COMPLETE RESTORATION, LLC

Paint, Repair and Construction Services
P.O. Box 282 Henderson, KY 42419
PHONE: (270) 869-7150 FAX: (270) 572-4589

City of Maysville
P.O. Box 406
Maysville, Ky 41056

Name of Tank: MAYS LICK
Date of Inspection: 11/03/2022
150,000 Gallon E.W.T.

Mr. Mark Julian
Utility Manager
(606) 564-3531

Contract #: 22114

If you would like to speak with someone concerning this report, call (270) 869-7150.

Introduction

This is a report of the general conditions found by Complete Restoration, LLC during an inspection which took place for **City of Maysville** on **11/03/2022.**

The findings from our inspection are identified, and conditions are noted as visible at the time of inspection.

The overall structural integrity or estimated life span calculation is not part of this service. If a structural analysis is needed, we shall utilize a licensed engineer from the territory in which the structure is located to preform such need.

Items not sited with codes or standards should be considered on “preventive maintenance” basis. Preventive maintenance is defined as regularly scheduled inspections, tests, servicing, repairs, replacements, and other tasks intended to reduce the frequency and impact of equipment failures. Your Complete Restoration, LLC account manager can discuss these items more in depth upon request.

Commonly cited standards and codes used in this document are from and owned by the following agencies. When a standard is cited it is identified in RED and the standards shall be *italicize*.

NFPA (National Fire Protection Association)

https://www.nfpa.org/

AWWA (American Water Works Association)

https://www.awwa.org/

OSHA (Occupational Safety and Health Administration)

https://www.osha.gov/

Notice the site is marked to identify the storage tank site security status.

Photo shows the condition of the foundation. **AWWA D100-11 Sec 12.7.1** states "*Height aboveground. The tops of the concrete foundations shall be a minimum of 6 in. (152 mm) above the finish grade, unless otherwise specified.*"

We recommend to:

Clear topsoil away from the tank foundation, down to a minimum 6" below top of foundation. The grade should be slopped to provide positive drainage away from the tank foundations.

This work should be done by a local excavating or landscape company.

Photo shows the condition of the tank foundations. Notice the cracks and spalled areas.

We recommended to:

Repair all cracks and spalled areas by installing a commercial patch. Seal the foundations with a sealant.

Notice the tank is not electrically grounded for lightning protection. **NFPA 22-2018 Sec. 4.9** states "*To prevent lightning damage to tanks. Protection shall be installed in accordance with NFPA 780.*"

We recommend to:

Electrically ground the tank for lightning protection.

Photo shows the condition of the anchor bolts. The bolt to nut connections are tack welded and in good condition**. "AWWA D100-11 Sec. 3.8.5.1-(5)(b)** states *" For all other bolts, lock nuts shall be provided or the threads shall be peened to prevent loosening of the nuts."*

Photo shows the base of the riser pipe. Currently there is no riser drain valve. A drain valve performs two functions it allows the tank to be drained and it is used as a blowout to remove silt and scale from the lower portion of the tank.

We recommend to:

Install a frost proof drain valve.
Install a locking device to prevent unauthorized draining.
Install a 4’ x 6’ splash pad to prevent erosion.

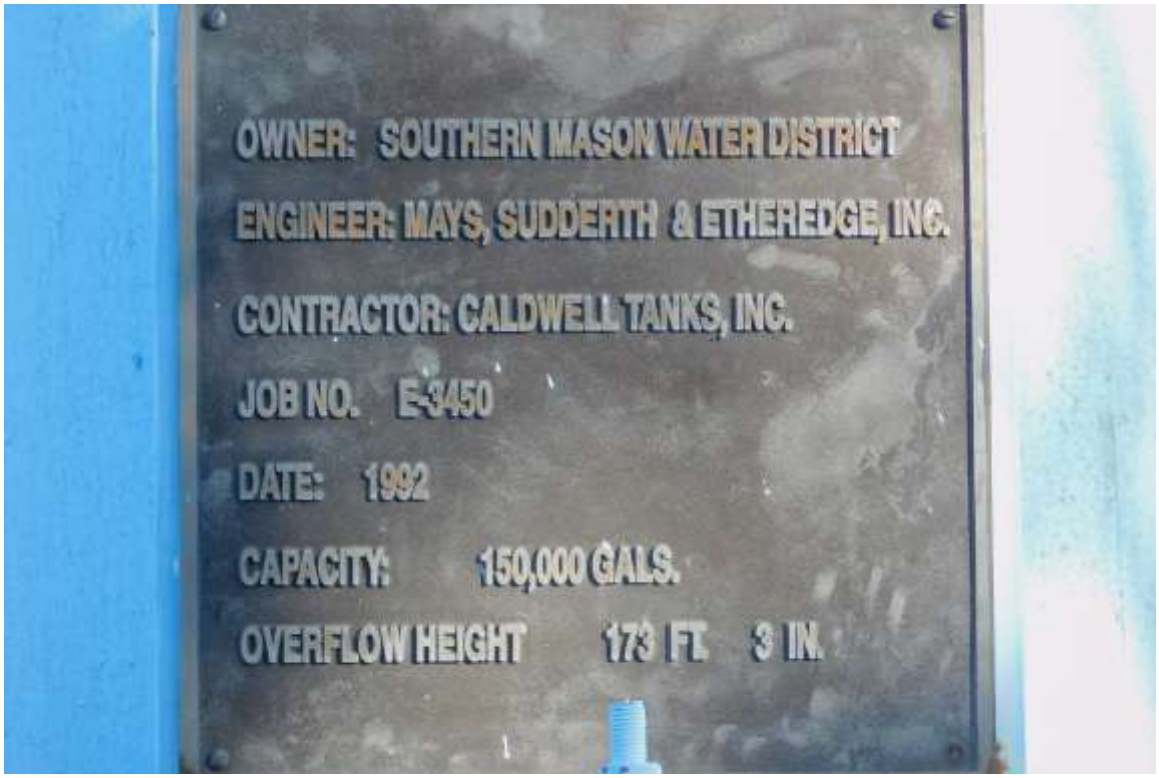


Photo shows the name plate.

Photo shows the condition of the riser manway. **OSHA 1910.146(c)(2)** states "*If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces. NOTE: A sign reading* ***DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER*** *or using other similar language would satisfy the requirement for a sign*."

We recommend to:

Post **Permit Required-Confined Space Entry** sign.

Tower access ladder in above photo is not equipped with anti-skid rungs. **OSHA 1926.1053(a)(6)(i)** states "*The rungs and steps of fixed metal ladders manufactured after March 15, 1991, shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.*"

We recommend to:

Install anti-skid rung cover tape to the existing ladder rungs.
Install a lockable ladder guard to prevent unauthorized access.
Install a **Fall Protection Required** sign at ladder base.

Photo shows more of the condition of the existing tower access ladder. Safe climbing procedure requires a person to climb a ladder with their hands on the side rails of the ladder and not the ladder rungs.

We recommend to:

Remove the conduit from the ladder and securing it to standoffs.

Photo shows the condition of the windage rods. The windage rods are designed to resist and stabilize the tower structure against wind and seismic loads combined with dead and live loads. The windage rods appear to be loose and need to be adjusted. **If the bracing remains loose, a sudden collapse could occur.**

We recommend to:

Adjust the windage rods and riser stay rods as needed.

This repair should be done on EMERGENCY BASIS.

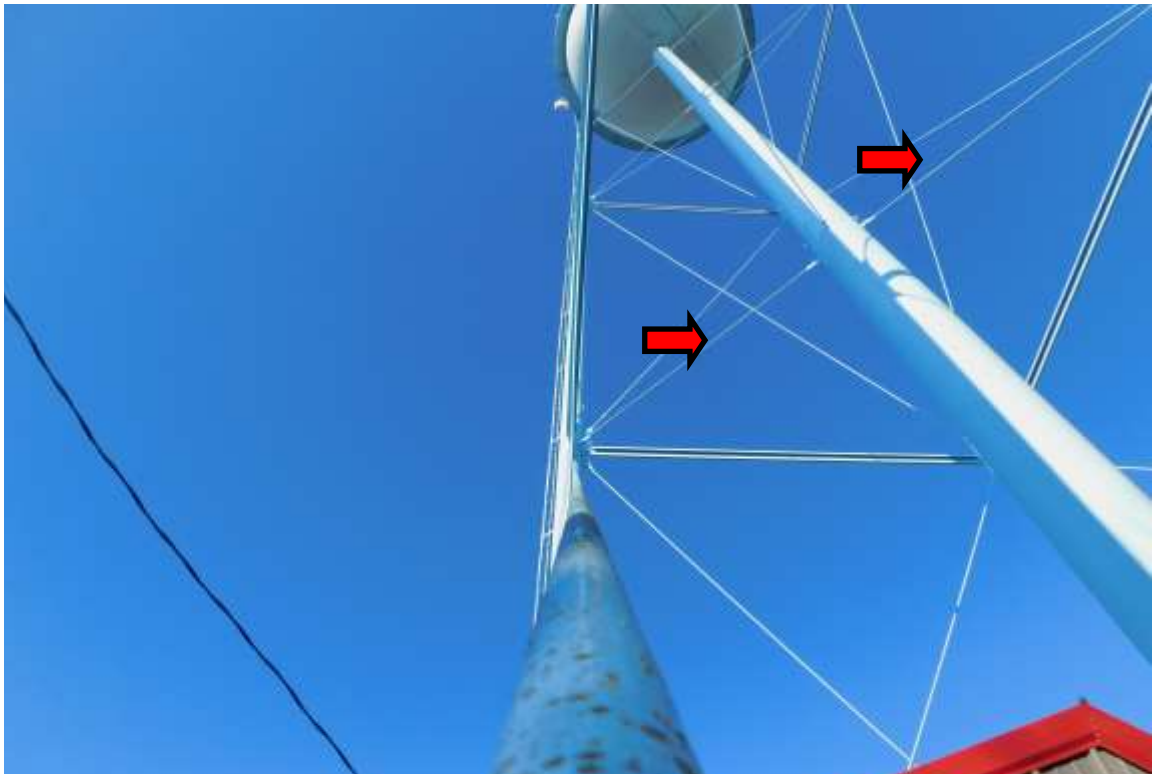


Photo shows the condition of the stay rods.

Photo shows the condition of the strut end connections. The strut ends have been sealed welded and appear to be in good condition.

Photo shows the condition of the riser pipe and bowl. The connection appears to be in good condition.

Photo shows the condition of the existing balcony handrail system. The handrail is not the required 42" height. **OSHA standard 29 CFR 1910.23 (a)(2),** states "*Every ladderway floor opening or platform shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.*"

We recommend to:

Install a swing gate or safety chains at the ladder junction.

Photo shows more of the condition of the existing balcony handrail system. Notice the mounted conduit is coming loose, creating a safety hazard.

We recommend to:

Secure the conduit.

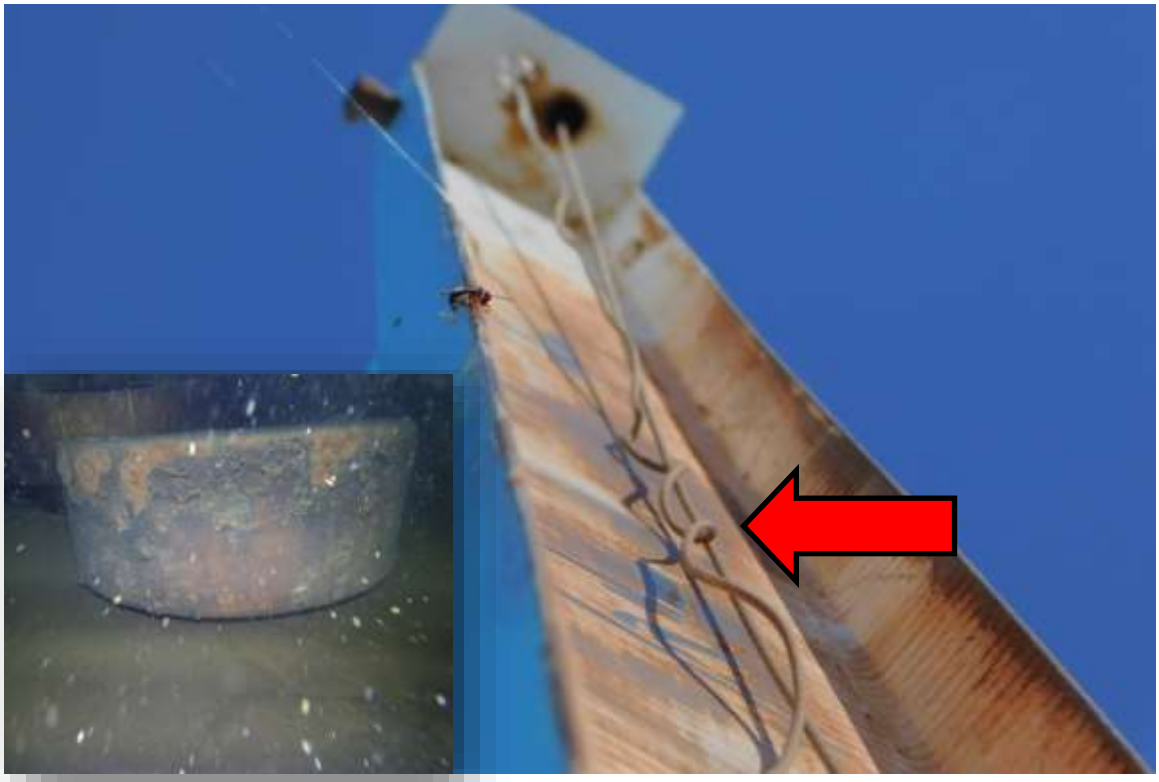


Photo shows the condition of the liquid level indicator. The indicator is damaged, unresponsive and requiring repair.

We recommend to:

Repair the existing liquid level indicator by replacing the damaged parts as needed. The unit shall then be adjusted, calibrated and tested to insure compliance.

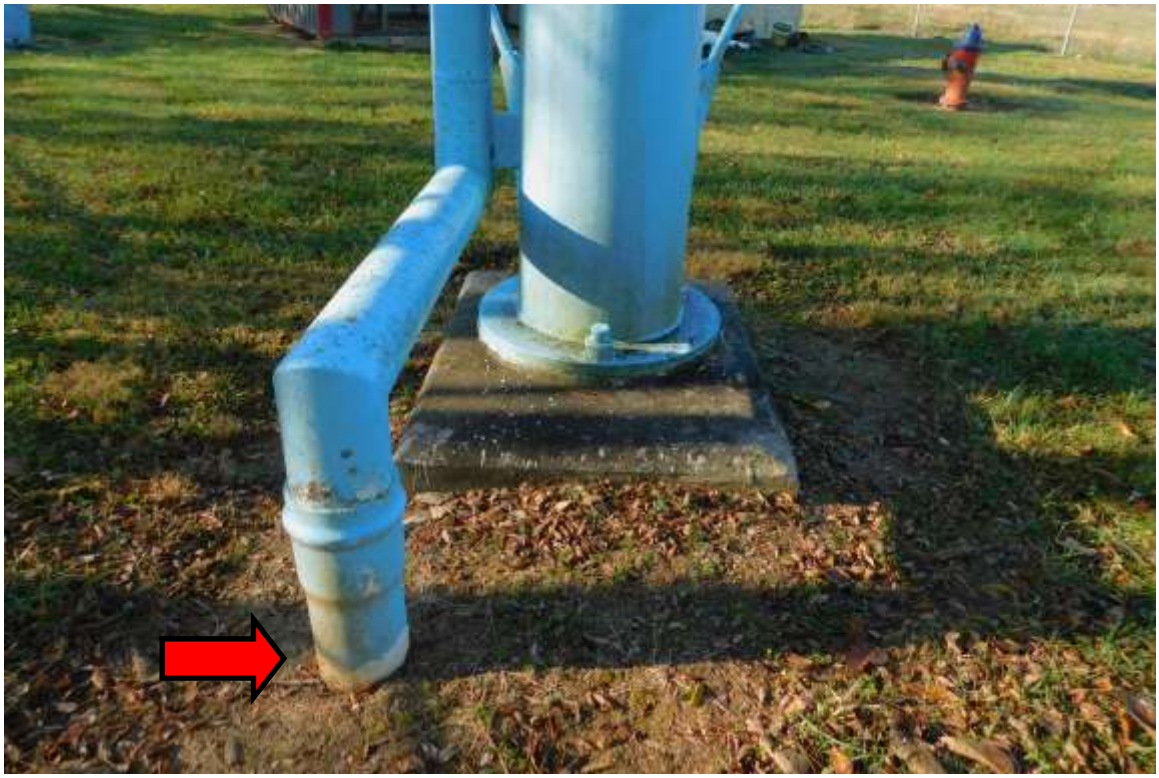


Photo shows the condition of the overflow pipe. Notice the overflow pipe does not have a visible air gap. If the connected drainage system becomes clogged or backflows, it could allow contaminates to enter the tank supply. **AWWA D100 -11** states *"A drainage-inlet structure or suitable erosion protection should be provided to receive discharge from the tank overflow. The overflow should not be connected directly to a sewer or a storm drain without an air brake."*

We recommend to:

Disconnect the pipe from the underground drain and install an air break complete with a flapper valve, screen and 4' x 6' splash pad to direct water away from the tank foundation.

This repair should be done on EMERGECNY BASIS.

Shell ladder in above photo is not equipped with anti-skid rungs. **AWWA D100-11 5.4.2.1 General.** states “Ladders shall have side rails not less than 2in. x 3/8 in. (51 mm x 9.5 mm), with a spacing between the side rails of not less than 16 in. (406 mm) and rungs not less than ¾ in. (19 mm) round or square, spaced 12 in. (305 mm) apart on centers. Ladders shall not in any place have a backward slope. Ladders with a single point of connection, including rolling ladders, shall not be used. **Skid-resistant rungs shall be provided when specified.**

We recommend to:

Install anti-skid rung cover tape to existing ladder rungs.
Install a cable type ladder safety device.
Post a **Fall Protection Required** sign at base of ladder.

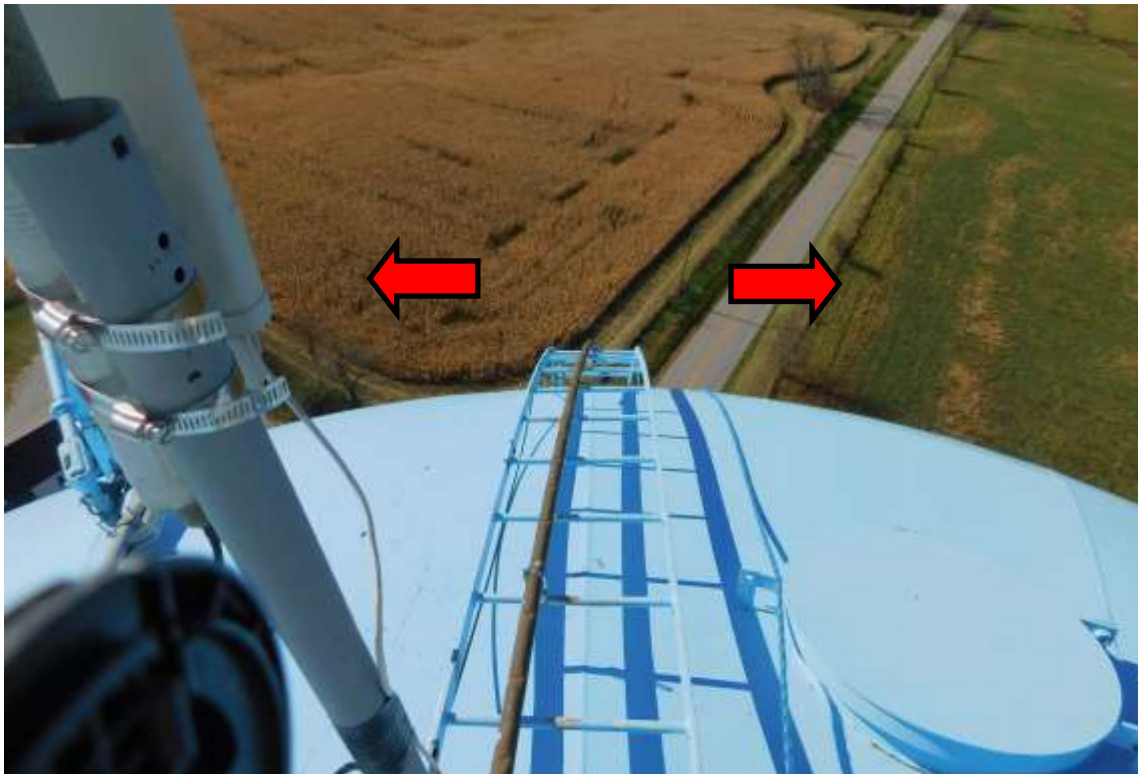


Photo shows the tank roof edge is not equipped with a required handrail system for fall protection. **OSHA 1910.21 (a) (1)** states "*Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing (or the equivalent as specified*." **NFPA 22-2018 Sec. 4.14.3** states *"Guardrails shall be constructed in accordance with OSHA 29 CFR 1910."*

We recommend to:

Install a complaint 42" high handrail system around the circumference of the tank roof, complete with toeboard, intermediate rail and a swing gate at the ladder opening.

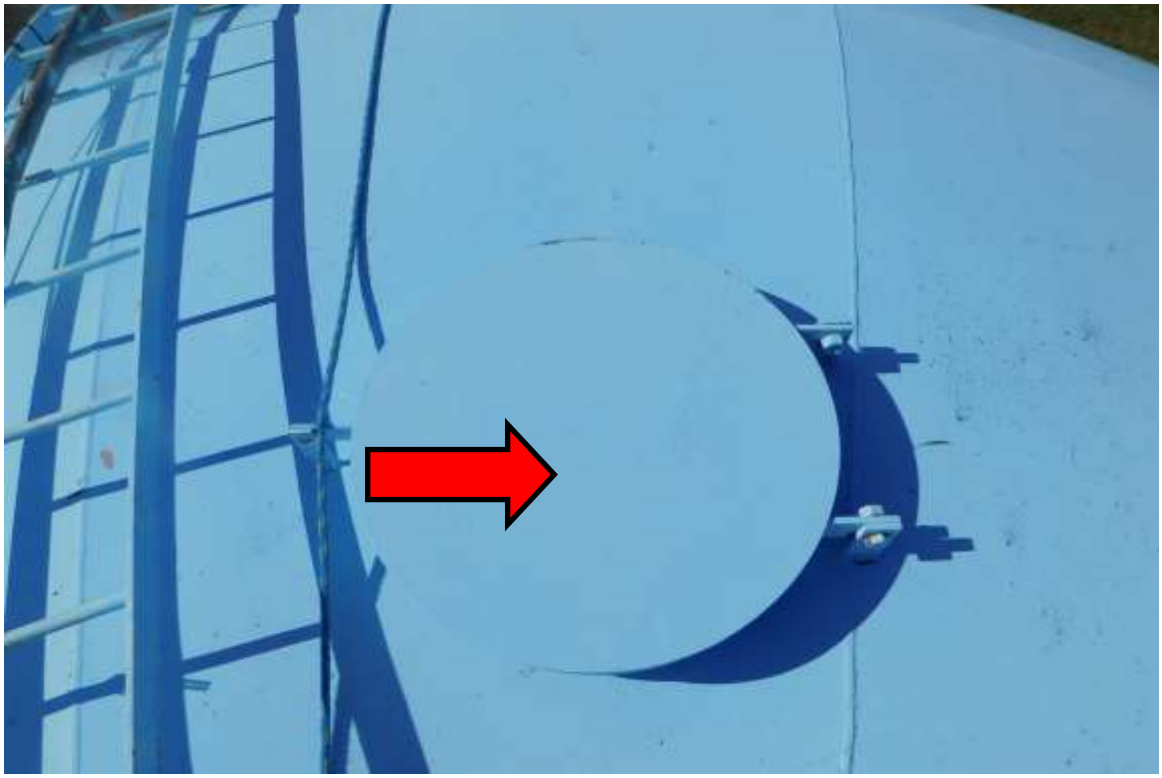


Photo shows the condition of the roof hatch**.** **OSHA 1910.146(c)(2)** states "*If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces. NOTE: A sign reading* ***DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER*** *or using other similar language would satisfy the requirement for a sign*."

We recommend to:

Post a **Permit Required-Confined Space Entry** sign.

Photo shows the condition of the existing roof vent. The vent is not equipped with a relief mechanism per requirements. **AWWA D100-11 Sec. 7.5.2 Screening.** states *"The vent shall be designed and constructed to prevent the entrance of birds or animals. When the vent is provided with screening against insects, **a pressure-vacuum-screened vent or a separate pressure-vacuum relief mechanism shall be provided** that will operate in the event that the screens frost over or become clogged. The screens or relief mechanism shall not be damaged by the occurrence and shall return automatically to operating position after the clogging is cleared."*

We recommend to:

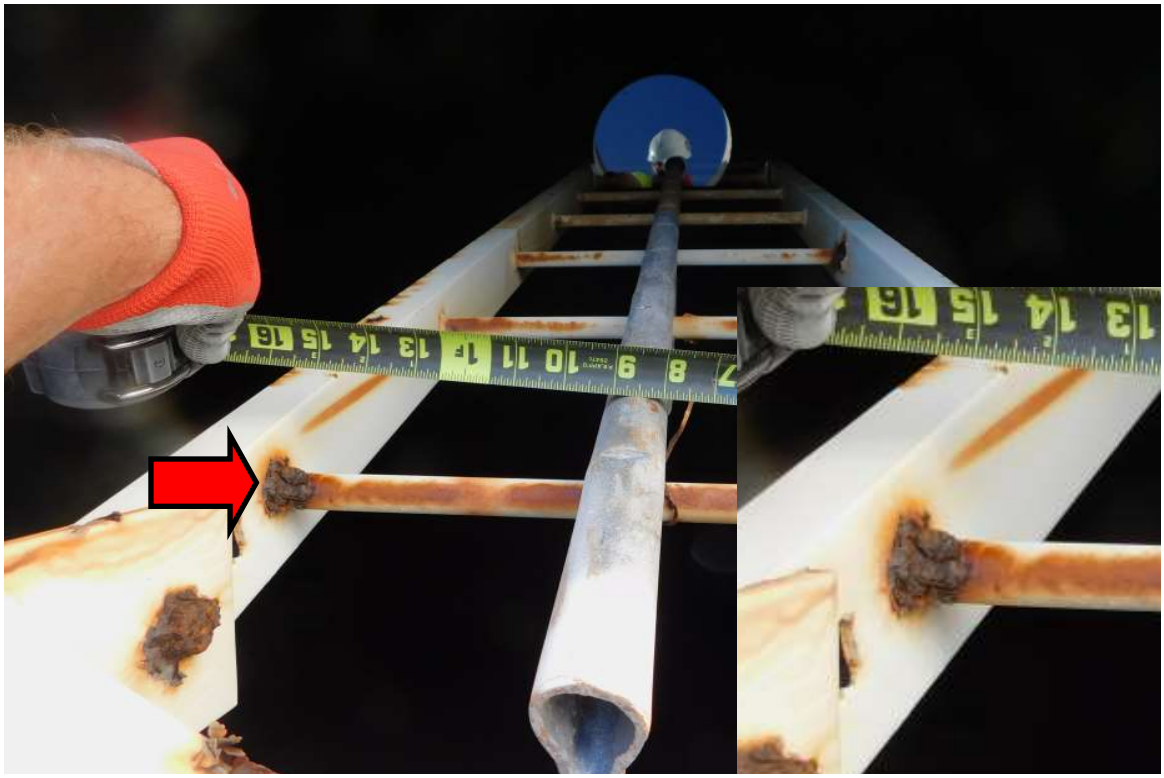
Install a new vent equipped with the pressure-vacuum mechanism.

This should be done on EMERGENCY BASIS.

Photos show the tank exterior coating system.

We recommend to:

Pressure wash the tank exterior with biodegradable detergent (max 3,500 psi), then remove all loose rust and scale with wire brushes and hand scrapers in accordance with SSPC#2 (hand tool cleaning), spot prime, and apply two (2)



Interior shell ladder in above photo is seriously deteriorated. **OSHA 1926.1053 (b)(17)** states "*Fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, shall be withdrawn from service until repaired.*"

We recommend to:

Tag the existing interior ladder out immediately, then installing a new OSHA complaint ladder equipped with a stainless steel cable safety device.

This repair should be done on EMERGENCY BASIS.

Photo shows silt and debris in the tank. This should be completed to avoid the problems associated with excessive silt buildup.

We recommend to:

Clean the tank out.

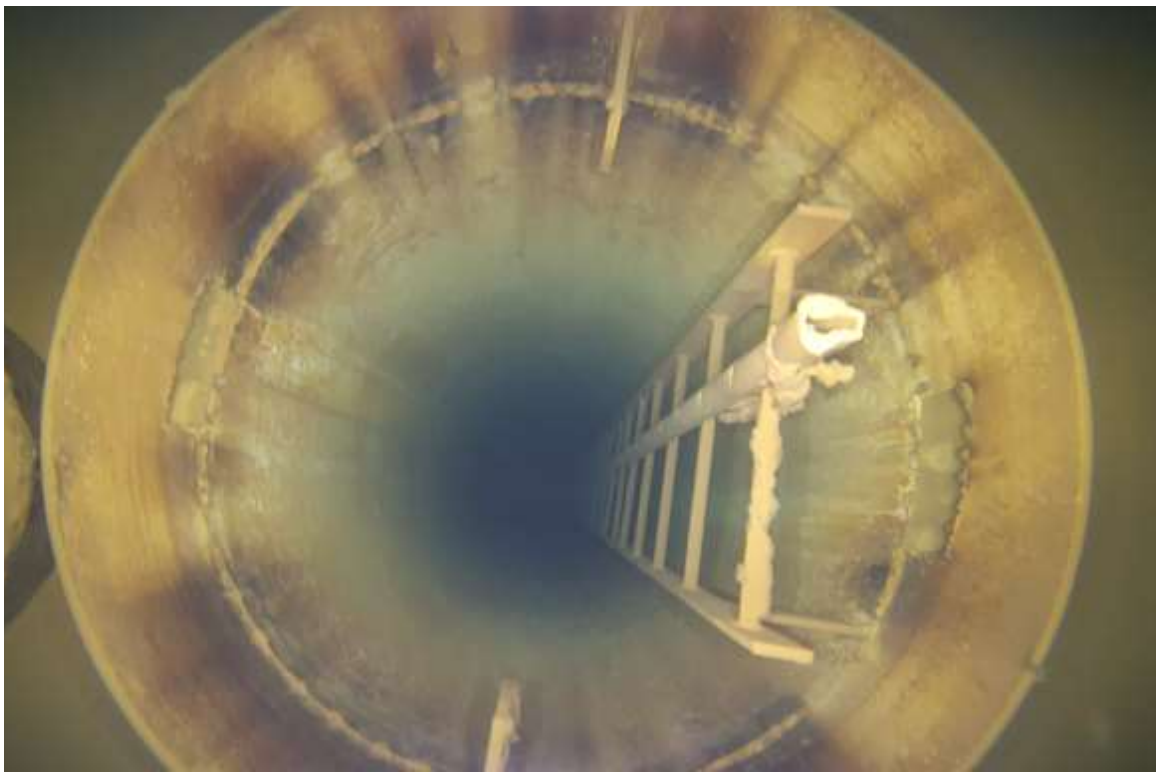


Photo shows the condition of the riser pipe opening. The riser opening is not equipped with a safety grating in accordance with **AWWA D100-11 Sec. 5.1.1 Safety grill** and **OSHA 29 CFR 1910.23**.

We recommend to:

Install a safety grate over the riser opening.

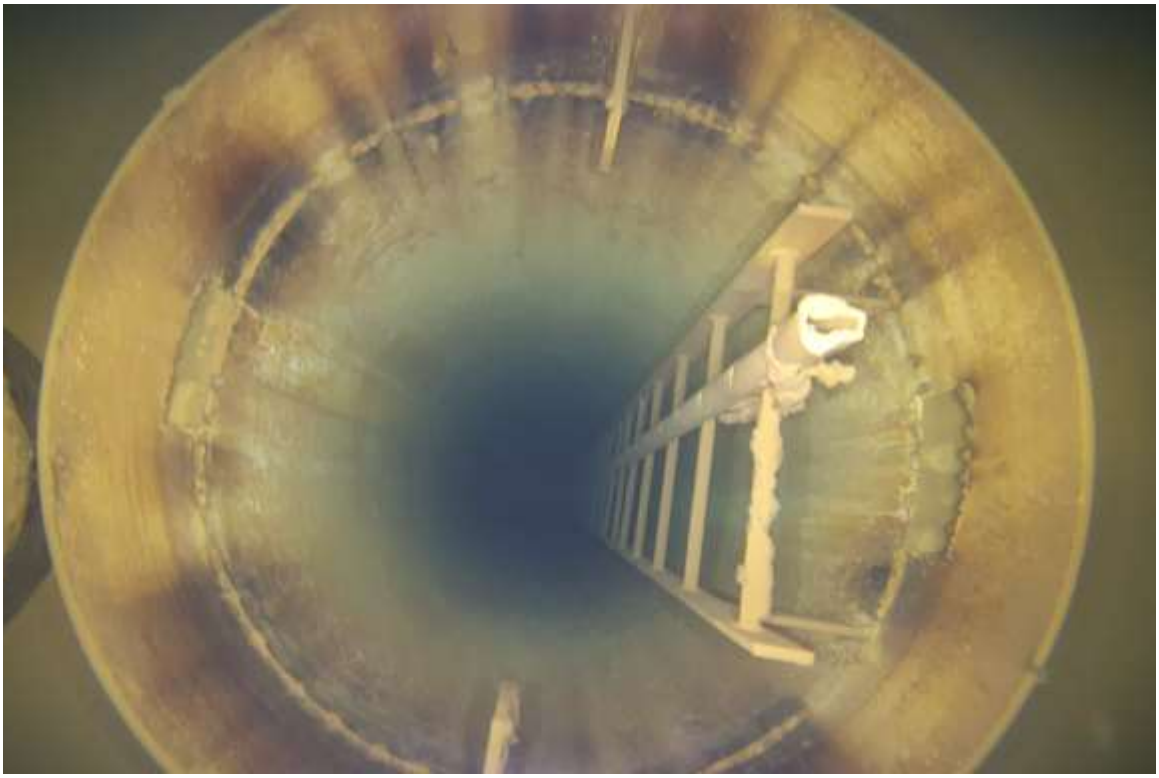
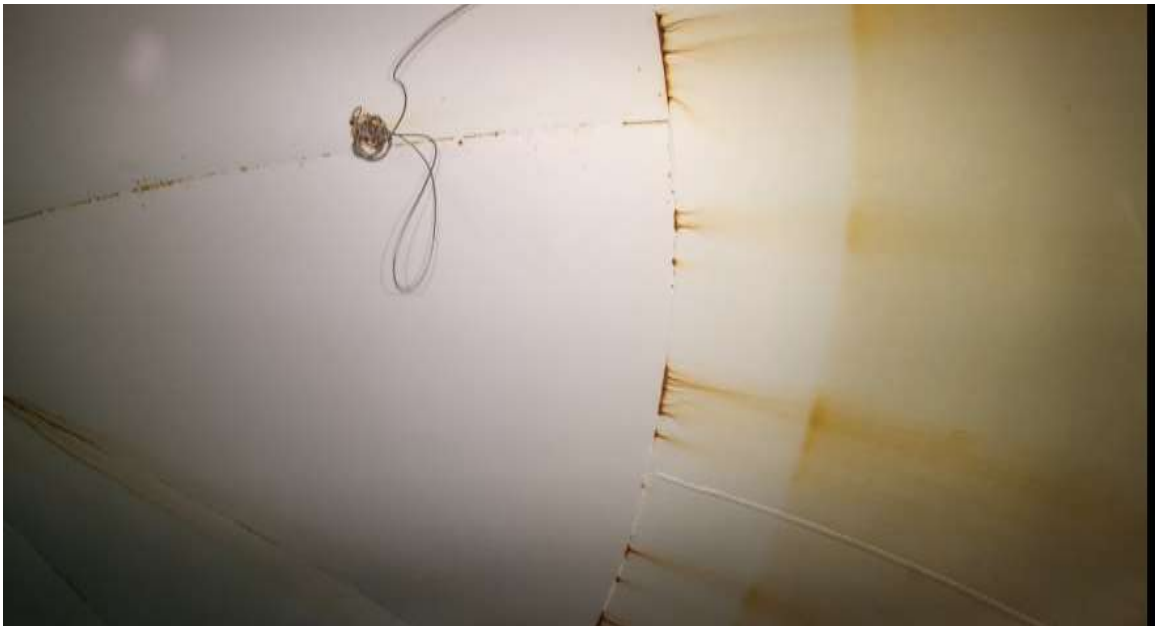


Photo shows the condition of the riser ladder.



Photos show the condition of the interior liner. Notice the rust forming in various areas.

We recommend to:

Sandblast all rusted and abraded areas of the tank interior to an SSPC #10 (near white blast) condition, brushblast all remaining areas, stripe coating all seams and welds, then applying two (2) full coats of epoxy to complete.

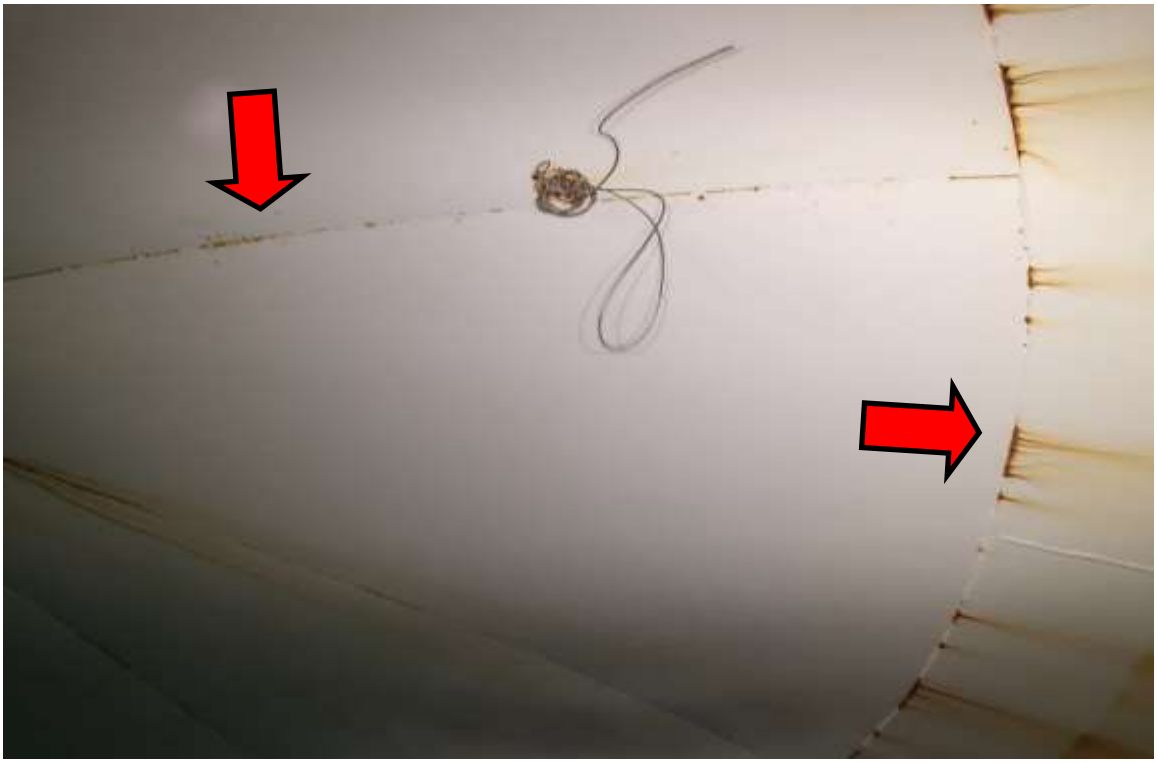


Photo shows the condition of the interior roof. Notice the rust forming at the roof lap seams. These seams are unwelded and therefore it is hard to completely seal during painting operations.

We recommend to:

Seam seal all unwelded interior roof lap seams with caulk to prevent premature failure of the new interior coating.

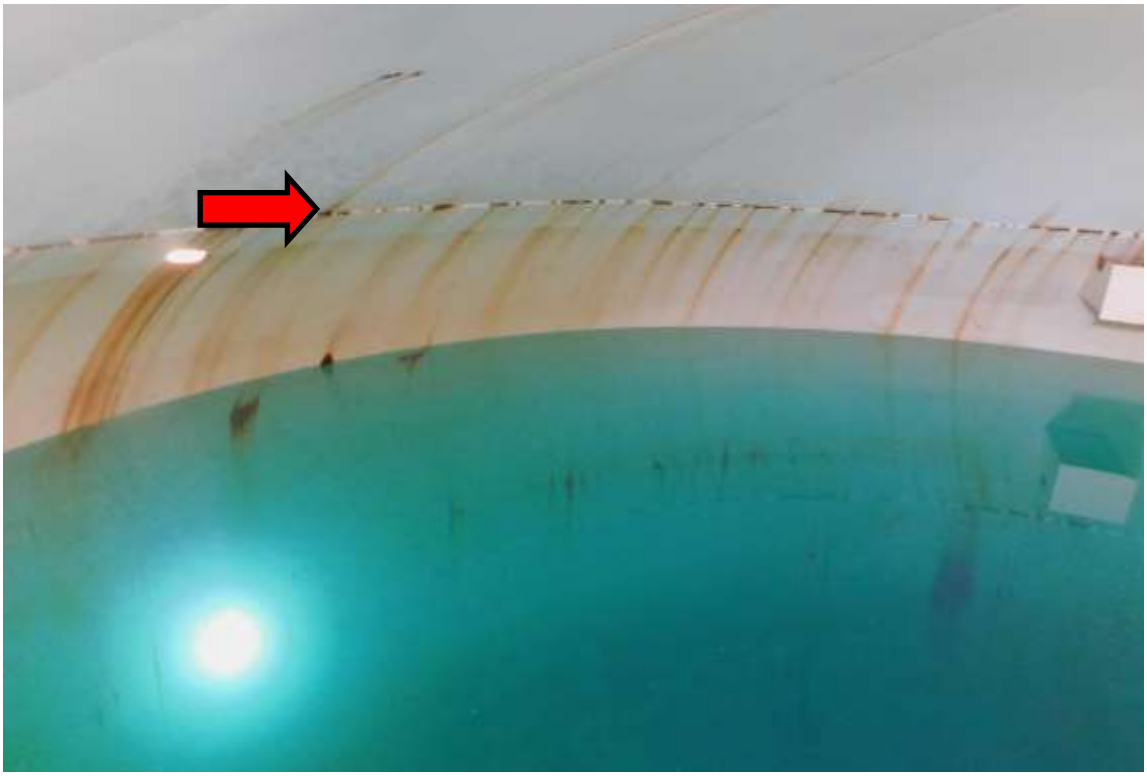


Photo shows the condition of the interior roof to shell connection. Notice the rust forming at the connection. These seams are not seal welded and therefore it is hard to completely seal during painting operations.

We recommend to:

Seam seal around the circumference of the roof-to-shell connection with caulk to prevent premature failure of the new interior coating.

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SUMMARY PAGE

CONTRACT #: 22114 INSPECTOR: Creager

OWNER'S REPRESENTATIVE: Mr. Mark Julian

TITLE: Utility Manager

TANK OWNER: City of Maysville

MAILING ADDRESS: P.O. Box 406

PHYSICAL ADDRESS: 216 Bridge St

E-MAIL: Markjulian@cityofmaysvilleky.gov

CITY, STATE: Maysville, Ky ZIP: 41056 COUNTY: Mason

TELEPHONE: (606) 564-3531 FAX: UNKNOWN

LOCATION OF TANK: 38.51454 N, 83.81602 W

City of Maysville

Date of Inspection: 11/03/2022

Mr. Mark Julian
Utility Manager
(606) 564-3531

ORIGINAL CONTRACT NO: E-3450 YEAR BUILT: 1992

ORIGINAL MANUFACTURER: Caldwell Tank CAPACITY: 150,000 Gallon

DATE OF LAST INSPECTION: UNKNOWN TYPE: POTABLE WATER

DIAMETER: 32' HEIGHT: 180' OVERFLOW: 6"

HIGH WATER LEVEL: 173' LOW WATER LEVEL: 140'

TYPE CONSTRUCTION: WELDED

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Page #	Recommendations
4	Clear topsoil away from the tank foundation, down to a minimum 6" below top of foundation. The grade should be slopped to provide positive drainage away from the tank foundations. This work should be done by a local excavating or landscape company.
5	Repair all cracks and spalled areas by installing a commercial patch. Seal the foundations with a sealant.
6	Electrically ground the tank for lightning protection.
8	Install a frost proof drain valve. Install a locking device to prevent unauthorized draining. Install a 4' x 6' splash pad to prevent erosion.
10	Post **Permit Required-Confined Space Entry** sign.
11	Install anti-skid rung cover tape to the existing ladder rungs. Install a lockable ladder guard to prevent unauthorized access. Install a **Fall Protection Required** sign at ladder base.
12	Remove the conduit from the ladder and securing it to standoffs.
13	Adjust the windage rods and riser stay rods as needed. **This repair should be done on EMERGENCY BASIS.**
17	Install a swing gate or safety chains at the ladder junction.
18	Secure the conduit.
19	Repair the existing liquid level indicator by replacing the damaged parts as needed. The unit shall then be adjusted, calibrated and tested to insure compliance.
20	Disconnect the pipe from the underground drain and install an air break complete with a flapper valve, screen and 4' x 6' splash pad to direct water away from the tank foundation. **This repair should be done on EMERGECNY BASIS.**
21	Install anti-skid rung cover tape to existing ladder rungs. Install a cable type ladder safety device. Post a **Fall Protection Required** sign at base of ladder.
22	Install a complaint 42" high handrail system around the circumference of the tank roof, complete with toeboard, intermediate rail and a swing gate at the ladder opening.

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Page #	Recommendations
23	Post a **Permit Required-Confined Space Entry** sign.
24	Install a new vent equipped with the pressure-vacuum mechanism. **This should be done on EMERGENCY BASIS.**
25	Pressure wash the tank exterior with biodegradable detergent (max 3,500 psi), then remove all loose rust and scale with wire brushes and hand scrapers in accordance with SSPC#2 (hand tool cleaning), spot prime, and apply two (2)
26	Tag the existing interior ladder out immediately, then installing a new OSHA complaint ladder equipped with a stainless steel cable safety device. **This repair should be done on EMERGENCY BASIS.**
27	Clean the tank out.
28	Install a safety grate over the riser opening.
30	Sandblast all rusted and abraded areas of the tank interior to an SSPC #10 (near white blast) condition, brushblast all remaining areas, stripe coating all seams and welds, then applying two (2) full coats of epoxy to complete.
31	Seam seal all unwelded interior roof lap seams with caulk to prevent premature failure of the new interior coating.
32	Seam seal around the circumference of the roof-to-shell connection with caulk to prevent premature failure of the new interior coating.