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TANKSPEKCORP TOWER INSPECTIONS + CONSULTING SERVICES

FACILITY CONDITION REPORT: 40'X50' - POTABLE WATER TOWER

MANGUM, OK - COUNTY ROAD 1400 TOWER

AWWA D100 Potable Water Storage Tank (Location: North of Mangum, OK - East CR 1400)

12/14/2024 – Inspector: Alek Gray
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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 has completely failed and exhibits widespread debonding and corrosion blistering both above and below the water line.[1]**
2. **The exterior coatings have failed overall, and are not providing sufficient protection against corrosion of the steel substrate as widespread UV degradation and surface rust was observed along most exterior surfaces.**
3. **Sediment and unidentifiable debris was observed covering the the tower's bowl/floor.**
4. **Several opening were observed cut into the roof and left uncovered for potential bird access.**
5. **The tower's exterior ladders are not equipped with a fall-arresting system as required by OSHA. The rolling roof ladder continues in its original design to be able to roll around the roof.**
6. **There is no seal along the roof hatch as required by ODEQ.**
7. **The tower is equipped with a finial ball on the roof's apex, and this finial ball has been drilled to allow for ventilation. This finial ball should be replaced with a proper vent.**
8. **Minor cracks and spalling were noted along the observable areas of the foundation.**
10. **The tower still has its original spider rods which should be removed and those areas sealed where removed. The spider rods have broken and are hanging into the water, suspended from the perimeter anchors.**

[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

2 Earth around the concrete foundation was noted properly excavated. The observable surfaces of the tower's concrete foundations remain in fair condition. Light cracks were noted extending outward. These should be sealed to prevent freeze damage. observable surfaces of the tower's concrete foundations remain in good condition.

3 Sealant around the base of the tower has severely degraded and should be reapplied as needed 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.

6 :The tower's overflow is unscreened and not equipped with a flap gate or any observable protection from insect infiltration.

7 : The old finial ball used for the rolling ladder has been drilled for a secondary use as a vent. This finial ball will require removal and replacement with a proper, designated vent. Several openings were noted around the roof leaving the tank susceptible to surface water and bird infiltration.

8 :The exterior, fixed ladders are not equipped with any fall protection devices as required by OSHA. The roof ladder is a rolling ladder, and will require being properly attached as rolling roof ladders are not allowed by OSHA.

Coating Conditions

1: Coating condition seen here, along the upper sidewall. UV degradation and surface rust seen along these surfaces.

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 along the roof surfaces.

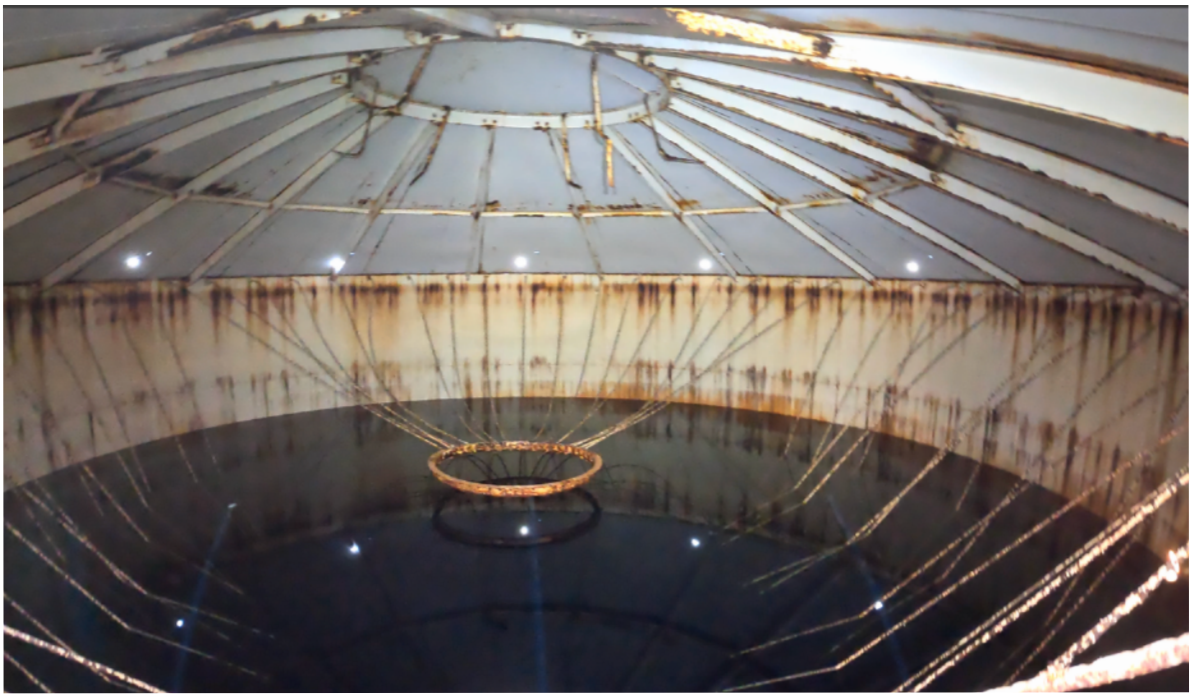
4

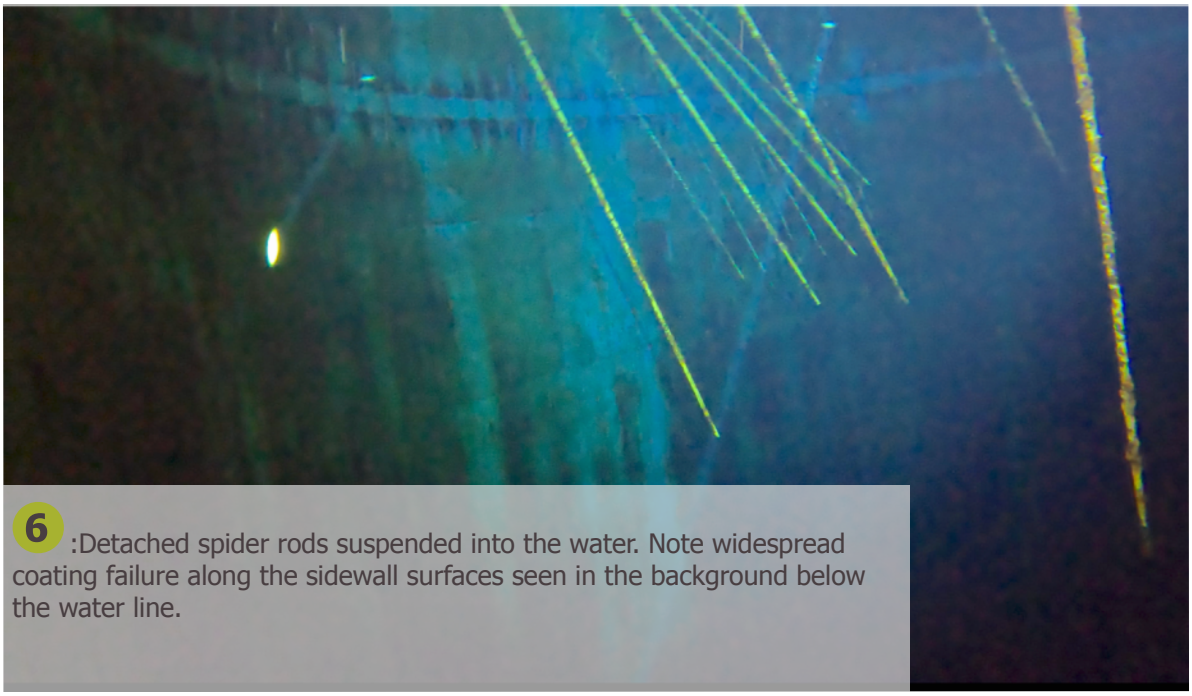
3 : Exterior coatings were noted in poor condition overall, with widespread UV degradation and surface rust observed.

[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 interior roof surfaces have failed.

5 : Coatings along sidewall surfaces have failed. Spider rods observed detached from center rings, and suspended from the perimeter anchors into the stored, potable water.





6 :Detached spider rods suspended into the water. Note widespread coating failure along the sidewall surfaces seen in the background below the water line.

7 : Significant sediment accumulation and unidentified debris 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

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