45	.43

Bottom of Tank

Right

Top of Tank

.37	.40	.45	.16	.44
.14	.43	.42	.44	.44
.43	.45	.44	.45	.44

Bottom of Tank

Ultrasonic Summary

Based on abnormal findings during the ultrasonic readings, it is recommended that an interior inspection of the HPT be performed ASAP.