2027 Balcerzak Water Tower Rehabilitation

Project Feasibility Report

City Project Number 11238

September 4, 2026

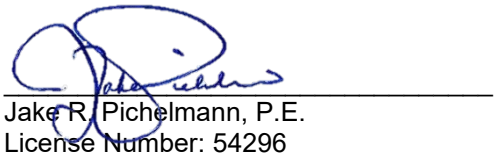
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I. CERTIFICATION PAGE

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of Minnesota.



Jake R. Pichelmann, P.E.
License Number: 54296
Water/Wastewater Practice Leader | Principal

Date: September 4, 2026

II. PROJECT CONTACTS

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III. EXECUTIVE SUMMARY

The 2027 Balcerzak Water Tower Rehabilitation Project proposes rehabilitation of the City's 1.5-million-gallon elevated water storage tank located at 266 Balcerzak Drive. This report presents background information on the existing water tower, condition assessment, design considerations, and cost estimates for use in determining the project feasibility. The location of the project is shown in **Appendix A**.

The Balcerzak Water Tower was constructed in 1970 and remains a critical component of the City's water distribution system. In 2017, the City completed a condition assessment that identified deterioration of the interior wet, interior dry, and exterior coating systems, along with various structural, safety, and maintenance deficiencies. The existing coating systems, including those installed during previous rehabilitation projects completed in 1985, 1990, and 2000, have now reached the end of their useful service lives and require replacement to preserve the long-term integrity of the structure. Various structural modifications and repairs were also recommended to maintain the facility and improve compliance with current industry standards.

Based on the findings of the condition assessment, the City proceeded with final design of the proposed improvements in preparation for contractor bidding. The proposed improvements include complete replacement of the interior wet, interior dry, and exterior coating systems, structural repairs and modifications, access and safety improvements, ventilation upgrades, and miscellaneous appurtenance replacements.

The estimated project cost is approximately **$1,950,000** for prolonging the service life of this critical water system infrastructure. The proposed improvements are necessary, cost effective, and feasible. It is recommended that the City Council authorize public bid advertisement for solicitation of competitive contractor bids for construction of the project.

IV. PROJECT INTRODUCTION

The City of Mankato maintains multiple water storage facilities that provide reliable water service to residents, businesses, and institutions throughout the community. The Balcerzak Water Tower is a critical component of the City's water distribution system, providing approximately 1.5 million gallons of elevated water storage capacity.

Constructed in 1970, the Balcerzak Water Tower is a welded steel fluted-column elevated water tank located at 266 Balcerzak Drive adjacent to Minnesota State University and surrounding residential neighborhoods. The facility has operated continuously for more than five decades and provides pressure stabilization, fire protection, and reliable water storage for the community.

Since its construction in 1970, the City has completed several significant rehabilitation projects to maintain the integrity of the water tower and extend its service life. In 1985, the interior of the tank underwent rehabilitation, including removal of lead-containing coating systems and installation of a new interior coating system. In 1990, the exterior surfaces were abrasive blasted, lead-containing coatings were removed, and a new exterior coating system was installed. Additional rehabilitation work was completed in 2000, including overcoating of the exterior coating system and complete abrasive blasting and recoating of the interior wet surfaces. These improvements have successfully prolonged the service life of the facility and demonstrate the City's ongoing commitment to maintaining this critical water infrastructure asset.
The existing coating systems installed during these previous rehabilitation projects have now reached the end of their useful service lives. Despite the effectiveness of the prior improvements, coating deterioration, corrosion, and aging infrastructure components have progressed to a point where

comprehensive rehabilitation of the tower is necessary to preserve structural integrity, maintain regulatory compliance, and extend the service life of the facility for an additional 20 years.

The City completed a comprehensive inspection and condition assessment of the tower in 2017 and re-evaluated in 2025 to confirm conditions and needs. The evaluation included structural observations, coating assessments, safety reviews, and operational considerations. The inspection identified aging coating systems, isolated corrosion, structural modifications required to conform with current standards, and miscellaneous equipment requiring replacement or improvement. The assessment concluded that the existing tank remains structurally viable for continued service provided the recommended repairs and coating replacements are completed. The proposed project is expected to prolong the service life of the existing tank for an additional 20 years.

The proposed 2027 Balcerzak Water Tower Rehabilitation Project will address the deficiencies identified during the condition assessment and extend the useful life of the structure. Improvements are intended to preserve the City's investment in critical infrastructure while minimizing future maintenance costs and maintaining dependable water service. This feasibility report evaluates the proposed improvements, summarizes anticipated project costs, and provides recommendations regarding project implementation.

V. EXISTING CONDITIONS

A. PROJECT AREA

The Balcerzak Water Tower is located at 266 Balcerzak Drive within Jaycee Park in southeastern Mankato. The existing water tower provides elevated storage capacity for the surrounding community and is a critical component of the water system. The location of the project is shown in **Appendix A**.

B. EXISTING TANK

The existing tower is a welded steel fluted-column elevated water tank constructed in 1970 in accordance with AWWA D100-67 standards. The structure has a storage capacity of approximately 1.5 million gallons, an overall height of approximately 158 feet, and a bowl diameter of approximately 97 feet.

The most recent condition assessment in 2017 and 2025 determined that the protective coating systems have reached the end of their serviceable lives. The interior wet coating system exhibits widespread corrosion and coating failure above and below the high-water level. The interior dry coating system is in poor condition, particularly in areas susceptible to condensation. The exterior coating system exhibits coating breakdown, adhesion failures, and isolated corrosion throughout the structure. Laboratory analysis identified lead-containing coatings on portions of the exterior and interior dry surfaces. Rehabilitation activities will therefore require containment, specialized worker protection, and disposal procedures in accordance with federal and state regulations.

In addition to coating deterioration, the inspection identified several structural and operational deficiencies requiring correction, including:

- Seal welding of roof framing connections and stiffener members.
- Wet and dry area access improvements.
- Ventilation and safety enhancements.
- Replacement of aging ladders, fall protection equipment, and miscellaneous appurtenances.
- Repair of foundation cracking and rehabilitation of column base conditions.

- Modifications necessary to improve compliance with current OSHA, AWWA, and Minnesota Department of Health requirements.

While the structure remains suitable for continued service, rehabilitation is required to prevent further deterioration and preserve long-term functionality.

VI. PROPOSED IMPROVEMENTS

A. BALCERZAK WATER TOWER

The proposed project includes rehabilitation of the Balcerzak Water Tower and associated improvements necessary to extend the service life of the tower an additional 20 years. Major project components include:

Structural Repairs and Modifications
Structural improvements will address deficiencies identified during the condition assessment and improve long-term maintainability of the tower. Anticipated repairs include:

- Seal welding of roof framing connections and stiffener members.
- Installation of inspection platform modifications and drainage improvements.
- Replacement of deteriorated grating and miscellaneous steel components.
- Foundation crack repairs and column base rehabilitation.
- Replacement of select appurtenances and manway components.

Interior Wet Coating Rehabilitation
The existing interior wet coating system has reached the end of its useful life and will be completely removed and replaced. Work will include:

- Abrasive blasting of all interior wet surfaces.
- Surface preparation in accordance with AWWA standards and coating manufacturer requirements.
- Application of a modern NSF-approved coating system designed for potable water storage facilities.

Interior Dry Coating Rehabilitation
The interior dry surfaces will be abrasive blasted and recoated to protect structural components from condensation-related corrosion and deterioration. Laboratory samples indicate the presence of lead in the interior dry coating system, which require abatement to properly remove and replace.

Exterior Coating Rehabilitation
The exterior tower surfaces will be fully contained, abrasive blasted, and recoated utilizing a high-performance coating system intended to maximize long-term durability, corrosion resistance, and appearance. Laboratory samples indicate the presence of lead at the exterior roof, which require abatement to properly remove.

Safety and Access Improvements
The project will incorporate upgrades to improve worker safety and facility accessibility, including:

- Replacement or modification of ladder systems.
- Installation of updated fall protection equipment.
- Ventilation improvements.
- Additional access and maintenance features.

Telecommunications Coordination
The tower currently supports telecommunications equipment. Coordination with telecommunications providers will be required before construction to protect, relocate, or temporarily remove equipment as necessary to facilitate rehabilitation activities. Temporary service interruptions and coordination activities may be required to accommodate construction. The City will coordinate with telecommunications providers to minimize disruption and maintain contractual obligations.

VII. RIGHT-OF-WAY AND EASEMENT

All improvements will be contained within existing City property, right-of-way, and easements within Jaycee Park located along Balcerzak Drive.

VIII. PERMITS

Approvals and permits are required from various agencies for construction of the project. Anticipated permits and approvals include:

- Minnesota Department of Health (MDH) review and approval.
- Telecommunications coordination agreements and approvals.
- Contractor environmental compliance and containment permits associated with abrasive blasting and coating removal activities, including lead removal and disposal.
- Additional permits as required.

IX. PROJECT COST ESTIMATE AND FINANCING

Estimated projections for the cost of this project are summarized below.

ITEM	COST
Mobilization, Bonds, Insurance	$60,000
Interior Wet Coatings	$360,000
Interior Dry Coatings	$120,000
Exterior Coatings	$850,000
Repairs & Modifications	$300,000
TOTAL CONSTRUCTION COSTS	**$1,690,000**
Construction Contingency	$170,000
Engineering & Administration	$90,000
TOTAL PROJECT COST	**$1,950,000**

Funding for the proposed improvements is shown in the table below.

FUNDING SOURCE	AMOUNT	PERCENT
Water Capital Fund	$1,950,000	100%
TOTAL FUNDS	$1,950,000	100%

X. POSSIBLE SCHEDULE

The following is a possible schedule for the proposed improvements:

September 14, 2026	Accept feasibility report; authorize public bid advertisement for solicitation of competitive contractor bids.
Sept. – October 2026	Bid advertisement(s) and solicitation period
October 15, 2026	Public bid opening.
October 26, 2026	City Council review and award of bids.
November 2026	Contract execution.
Nov. 2026 – March 2027	Shop drawings and material procurement.
March 2027	Begin onsite construction.
August 2027	Complete onsite construction.

XI. CONCLUSION AND RECOMMENDATIONS

The proposed 2027 Balcerzak Water Tower Rehabilitation Project represents a technically feasible and cost-effective investment in the City of Mankato's water utility infrastructure.

Based on the findings of the condition assessment, the structure remains suitable for continued service provided the recommended repairs and rehabilitation activities are completed. The most significant deficiencies identified involve the deterioration of interior and exterior coating systems, which have reached the end of their useful lives. Replacement of the protective coating systems is necessary to prevent accelerated corrosion and preserve the long-term structural integrity of the existing water tower. The proposed improvements are expected to extend the service life of the tower by approximately 20 years while addressing safety deficiencies, improving compliance with current OSHA and industry standards, and removing lead-containing coating systems in accordance with applicable regulations.

The proposed improvements will restore protective coating systems, complete critical structural repairs, improve operational safety, and extend the service life of the tower for decades. The project is consistent with the City's long-term asset management objectives and supports continued delivery of safe and reliable drinking water service.

XII. APPENDIX

- Appendix A – Location Map and Photo Report

APPENDIX A

Location Map and Photo Report

City Project Number 11238



Location Map
Balcerzak Water Tower
Mankato, Minnesota



Photograph #: 1
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower from the west



Photograph #: 2
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower from the west



Photograph #: 3
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower from the west



Photograph #: 4
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower from the east



Photograph #: 5
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank bottom



Photograph #: 6
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank pedestal



Photograph #: 7
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the upper pedestal t the “painters hatch”



Photograph #: 8
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower door



Photograph #: 9
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower foundation



Photograph #: 10
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower foundation and electrical panel box



Photograph #: 11
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower column leg foundation



Photograph #: 12
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower column leg foundation



Photograph #: 13
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower column leg foundation



Photograph #: 14
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tower column leg foundation



Photograph #: 15
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tower overflow pipe



Photograph #: 16
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tower site from east



Photograph #: 17
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of T-Mobile equipment shelter



Photograph #: 18
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of AT&T equipment shelter



Photograph #: 19
Date: January 2, 2026 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of Generator and LP gas tank supply for generator



Photograph #: 20
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of wet riser column in the interior dry



Photograph #: 21
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of “spiral” stairway in the interior dry



Photograph #: 22
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the interior dry



Photograph #: 23
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the interior dry



Photograph #: 24
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the water control panels in the control room shelter



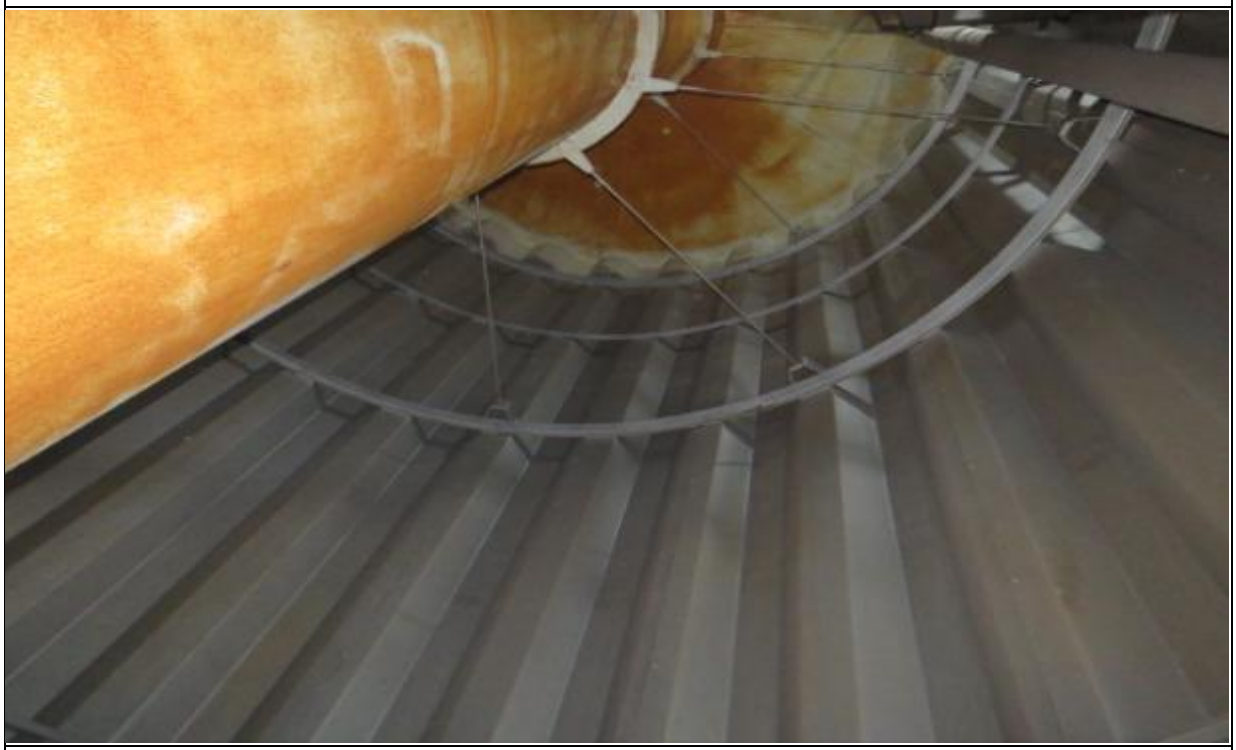
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Subject: View of the water control panels in the control room shelter



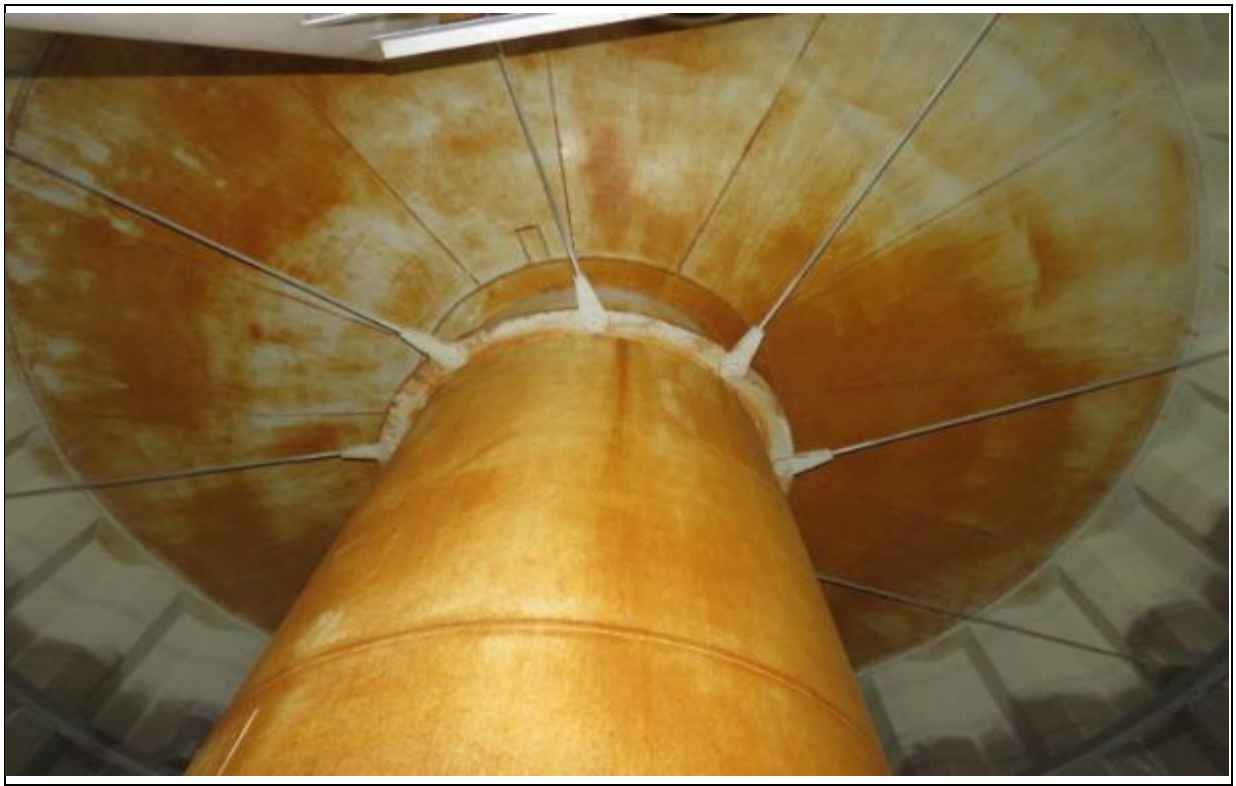
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Subject: View of the water control panels in the control room shelter



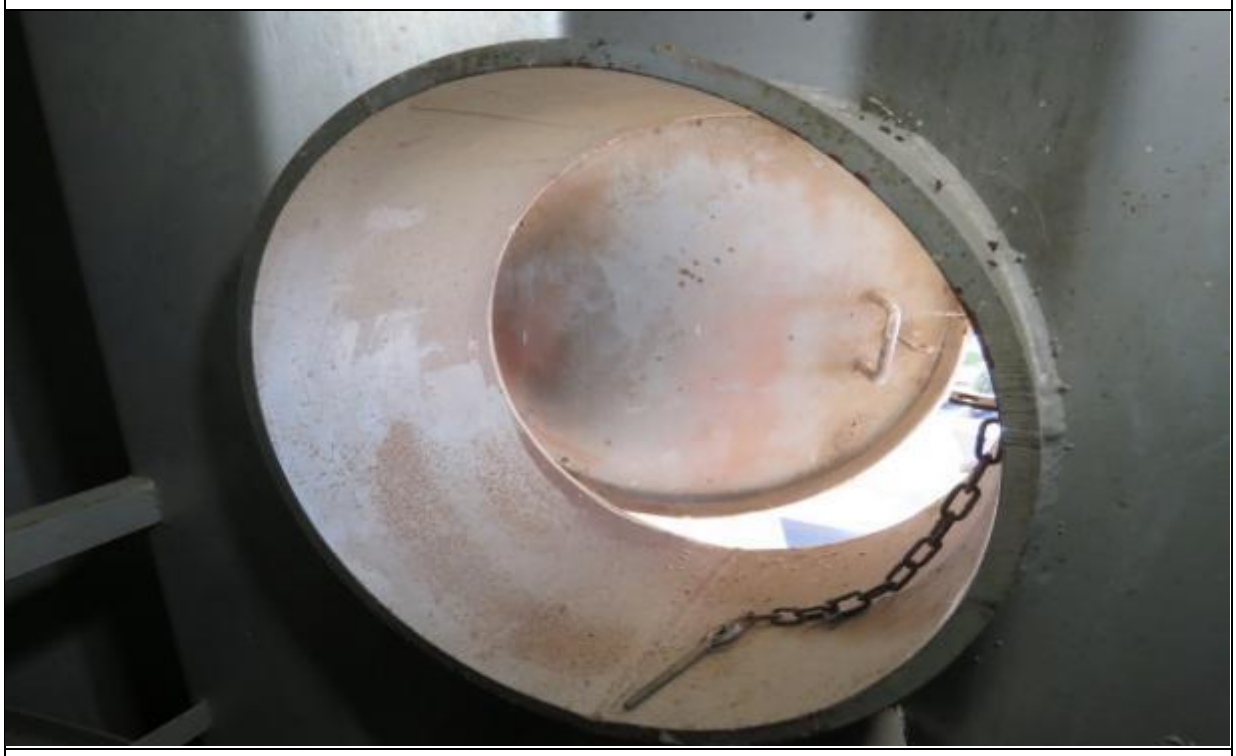
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Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the water control panels in the control room shelter



Photograph #: 28
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the interior dry



Photograph #: 29
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank bottom from the interior dry



Photograph #: 30
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of “painters hatch” from the interior dry



Photograph #: 31
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of wet riser and tank bottom from the interior dry



Photograph #: 32
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of upper landing near tank bottom



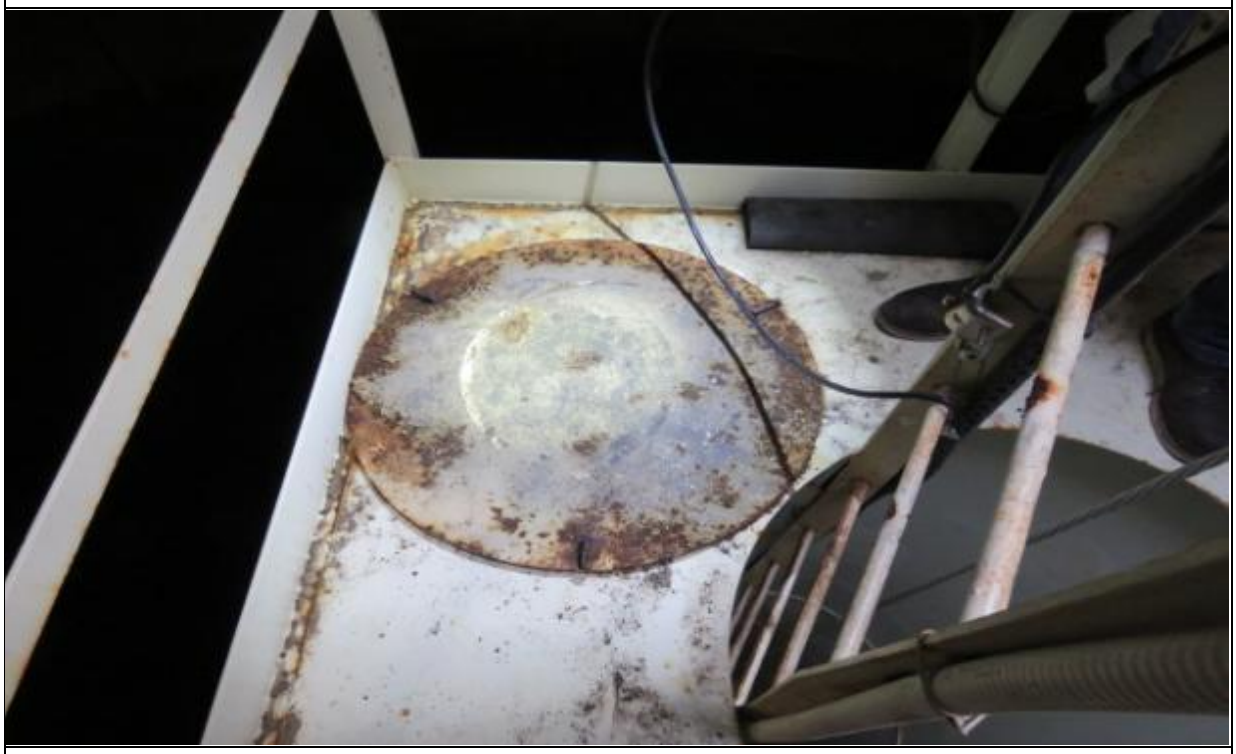
Photograph #: 33
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of dry riser pipe at tank bottom



Photograph #: 34
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of pressure access manway to interior wet from dry riser pipe



Photograph #: 35
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of upper dry riser pipe to the interior wet



Photograph #: 36
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of “crow’s nest” platform in the interior wet



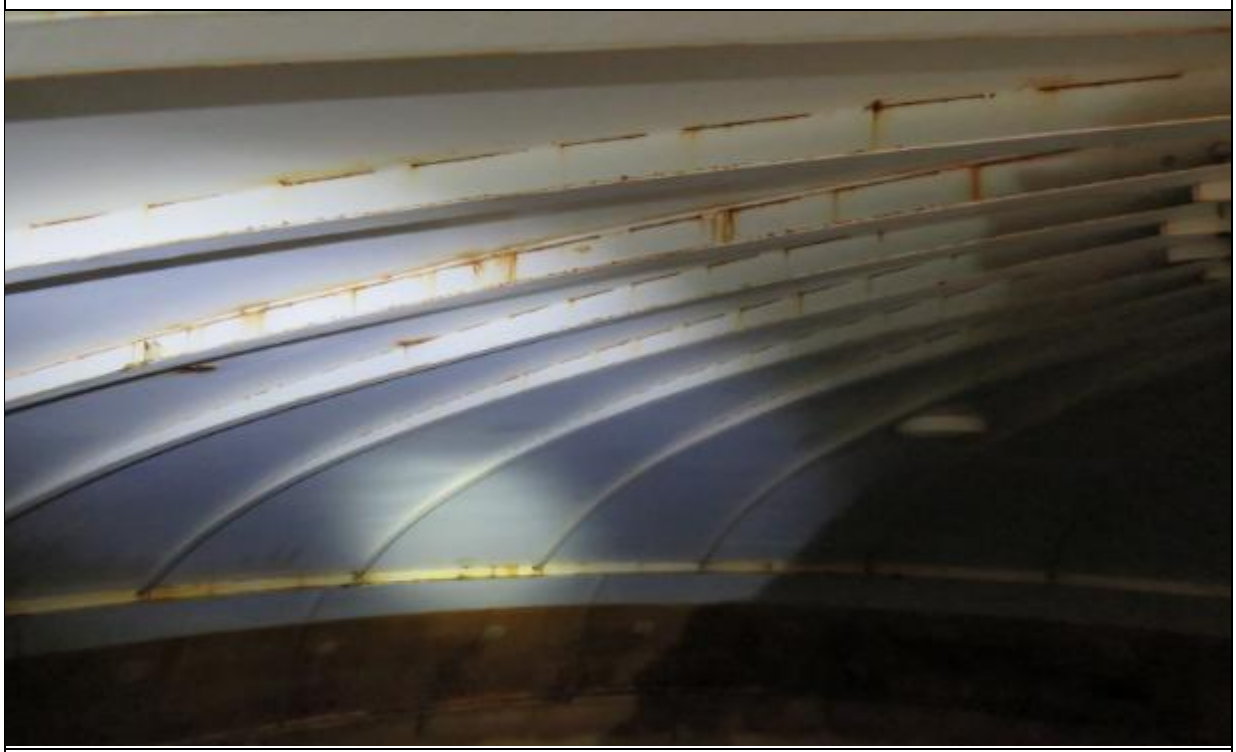
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Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of “crow’s nest” platform in the interior wet



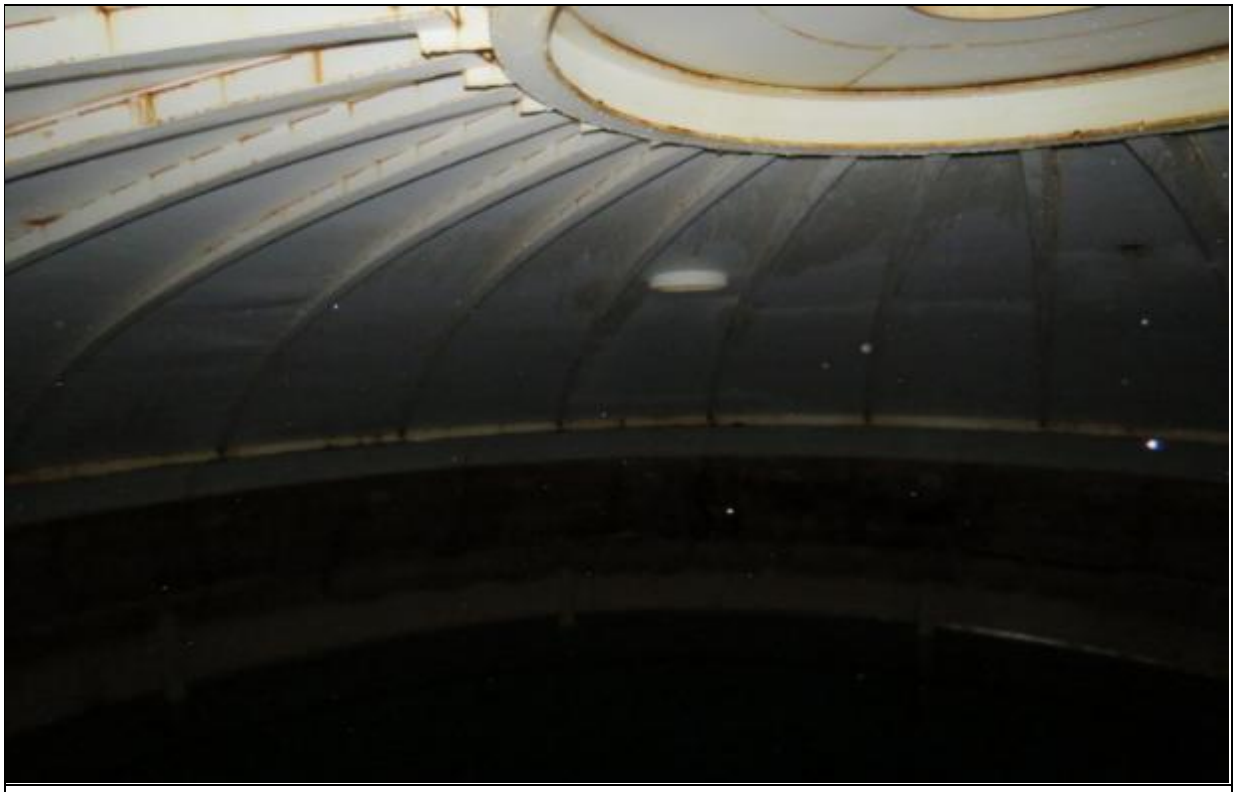
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Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof in the interior wet



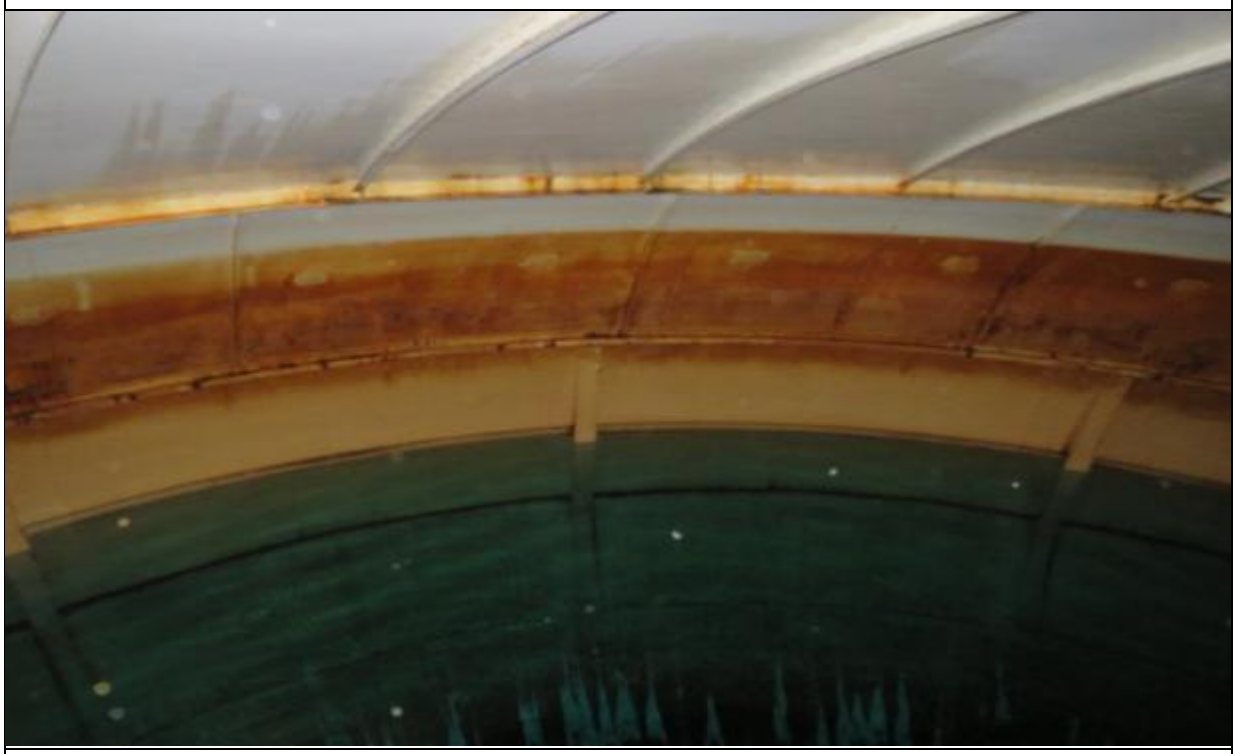
Photograph #: 39
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof in the interior wet



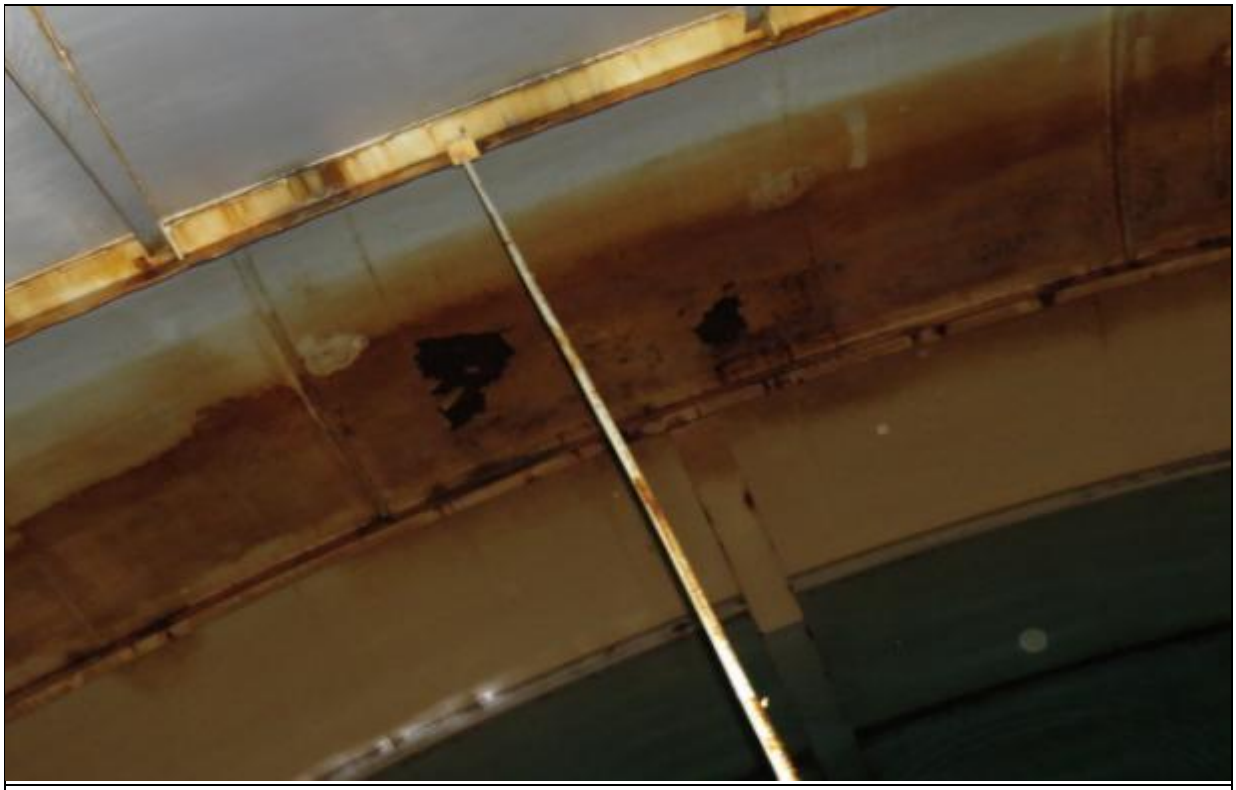
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Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof in the interior wet



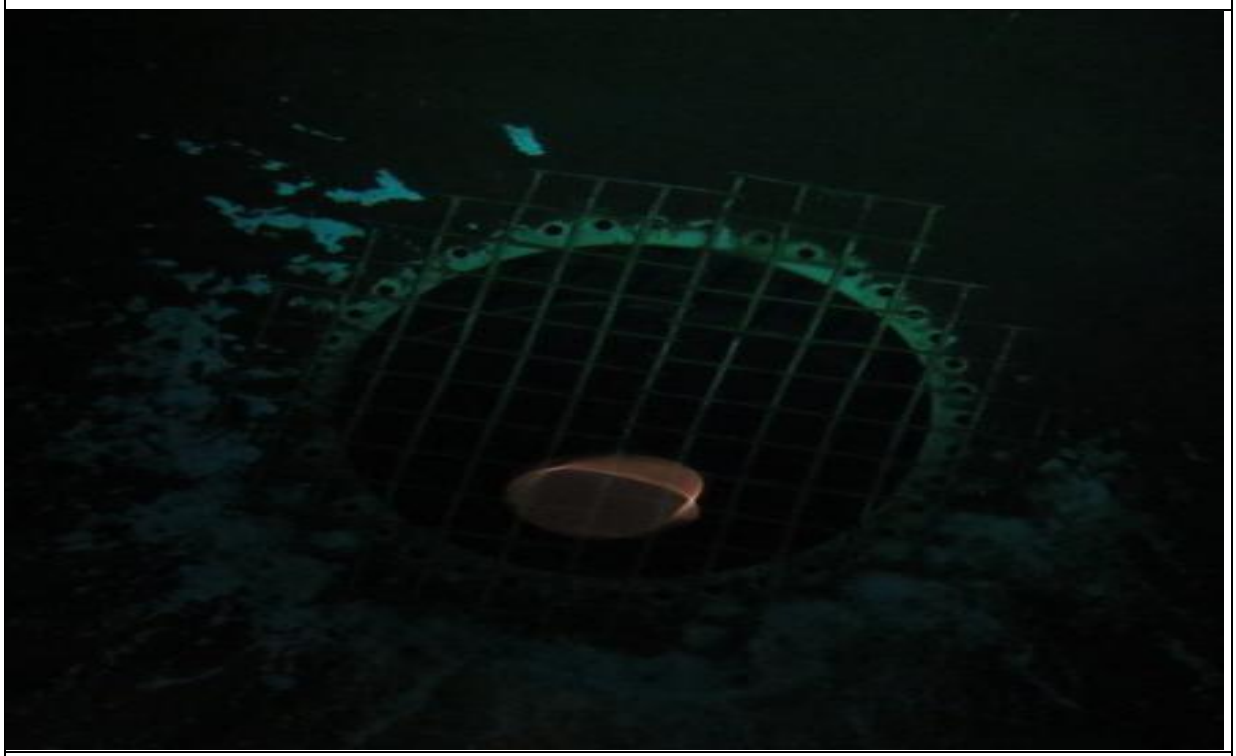
Photograph #: 41
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof in the interior wet



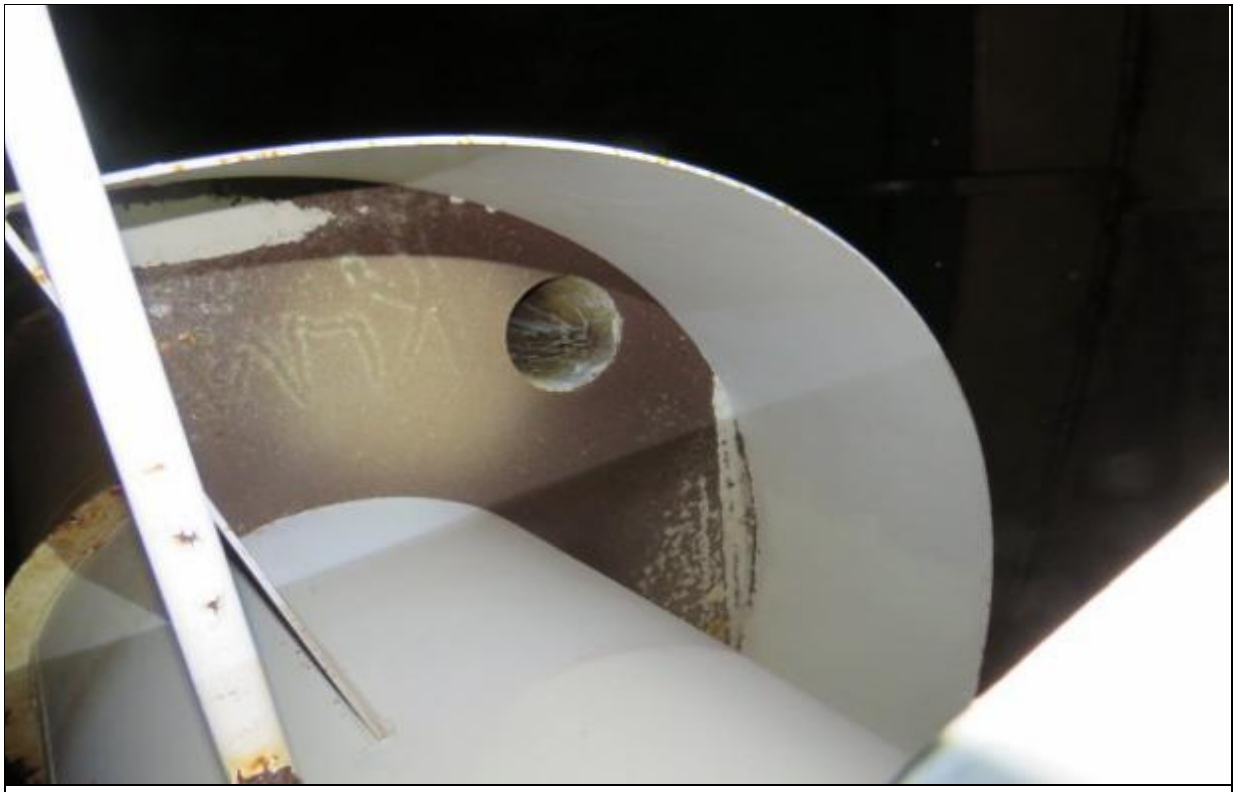
Photograph #: 42
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof and shell wall in the interior wet



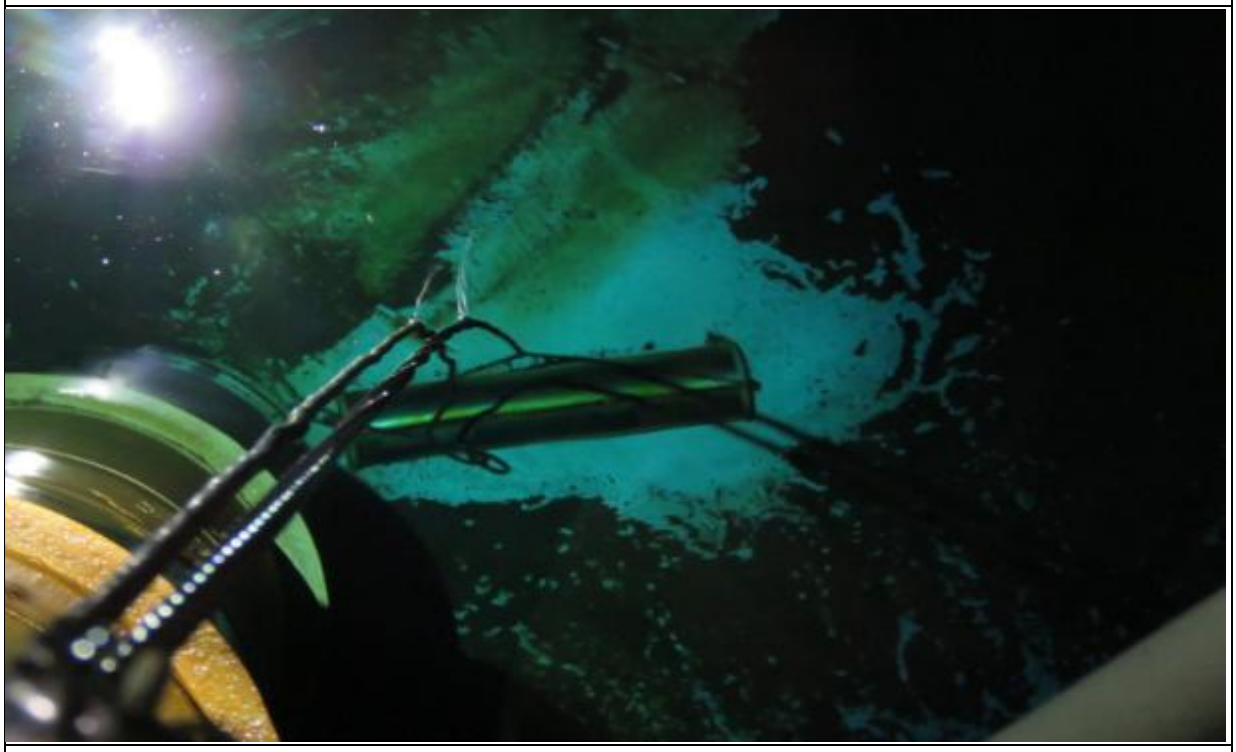
Photograph #: 43
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof and shell wall in the interior wet



Photograph #: 44
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of wet riser and grating in the interior wet



Photograph #: 45
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of overflow weir box in the interior wet



Photograph #: 46
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tower/tank mixer in the interior wet



Photograph #: 47
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof and roof access hatch in the interior wet



Photograph #: 48
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tank ceiling/roof and roof access hatch in the interior wet



Photograph #: 49
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View into the interior wet from the exterior tank roof



Photograph #: 50
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View into the interior wet from the exterior tank roof



Photograph #: 51
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View into the electrical and conduit in the interior wet from the exterior tank roof



Photograph #: 52
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the tank vent and aviation obstruction light from the tower roof



Photograph #: 53
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the access hatch from the tower roof



Photograph #: 54
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the aviation obstruction light from the tower roof



Photograph #: 55
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the hinged access to the interior wet from the tower roof



Photograph #: 56
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of the bolted flange access to the interior wet from the tower roof



Photograph #: 57
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of tower roof



Photograph #: 58
Date: November 14, 2025 ~ 1.5MG Balcerzak Water Tower ~ Mankato, MN
Subject: View of access hatch and telecom antenna on tower roof