



Condition Assessment: Concrete & Steel Silo

MEDSHEL Global
Daytona Beach, FL
June 2024

Contents

1. SECTION I – Executive Summary	4
2. SECTION II – Concrete Loadout Silo.....	5
2.1. Observations	5
2.2. Recommendations	5
2.3. Photo Documentation: Concrete Loadout Silo – Exterior	7
2.3. Photo Documentation: Concrete Loadout Silo – Interior	9
2.3. Photo Documentation: Concrete Loadout Silo – Rooftop	10
3. SECTION III – Metal Loadout Silo	14
3.1. Observations	14
3.2. Recommendations	15
3.3. Photo Documentation: Metal Loadout Silo – Rooftop.....	16
3.3. Photo Documentation: Metal Loadout Silo – Rooftop.....	17
3.4. Photo Documentation: Metal Loadout Silo – Hopper Elevation	19

Condition Assessment: Concrete & Steel Silo

1. SECTION I – Executive Summary

MEDSHEL Global retained Industrial Access to perform a comprehensive condition assessment on various structures within their facility. This documentation specifically covers the assessments conducted on the Concrete Loadout Silo and the Steel Loadout Silo.

After thorough inspections and evaluations, both structures have been deemed to be in **poor** condition. The findings indicate significant deterioration and areas of concern that will require prompt attention to ensure the continued safety and functionality of these silos. Detailed observations and recommendations for necessary repairs are provided in the subsequent sections of this report.

2. SECTION II – Concrete Loadout Silo

This section presents a thorough overview of the findings, observations, and identified issues discovered while inspecting the Concrete Loadout Silo. A general evaluation of the structure, notable anomalies, and the appropriate **recommendations** to address said anomalies.

2.1. Observations

1. **Evaluation:** The overall integrity of the Cement Loadout Silo appears to be in good condition. The roof cap appears to be in **fair** condition.
2. **Exterior:** Various areas of spalling concrete with exposed rebar was discovered along the exterior. The Silo roof rim/curb was noted to have large areas with exposed rebar and missing concrete. Exposed rebar was also observed at the North and South side above the Silo entry way.
3. **Roof:** The dust collector and all associated piping has rust corrosion holes throughout.
4. **Interior:** There are multiple exposed electrical wires; rust has corroded through the conduits. These exposed wires pose a potential electrical shock hazard.
5. **Roof:** All the mounting fixtures that attach to the roof are completely corroded and are rusted through.
6. **Interior:** The Concrete Loadout Silo's hopper appears to be in poor condition due to heavy oxidation.
7. **Interior:** The Cement Silo Loadout scale was subject to apparent flood damage.
8. **Interior:** The 2nd elevation concrete office appears to be in fair condition. The ground elevation office shows signs of apparent water damage; this can be noted on the controls and breaker panels.
9. **Interior:** The hopper cone is missing the rotary feeder and loadout spout.

2.2. Recommendations

2.2 Clean and seal all openings upon the Cement Loadout Silo rooftop

- i. The Cement Loadout Silo rooftop should be thoroughly cleaned, and debris removed. Any exposed entry points should be sealed with a proper sealing

2.2 Remove and replace the roof rim/curb

- i. Due to the large areas of exposed rebar and missing concrete, it is recommended to remove and replace the roof rim/curb entirely

2.2 Replace dust collector and all associated piping

- i. The onset of heavy oxidation and corrosion has compromised the dust collector and associated piping. These instruments should be replaced to maintain structural integrity

2.2. Recommendations (cont.)

2.2 Perform UT Reading on The Fill Piping System

- i. The condition of the fill piping system appear to be fair; nonetheless, a UT (Ultrasonic testing) should be performed to ensure that the steel's thickness is suitable depth.

2.2 Repair Concrete Silo Hopper Cone

- i. The concrete silo hopper cone needs to be repaired to accept new loadout system

2.2 Replace Loadout Scale

- i. The loadout scale should be replaced due to evident water damage.

2.2 Replace Roof Guardrail

- i. The guardrails on the roof should be removed entirely and replaced. Following replacement, the guardrails should be painted with a protective coating.

2.2 Concrete Office Cleaning and Demolition

- i. As stated, the 2nd elevation appears to be in fair condition, but it is recommended to clean the office space properly. The ground elevation office suffers from apparent water damage. Our team recommends demolishing the office and replacing the controls and breaker panels

2.2 Replace Rotary Feeder Platform and Repair Hopper Cone

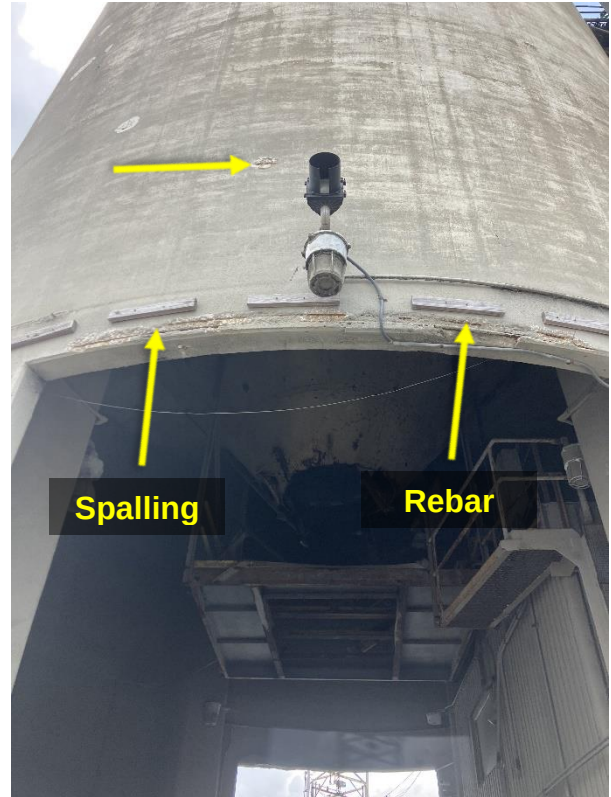
- i. The Loadout silo rotary feeder platform appears to be insufficient, missing the rotary feeder and loadout spout. This should be replaced, and a new platform fabricated to replace existing insufficient platform.

2.3. Photo Documentation: Concrete Loadout Silo – Exterior

The following provides photo documentation of the Concrete Loadout Silo



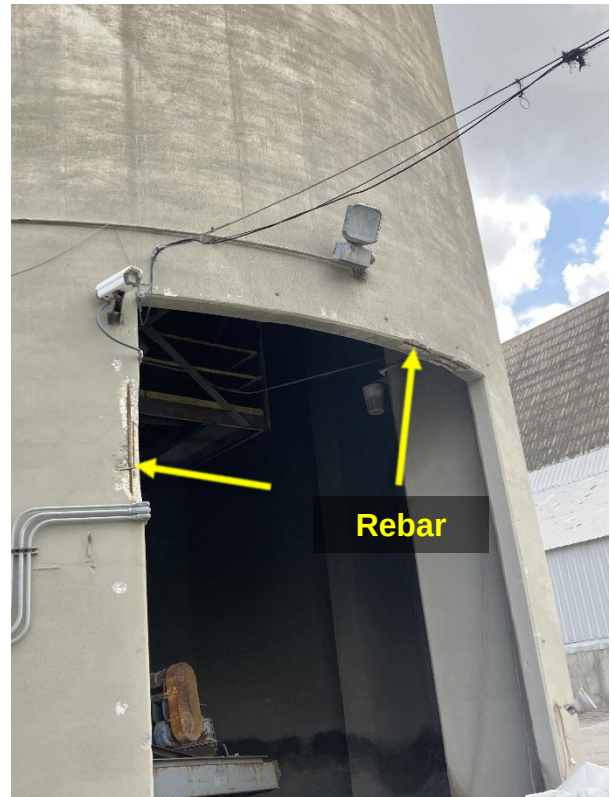
EXT 1 – Upward view of silo from the North side



EXT 2 – Spalling present and exposed rebar south entry point



EXT 3 – Heavily oxidized duct

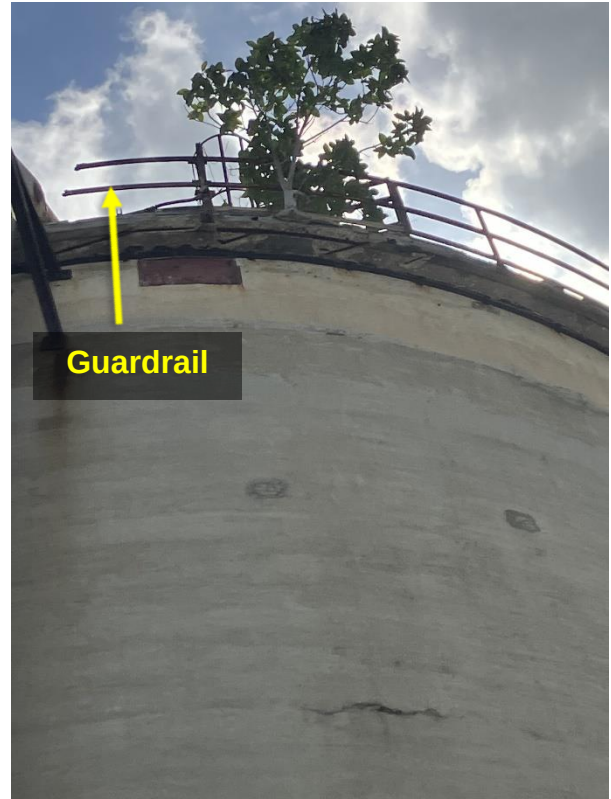


EXT 4 – Spalling and exposed rebar on north side entry point

2.3. Photo Documentation: Concrete Loadout Silo – Exterior (cont.)



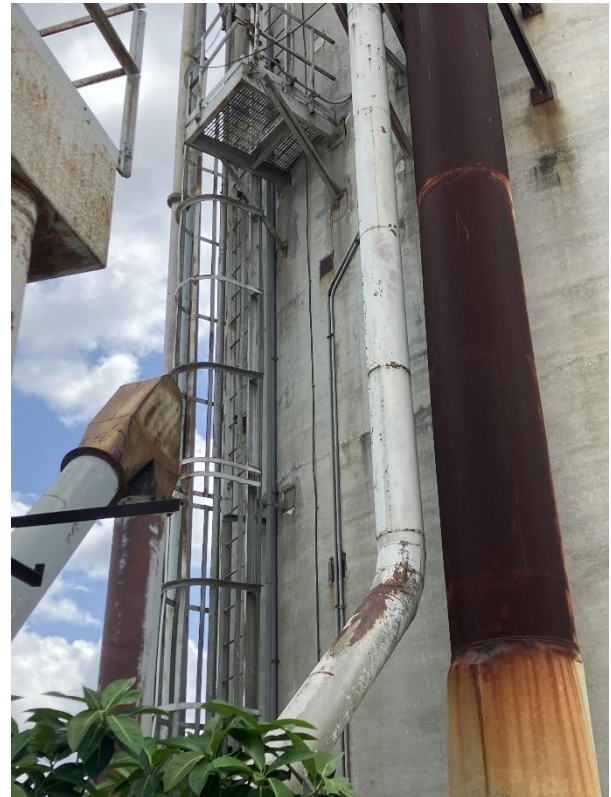
EXT 5 – View of silo from west side



EXT 6 – Corroded/missing guardrail and vegetation



EXT 7 – View of silo from the west



EXT 8 – Heavily oxidized duct

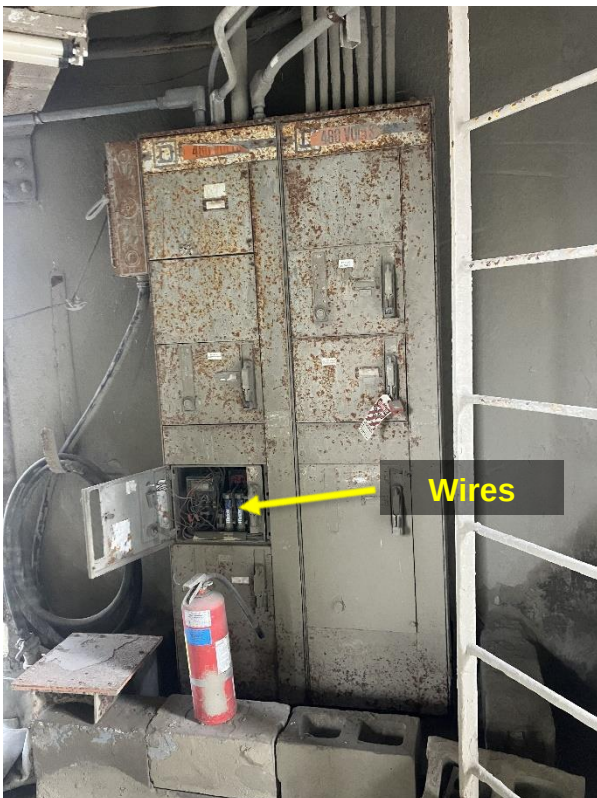
2.3. Photo Documentation: Concrete Loadout Silo – Interior



EXT 9 – Corroded loadout scale & with heavy buildup present



EXT 10 – Hopper and surrounding members suffer oxidation, cladding deformed



EXT 11 – Exposed wiring; heavily oxidized electrical box

2.3. Photo Documentation: Concrete Loadout Silo – Rooftop

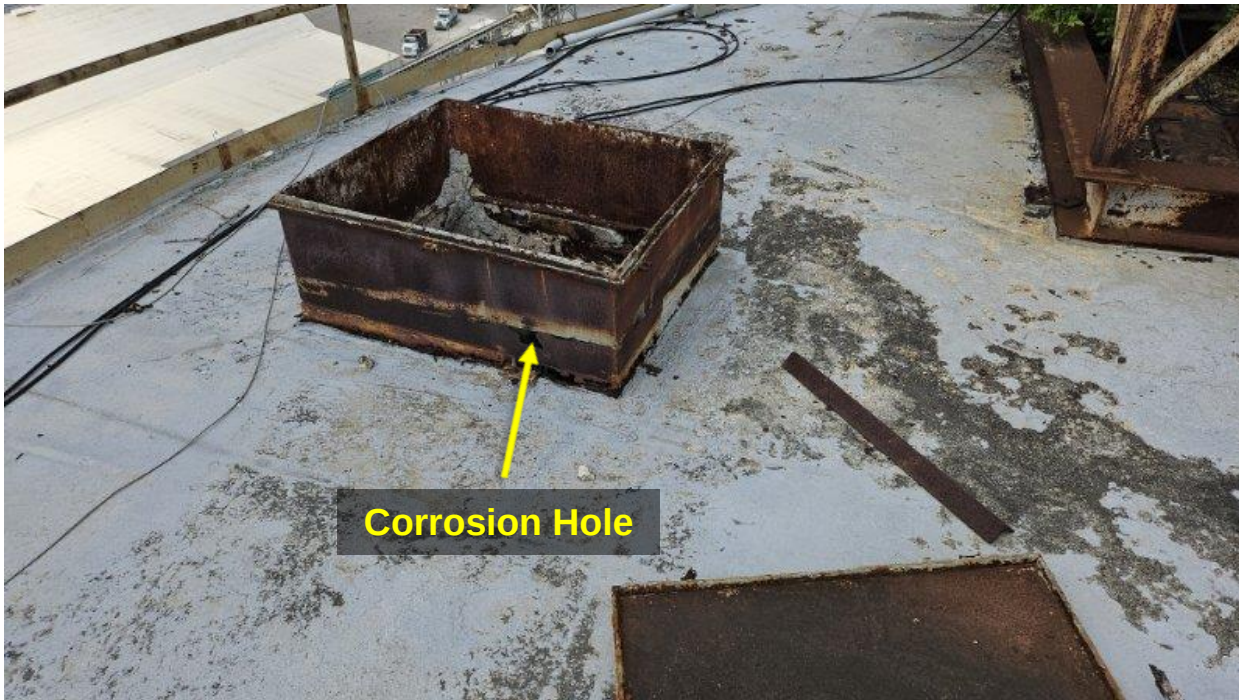


EXT 12 – Silo instruments and fixtures are heavily corroded



EXT 13 – Silo instruments and fixtures are heavily corroded; piles of debris present on rooftop

2.3. Photo Documentation: Concrete Loadout Silo – Rooftop (cont.)



EXT 14 – Corrosion hole on dust collector



EXT 15 – Closeup on corrosion hole

2.3. Photo Documentation: Concrete Loadout Silo – Rooftop (cont.)

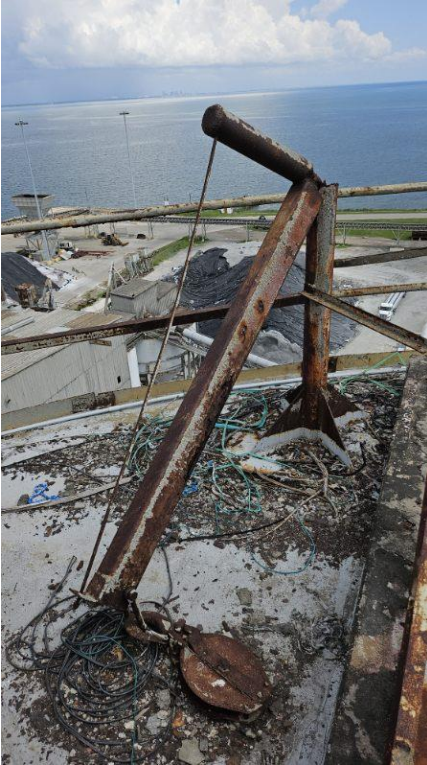


EXT 16 – Pipe base plate is corroded which could lead to falling object hazard



EXT 17 – The guardrail and its members suffer from heavy oxidation and corrosion

2.1. Photo Documentation: Concrete Loadout Silo – Rooftop (cont.)



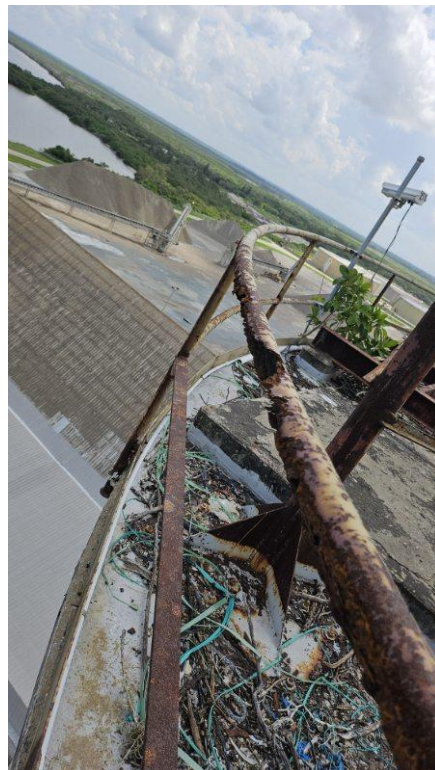
EXT 18 – Mounting fixture heavily corroded; debris present



EXT 19 – Vent system is corroded



EXT 20 – Hopper suffers heavy oxidation and onset corrosion



EXT 21 – Guardrail is heavily oxidized and corroded

3. SECTION III – Metal Loadout Silo

This section presents a thorough overview of the findings, observations, and identified issues discovered while inspecting the Metal Loadout Silo. A general evaluation of the structure, notable anomalies, and the appropriate **recommendations** to address said anomalies.

3.1. Observations

1. **Evaluation:** The overall integrity of the Metal Loadout Silo structure appears to be in **Fair** condition. Almost all steel components on the roof and the Hopper platform were found to be in **Poor** condition.
2. **Rooftop:** The rooftop is covered in debris and plant growth. To complete a thorough inspection, the roof would need to be cleared and cleaned.
3. **Rooftop:** Buckling was discovered throughout the rooftop
4. **Rooftop:** The dust collector and dust collector piping components were corroded
5. **Rooftop:** All penetrations and doors/hatches were compromised with heavy oxidation and corrosion
6. **Rooftop:** The ladder connection have rust and corrosion damage and need t
7. **Rooftop:** All the 8" and 10" fill pipes appear to be intact.
8. **Rooftop:** All attachment points to the roof of the silo are corroded through. In some instances, the base components are corroded which could cause members to fail and fall over.
9. **Hopper Level:** Numerous guardrails and guardrail members coating has failed and suffer from onset corrosion, including the guardrail stair access.
10. **Hopper Level:** The electrical boxes were noted to have an onset of heavy oxidation
11. **Hopper Level:** The platform grating was found to have heavy oxidation and buildup present on the grating.
12. **Hopper Level:** There is heavy material in the low cone of the hopper. The cone also have heavy oxidation. Present on its steel components
13. **Hopper Level:** The slide gate, feeder, air slides, load out chutes, and air piping and air pads were found to be in poor condition.

3.2 Recommendations

1. Remove Material from the Low Cone

- i. The material buildup in the low cone should be removed using a jackhammer. The removal of this material will allow for further inspect

2. Replace Electrical Boxes

- i. The highly oxidized electrical boxes should be replaced as well as any electrical components that have succumb to corrosion. The entire electrical system should be tested for functionality.

3. Replace Non-functional and Compromised Components

- i. Various components have been compromised due to corrosion and should be replaced. The slide gate, feeder, air slides, loadout chute, and all air piping and air pads should be replaced.

4. Replace Electrical System and Secure Wiring

- i. The functionality of the current electrical system should be examined. It is recommended that the entire electrical system be replaced due to high levels of oxidation and rust. All exposed wires should be secured to prevent electrical shock hazards.

5. Replace Compromised Bar Grating and Handrails on the Hopper Level Platform

- i. Due to the onset of heavy oxidation and heavy rusting, the bar grating and handrails should be replaced from the grating and handrails on the Hopper Level Platform to the stairs and handrails leading to the platform.

6. Perform UT Reading on The Fill Piping System

- i. The condition of the fill piping system appear to be fair; nonetheless, a UT (Ultrasonic testing) should be performed to ensure that the steel's thickness is suitable depth.

7. Repair Concrete Silo Hopper Cone

- i. The concrete silo hopper cone needs to be repaired to accept new loadout system

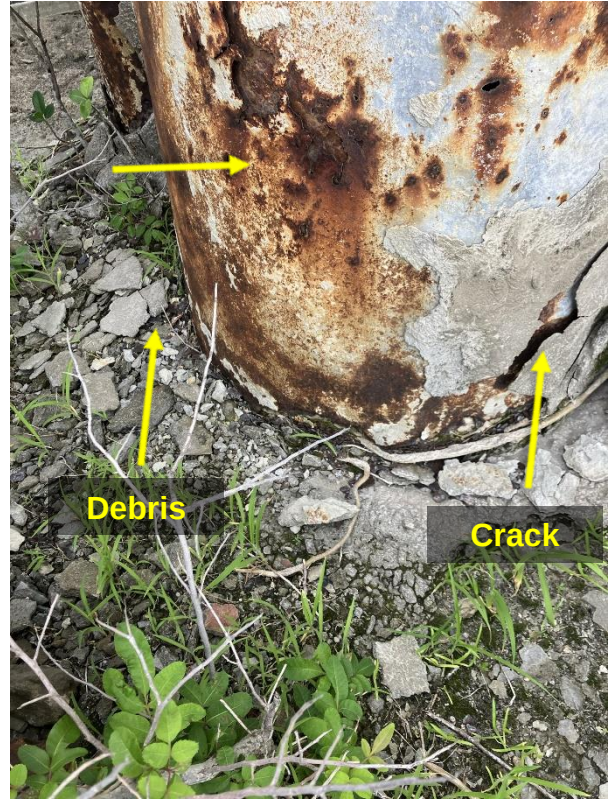
8. Replace Loadout Scale

- i. The loadout scale should be replaced due to evident water damage.

3.3 Photo Documentation: Metal Loadout Silo – Rooftop



EXT 22 – Attachment points is corroding away



EXT 23 – Attachment is corroding away



EXT 24 – Corroding components; ladder component corroding

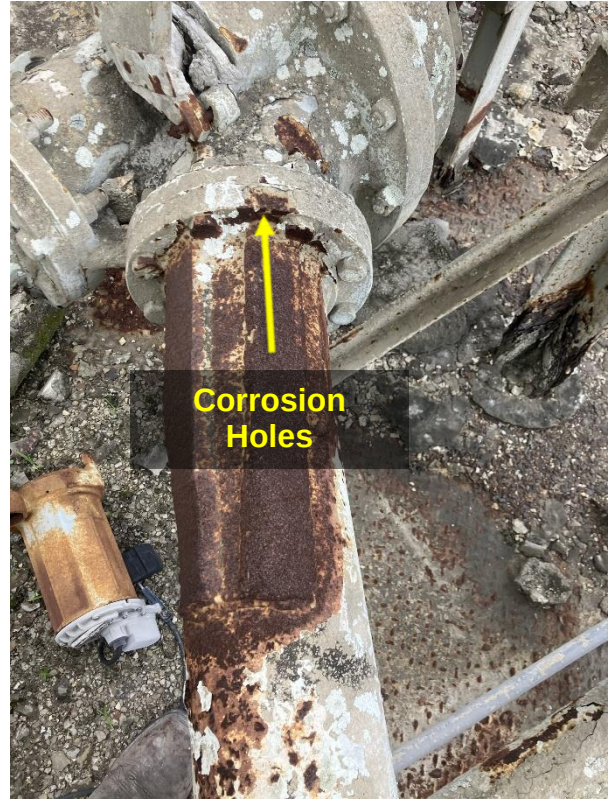


EXT 25 – Post base components have corroded; hazardous

3.3 Photo Documentation: Metal Loadout Silo – Rooftop



EXT 26 – Base of structure members are corroding



EXT 27 – Rusty through



EXT 28 – Conduit components show heavy oxidation and corrosion



EXT 29 – Conduit components show heavy oxidation and corrosion

3.3 Photo Documentation: Metal Loadout Silo – Rooftop (cont.)



EXT 30 – Corrosion hole in present in hopper



EXT 31 – Ladder base has started to corrode

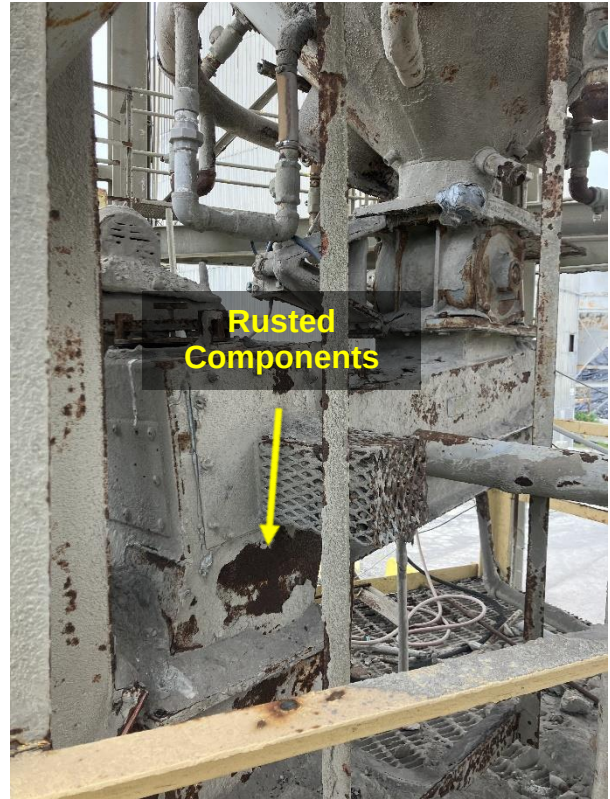


EXT 32 – Heavy corrosion on components

3.4 Photo Documentation: Metal Loadout Silo – Hopper Elevation



EXT 33 – View of the platform



EXT 34 – Rusted components



EXT 35 – Guardrails are heavily corroded

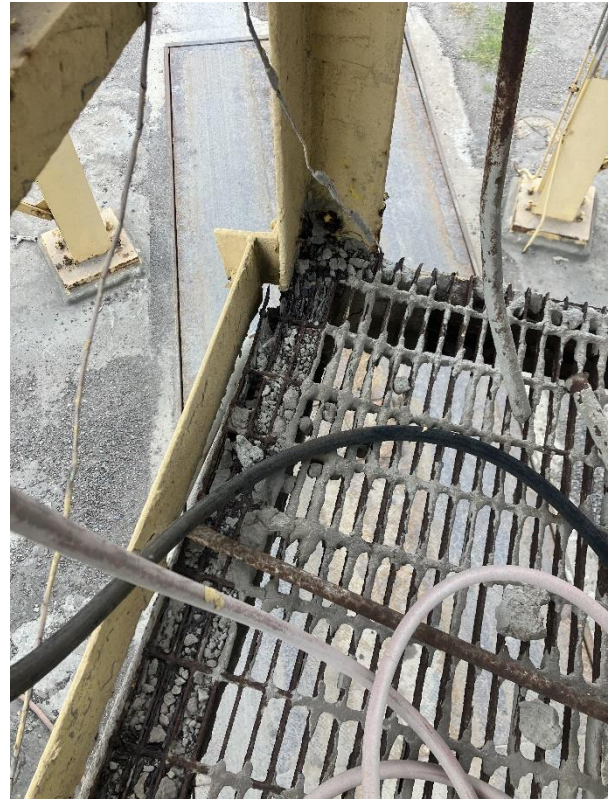


EXT 36 – Hopper components are corroded

3.4 Photo Documentation: Metal Loadout Silo – Hopper Elevation (cont.)



EXT 37 – Base of structure members are corroding



EXT 38 – Grating has heavy buildup and corrosion



EXT 39 – Heavy oxidation on electrical boxes



EXT 40 – Corroded pipes

3.4 Photo Documentation: Metal Loadout Silo – Hopper Elevation (cont.)



EXT 41 – Guardrail and components are corroding



EXT 42 – Post is rusting through



EXT 43 – Heavy oxidation on guardrail



EXT 44 – Stairs and guardrail exhibit heavy oxidation

3.4 Photo Documentation: Metal Loadout Silo – Hopper Elevation (cont.)



EXT 45 – Heavy buildup and oxidation on grating



EXT 46– Heavy buildup and oxidation on grating