



FACILITY CONDITION REPORT: 45'X86' - POTABLE WATER TOWER

MANGUM, OK - KERN AVE TOWER

AWWA D100 Potable Water Storage Tank (Location: Mangum, OK - Kern Avenue)

12/14/2024 – Inspector: Alek Gray

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1 Kern Avenue Tower



During the inspection, structural or sanitary issues may have been discovered. Please read this report carefully, as any items requiring corrective measures will be addressed here. Such items may require your attention, as corrective measures could be necessary in order to comply with state and OSHA rules.



Standards and references on final page

Preliminary Recommendations

1. The interior coating system was noted in poor condition as widespread surface rust has developed along surfaces above the water line.¹ The roof support structure exhibited significant corrosion blistering. This interior will require renovation.
2. The exterior coatings were noted in good condition with isolated damage likely caused by mowing and UV degradation.
3. Excessive sediment has accumulated along the tower's bowl/floor.
4. The exterior, fixed ladder is not equipped with an operable fall-arrest system as required by OSHA.
5. There is no seal along the roof hatch as required by ODEQ.
6. The tower's roof vent was discovered screened. The vent cap has been improperly modified and is not sanitary. The vent cap requires replacement (see accompanying video).
7. Light cracks were observed along the concrete foundation. These cracks should be sealed to prevent freeze damage.
8. Certain anchors were noted loose and should be properly tightened.
9. The overflow is cracked and requires replacement.

¹ We notate deficiencies only if they are supported with applicable, written regulations from the appropriate state regulatory agency, OSHA, or DHS. AWWA may be cited if no state rule pertains; however, written state rules will summarily override peripheral standards such as those from AWWA, FDA, etc. 10 State Standards will not be cited in states that are not listed by **GLUMRB** among cold weather states.



Components, Anchorage, & Structural

1 All anchorage was checked and some anchors were noted loose.

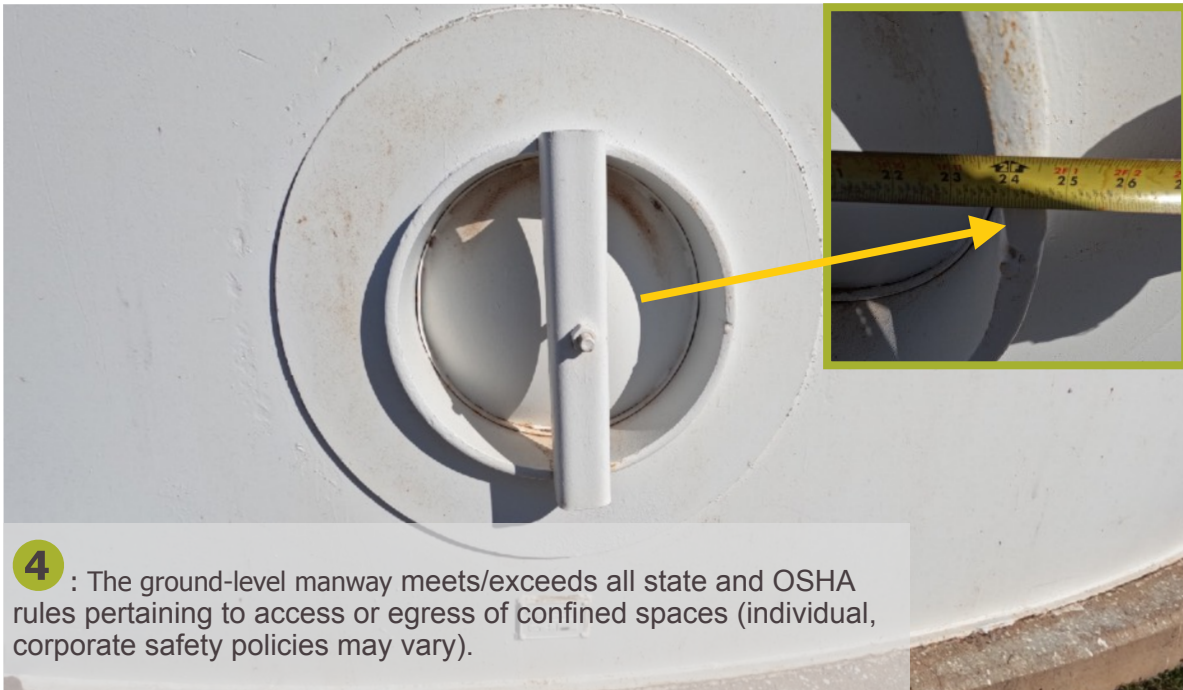


2 Earth around the concrete foundation was noted properly excavated and maintained.

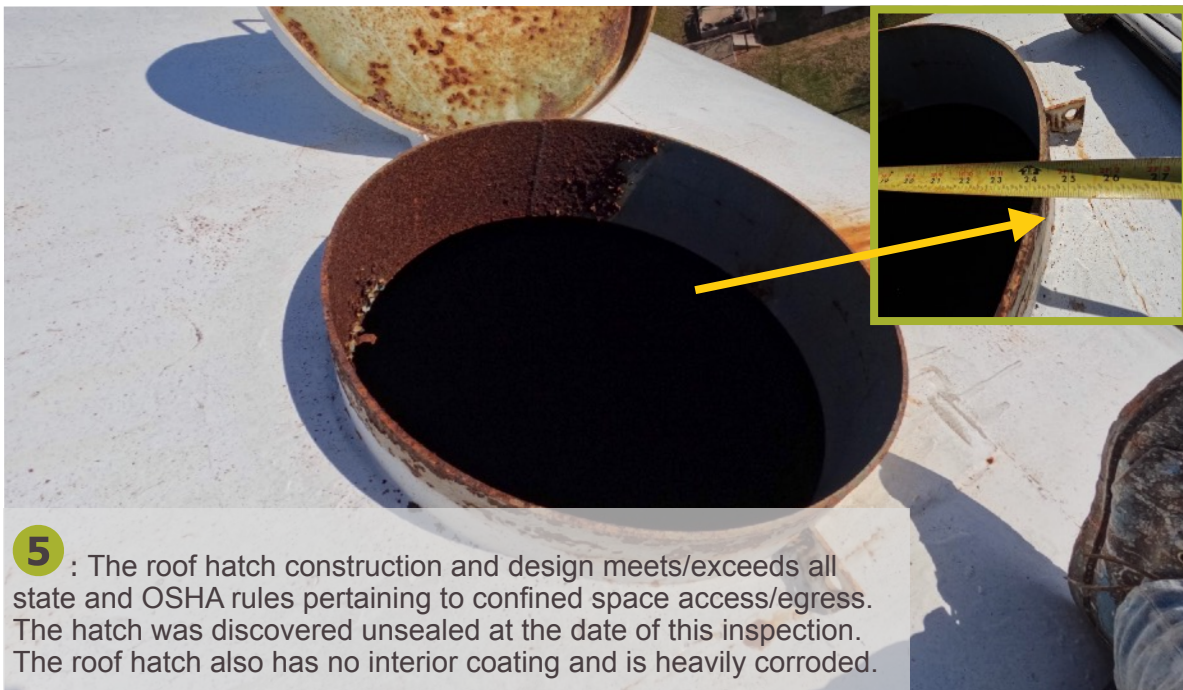


3 The observable surfaces of the tower's concrete foundations remain in good condition. Light cracks were noted extending outward. These should be sealed to prevent freeze damage.



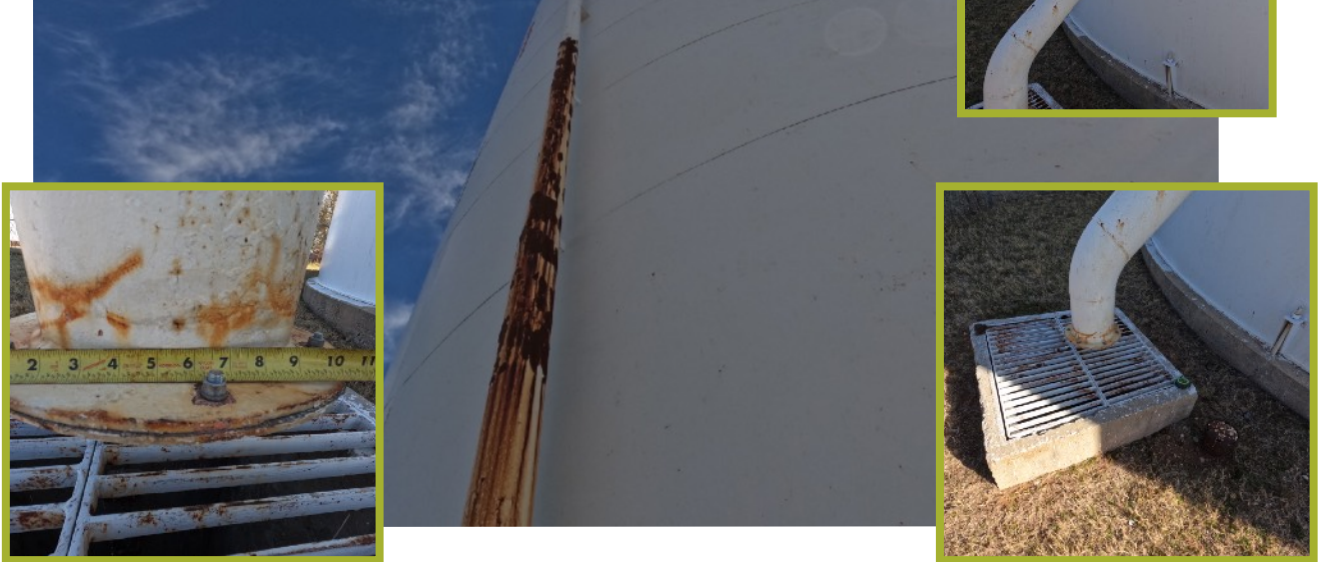


4 : The ground-level manway meets/exceeds all state and OSHA rules pertaining to access or egress of confined spaces (individual, corporate safety policies may vary).



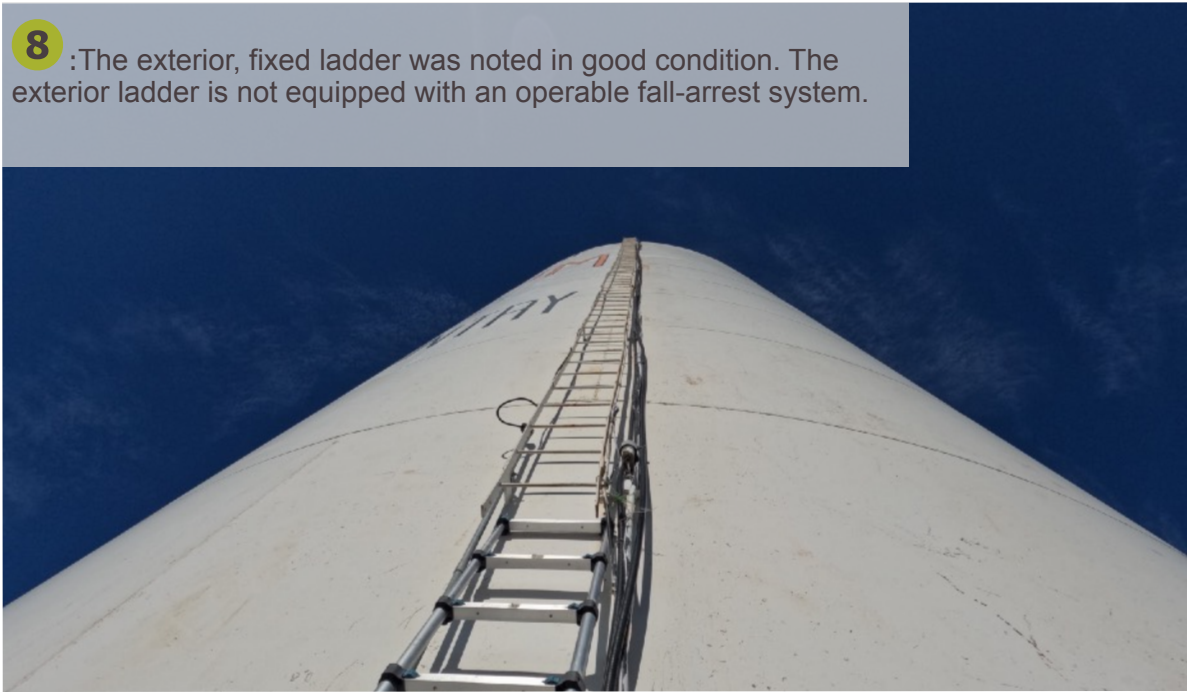
5 : The roof hatch construction and design meets/exceeds all state and OSHA rules pertaining to confined space access/egress. The hatch was discovered unsealed at the date of this inspection. The roof hatch also has no interior coating and is heavily corroded.

6 :The tower's overflow has an apparent crack (likely from ice damage). This is speculative based on unusually heavy corrosion blistering along this area and stain streaking. The overflow will likely require replacement.



7 : The roof is properly screened, but the vent cap has been improperly modified, and requires replacement or repair.

8 :The exterior, fixed ladder was noted in good condition. The exterior ladder is not equipped with an operable fall-arrest system.





Coating Conditions

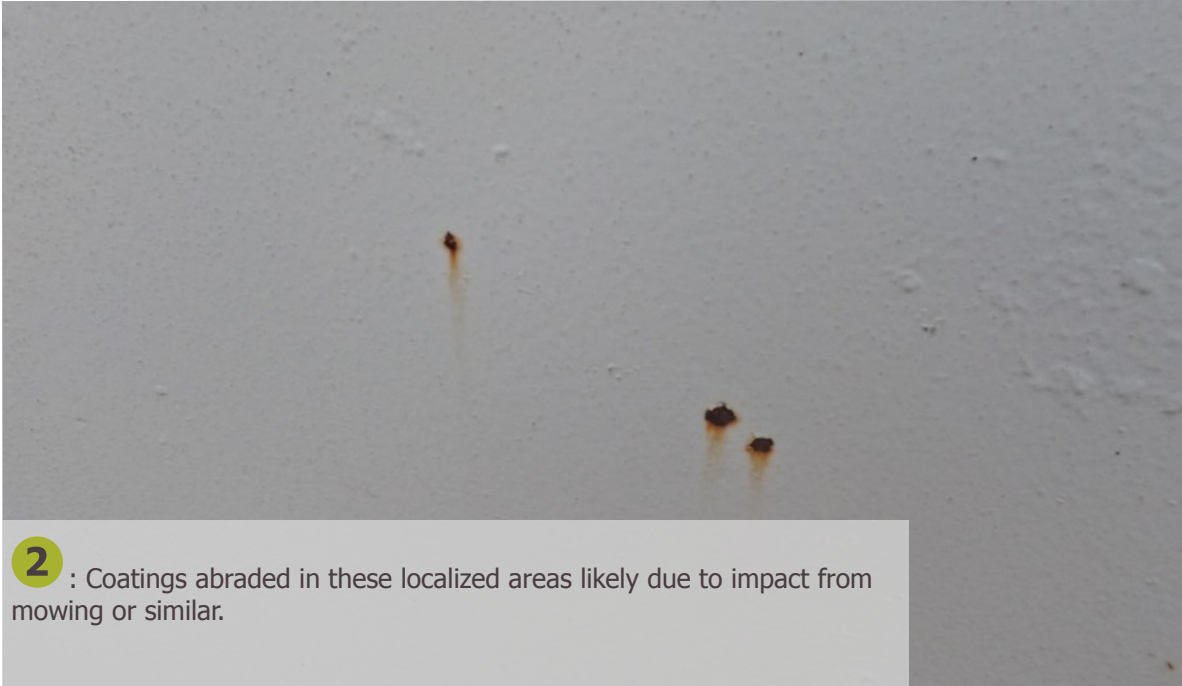
1 : Coating condition seen here, along the roof surfaces. Slight staining and mold growth was observed (typical).



3

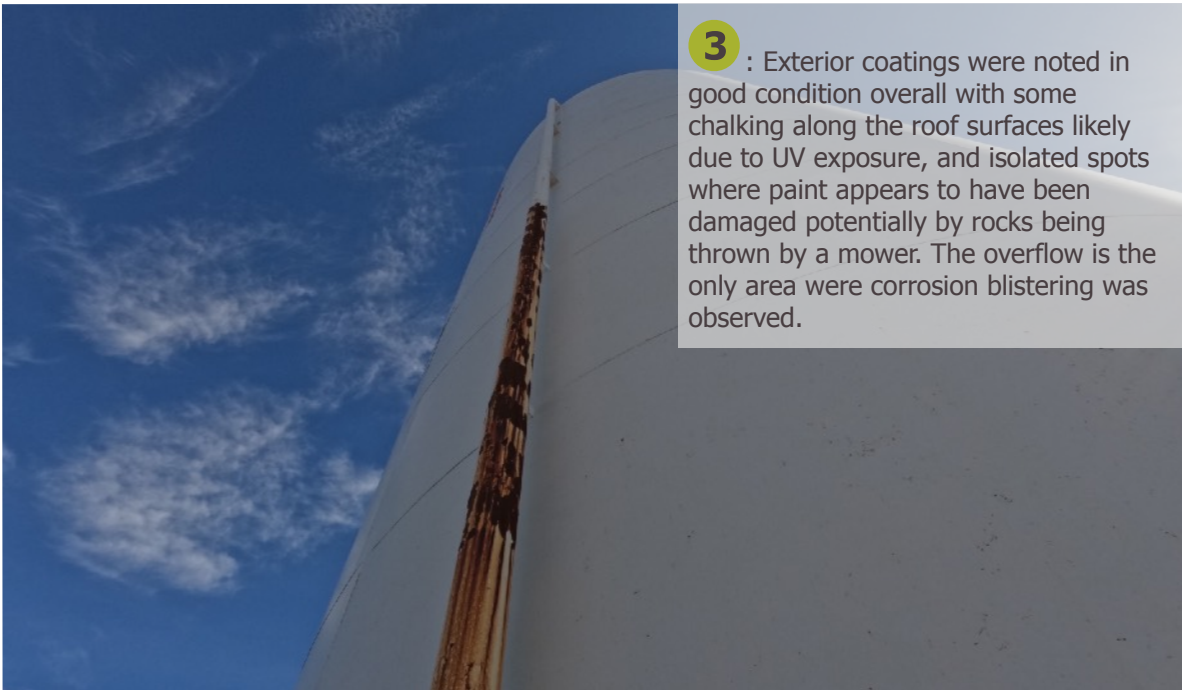


³ All coatings applications necessitate, at minimum, a cursory evaluation of existing coatings in effort to determine an appropriate preparation procedure, as there are several factors that are considered when making these procedural determinations. Coating specifications should be obtained by a selected paint manufacturer or engineer.



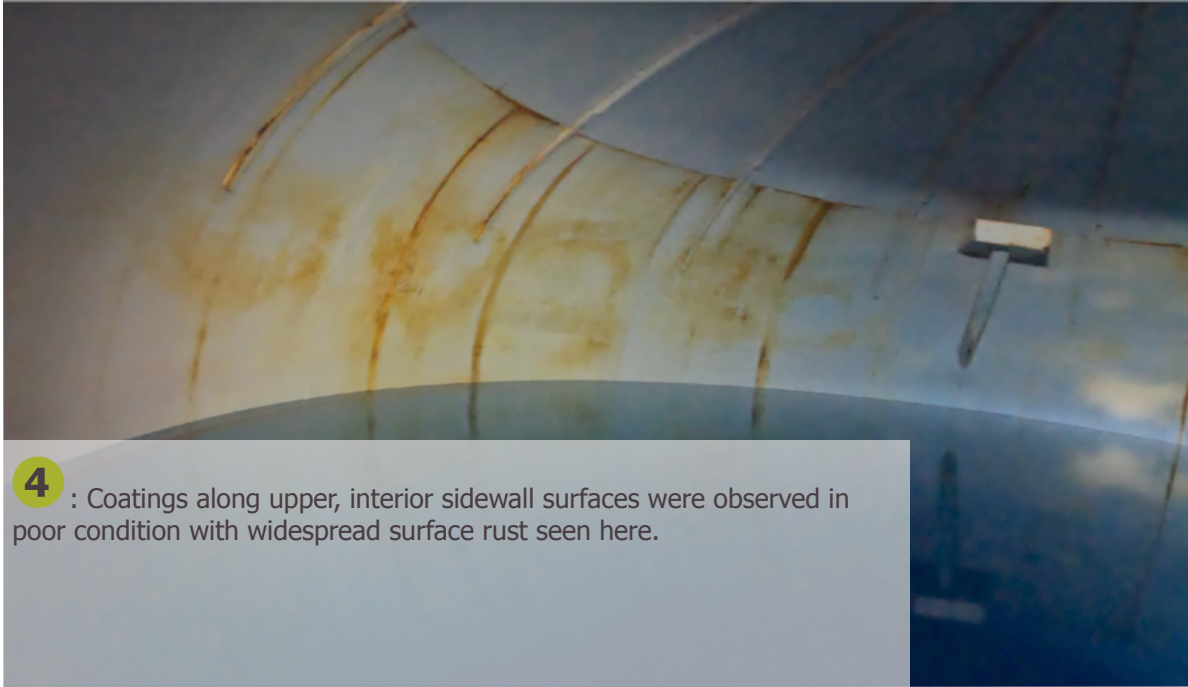
2 : Coatings abraded in these localized areas likely due to impact from mowing or similar.

4

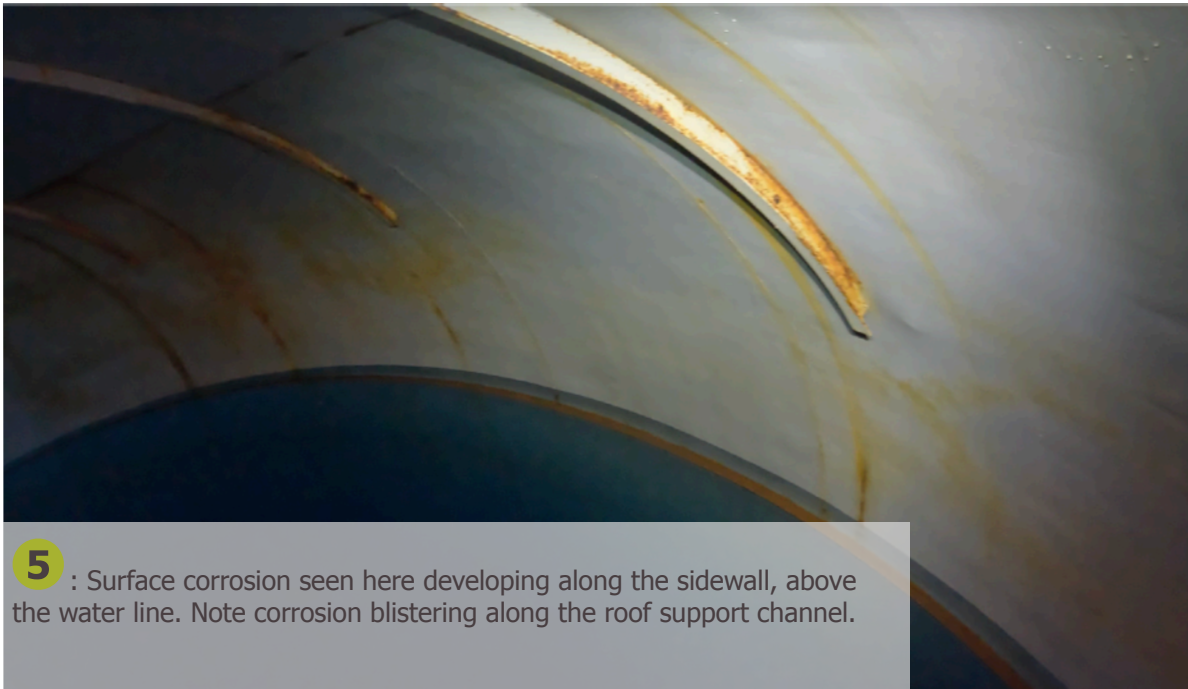


3 : Exterior coatings were noted in good condition overall with some chalking along the roof surfaces likely due to UV exposure, and isolated spots where paint appears to have been damaged potentially by rocks being thrown by a mower. The overflow is the only area where corrosion blistering was observed.

⁴ All coatings applications necessitate, at minimum, a cursory evaluation of existing coatings in effort to determine an appropriate preparation procedure, as there are several factors that are considered when making these procedural determinations. Coating specifications should be obtained by a selected paint manufacturer or engineer.



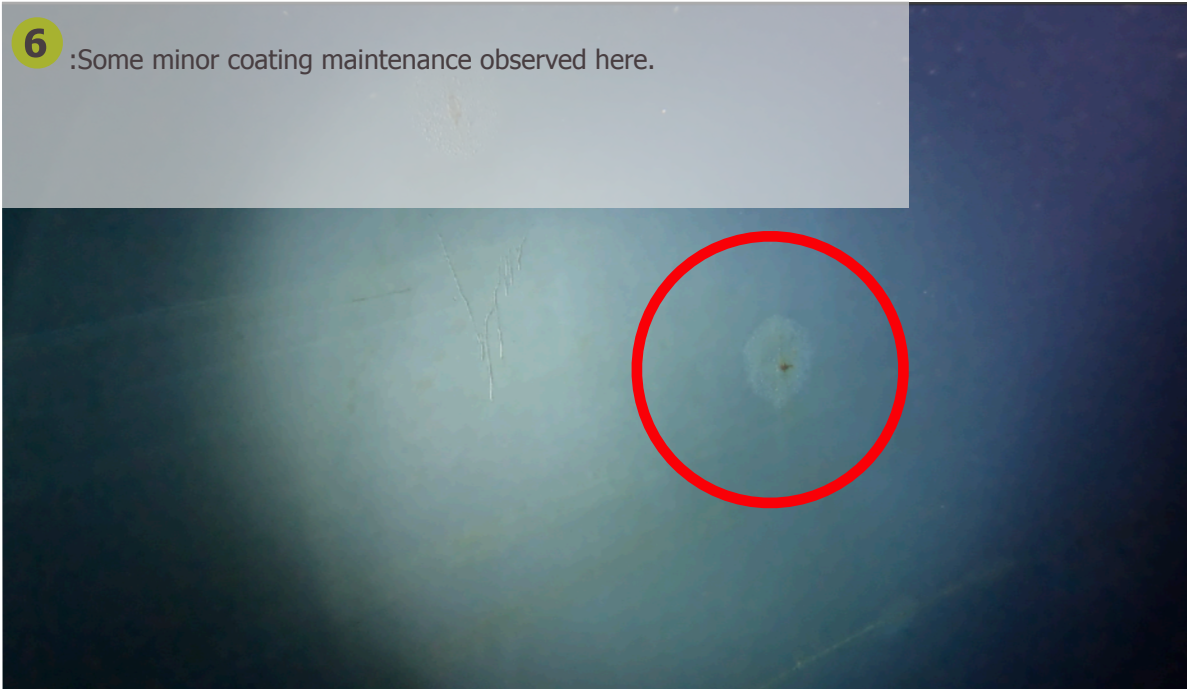
4 : Coatings along upper, interior sidewall surfaces were observed in poor condition with widespread surface rust seen here.



5 : Surface corrosion seen here developing along the sidewall, above the water line. Note corrosion blistering along the roof support channel.



6 :Some minor coating maintenance observed here.



7 : Significant sediment accumulation observed along the tower's floor. This sediment should be removed in effort to reduce the possibility of disinfection byproduct development.



Standards & References

C. Overflows :

Overflow. Provide all water storage structures with an overflow that terminates at an elevation between 12 and 24 inches above the ground surface, and release water over a drainage inlet structure or splash plate.

- (1) Do not connect the water storage structure overflow line to a sewer or storm drain.
- (2) Locate all overflow pipes so that any release of water is visible.
- (3) Equip the ends of the pipes with flex gates.

G. Vents and Other Openings:

Vent all finished water storage structures. Overflows are not considered vents. Open construction between the side wall and roof is not allowed. Design of vents must:

- (1) prevent the entrance of surface water, rainwater, birds, insects and animals,
- (2) limit the introduction of dust,
- (3) terminate in an inverted U with the opening 24 to 36 inches above the roof or sod covering on ground-level structures, and
- (4) be covered with a 24 mesh corrosion resistant screen installed at a location least susceptible to vandalism.

AMERICAN WATER WORKS ASSOCIATION:

D100-11 Standards for welded steel storage tanks D102-11 Coating steel water storage tanks

Safety & OSHA STANDARDS:

29 CFR 1910.146- Confined Space Awareness Compliance 29 CFR 1910.27- Fixed ladders

29 CFR 1910.28- Fall Prevention

K. Roof and side wall:

Make the roof and side walls of all structures watertight with no openings except properly constructed vents, manholes, overflows, risers, drains, pump mountings, control ports, and piping for inflow and outflow.

Prepared by: Nathan Gray

