



NORTH
TEXAS
MUNICIPAL
WATER
DISTRICT

Regional Service Through Unity... Meeting our Region's Needs Today and Tomorrow



Terminal Storage Reservoir

WATER COMMITTEE MEETING

SEPTEMBER 21, 2022 (Via Videoconference)



AGENDA

ACTION ITEMS

- A. Consider approval of Water Committee meeting minutes – July 27, 2022**
- B. Authorize execution of an engineering services agreement (ESA) for the McKinney Delivery Point project - Administrative Memorandum No. 5861**
- C. Authorize Change Order No. 3 for the Wylie Water Treatment Plant (WTP) III Sludge Handling and Reclaimed Water improvements project - Administrative Memorandum No. 5862**
- D. Authorize the amended and restated wholesale water sales agreement between the City of Mesquite and Kaufman County Municipal Utility District (MUD) No. 12 - Administrative Memorandum No. 5863**

DISCUSSION ITEMS

- A. Update on Texoma Pipeline Failure**
- B. Opportunity for Committee members to provide feedback on Water Committee meeting or request potential future agenda items**



AGENDA

Opening Remarks

- A. Chairman/Executive Director/Committee Champion Status Report concerning legislation and regulatory matters, budgets, current projects and ongoing programs of the District including the Regional Water System, Watershed Protection, and Water Conservation



AGENDA

Action Items

- A. Consider approval of Water Committee meeting minutes –
July 27, 2022**

Recommend approval of Water Committee meeting minutes



AGENDA

Action Items

B. Authorize execution of an engineering services agreement (ESA) for the McKinney Delivery Point project - Administrative Memorandum No. 5861

- Consider recommendation on authorizing an ESA for additional engineering services with HDR, Inc. in the amount of \$2,182,540 to advance the pipeline design from 60% to 100% level, including bid phase and construction phase services for Project No. 101-0505-18, McKinney Delivery Point No. 3 to McKinney Delivery Point No. 4 Pipeline

What: Authorize additional engineering services for advancement of the water pipeline improvements project from 60% design level through construction.



MCKINNEY DP 3 TO DP 4 PIPELINE ADDITIONAL SERVICES

BACKGROUND

- **This pipeline provides increased capacity in parts of the North Transmission System by distributing potable water coming from the Leonard Water Treatment Plant**
- **Close coordination for the routing of this pipeline have been going on with key partners and stakeholders since 2018**
 - **Developing an Interlocal Cooperation Agreement with City of McKinney and Collin County Public Works**
- **Design services are currently authorized through the 60 percent design milestone**
- **This additional authorization will extend through design finalization, bid phase, and construction services support**



MCKINNEY DP 3 TO DP 4 PIPELINE ADDITIONAL SERVICES

BACKGROUND

- **Current level of Engineer's OPCC is \$80,000,000**
- **Recommended additional services is \$2,182,540**
- **This would bring total engineering fee authorization to \$4,149,870**



RECOMMENDATION

The Executive Director and NTMWD staff recommend the Board of Directors authorize additional services as follows:

Consultant: HDR, Inc.

Scope: Additional Services, Final Engineering Design, Adjustment No. 3

Project: No. 101-0505-18, McKinney Delivery Point No. 3 to McKinney Delivery Point No. 4 Pipeline

Amount: \$2,182,540

Strategic Objective: 1.4 Reliable and Resilient System Capacity



AGENDA

Action Items

C. Authorize Change Order No. 3 for the Wylie Water Treatment Plant (WTP) III Sludge Handling and Reclaimed Water improvements project - Administrative Memorandum No. 5862

- Consider recommendation on authorizing Change Order No. 3 with Archer Western Construction, LLC reducing the scope for all basin work at the Wylie WTP III resulting in a construction credit in the amount of (\$2,677,075) for Project No.101-0541-19, Wylie Water Treatment Plant III Sludge Handling and Reclaimed Water Improvements

What: Authorize a credit to the construction contract for reducing all basin work scope at Wylie Water Treatment Plant (WTP) III.



WTP III SLUDGE HANDLING AND RECLAIM – CO NO. 3

BACKGROUND

- **Original project scope included specialty coatings on both submerged equipment and steel structure suspended above the waterline level**
- **These two types of applications require different specialty coating systems with differing surface preparation requirements**
- **A discrepancy in the technical specification created a conflict of surface preparation interpretation not accounted for by the subcontractor**
- **The impact of this discrepancy is estimated to add about \$2,000,000 to the Prime Contractor's cost of work**



WTP III SLUDGE HANDLING AND RECLAIM – CO NO. 3

BACKGROUND

- **Disputed work involves stripping and recoating of 96 troughs and 12 sludge collection mechanisms across 8 sedimentation basins**
- **Work also includes replacement of certain trough support brackets and weir plates, which is work ancillary to the re-coating**
- **Mediation was held between the subcontractor, Prime Contractor, consultant, and NTMWD personnel**
- **Removal of work inside the basins was decided to be the most cost-effective solution for resolving a claim with a high likelihood of a potential lawsuit.**



WTP III SLUDGE HANDLING AND RECLAIM – CO NO. 3

NEXT STEPS

- **Reschedule the coating and support/weir replacements to a later project.**
- **Recover a project credit in the amount of \$2,677,075 corresponding to the coating materials and labor not to be expended**
- **Materials for supports and weirs are already on site, and would be turned over to NTMWD for later installation**



RECOMMENDATION

The Executive Director and NTMWD staff, Arcadis U.S., Inc. and Saunders, Walsh & Beard recommend the Board of Directors authorize a construction change order as follows:

Contractor: Archer Western Construction, LLC

Scope: Construction, Change Order No. 3

**Project: No. 101-0541-19, Wylie Water Treatment Plant III
Sludge Handling and Reclaimed Water Improvements**

Amount: (\$2,677,075)

Strategic Objective: 1.4 Reliable and Resilient System



AGENDA

Action Items

D. Authorize the amended and restated wholesale water sales agreement between the City of Mesquite and Kaufman County Municipal Utility District (KMUD) No. 12 - Administrative Memorandum No. 5863

- Consider recommendation on approving the amended and restated wholesale water sales agreement between the City of Mesquite and Kaufman County MUD No. 12 for a contract term of 30 years

What: The Board of Directors is requested to approve the Amended and Restated wholesale water sales contract between the City of Mesquite and the Kaufman County Municipal Utility District No. 12, which is located outside the City Limits and the Extraterritorial Jurisdictional.



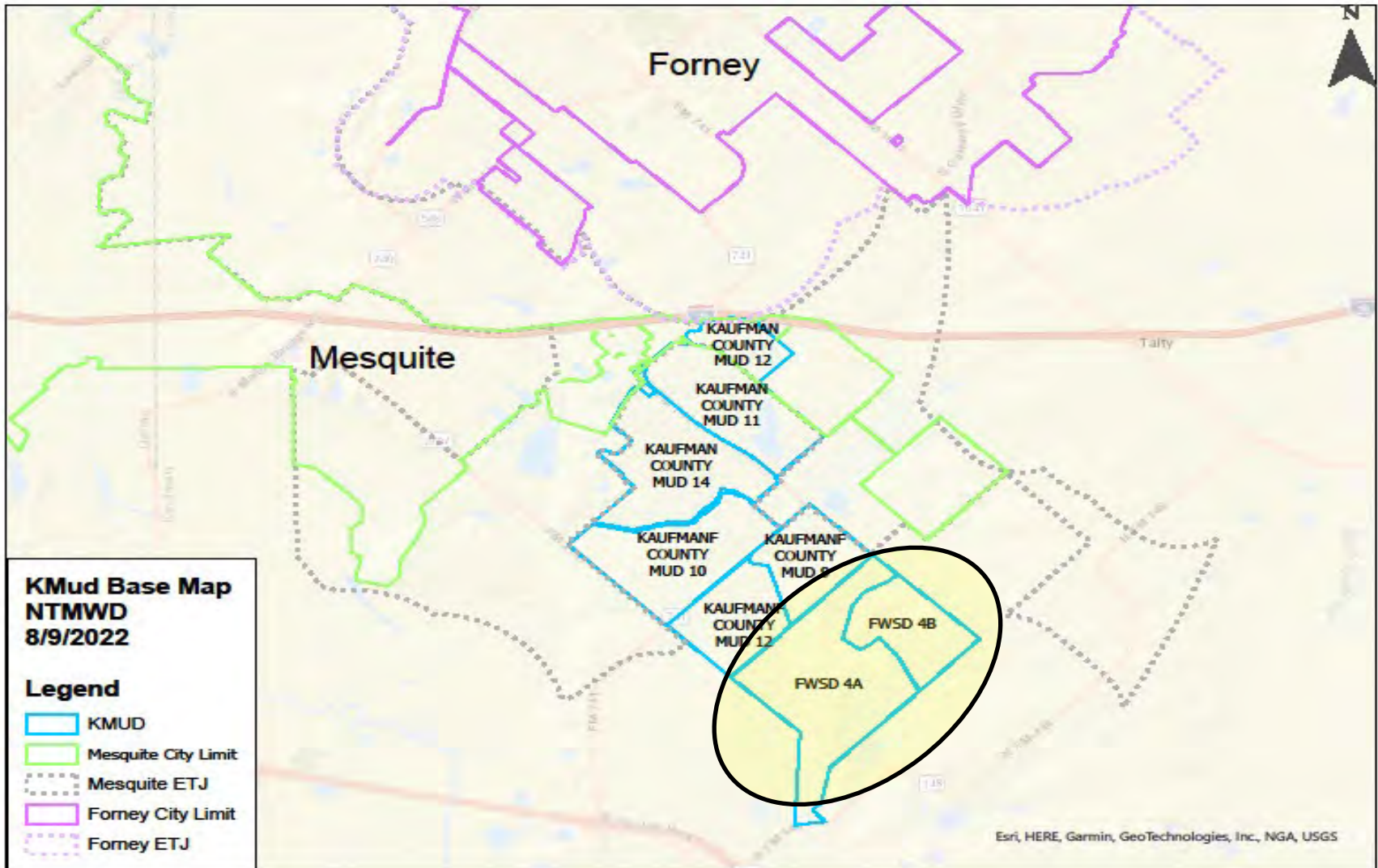
WHOLESALE AGREEMENT BETWEEN MESQUITE AND KMUD NO. 12

BACKGROUND:

- **January, 2006 the NTMWD Board approved a wholesale water sales contract between the City of Mesquite and the Kingsborough Municipal Utility District Nos. 1, 2, 3, 4, and 5**
- **February 3, 2006, the Texas Commission on Environmental Quality (TCEQ) approved multiple orders changing names from Kingsborough Municipal Utility District Nos. 1, 2, 3, 4, and 5 to Kaufman County Municipal Utility District Nos. 8, 9, 10, 11, and 12**
- **Kaufmann County Municipal Utility District (KMUD) No. 12 is the retail provider to KMUD Nos. 9, 10, 11, 12 and 14, Kaufman County Fresh Water Supply District Nos. 4A and 4B, and the Trail Winds Development**
- **Water sales to Kaufman County Fresh Water Supply District Nos. 4A and 4B was not part of the water sales agreement NTMWD approved in 2006**



WHOLESALE AGREEMENT BETWEEN MESQUITE AND KMUD NO. 12





WHOLESALE AGREEMENT BETWEEN MESQUITE AND KMUD NO. 12

Project Purpose:

- **City of Mesquite is requesting authorization to sell potable water to the portions of KMUD No. 12, specifically, Kaufman County Fresh Water Supply District Nos. 4A and 4B not previously authorized and which is an area outside Mesquite's city limits.**
- **Parties agree that it is in the best interest of Mesquite and KMUD No. 12 to amend and restate in its entirety the August 27, 2004 Agreement**
- **The City has available potable water quantities and will provide up to 5,000,000 gallons per day**
- **The City will provide water to KMUD No. 12 through its own water supply system**
- **KMUD No. 12 must adopt conservation measures consistent with Mesquite**
- **KMUD No. 12 shall not use water for filling purposes or maintaining surface water impoundments without express written consent from the City**



RECOMMENDATION

The Executive Director and NTMWD staff recommend the Board of Directors approve the amended and restated wholesale water sales agreement between the City of Mesquite and Kaufman County Municipal Utility District No. 12.

Contracting Party: City of Mesquite and Kaufman County MUD No. 12

Purpose: Wholesale Water Sales Contract

Contract Term: 30 years

Strategic Objective: 3.2 Engaged Members, Customers and Stakeholders



AGENDA

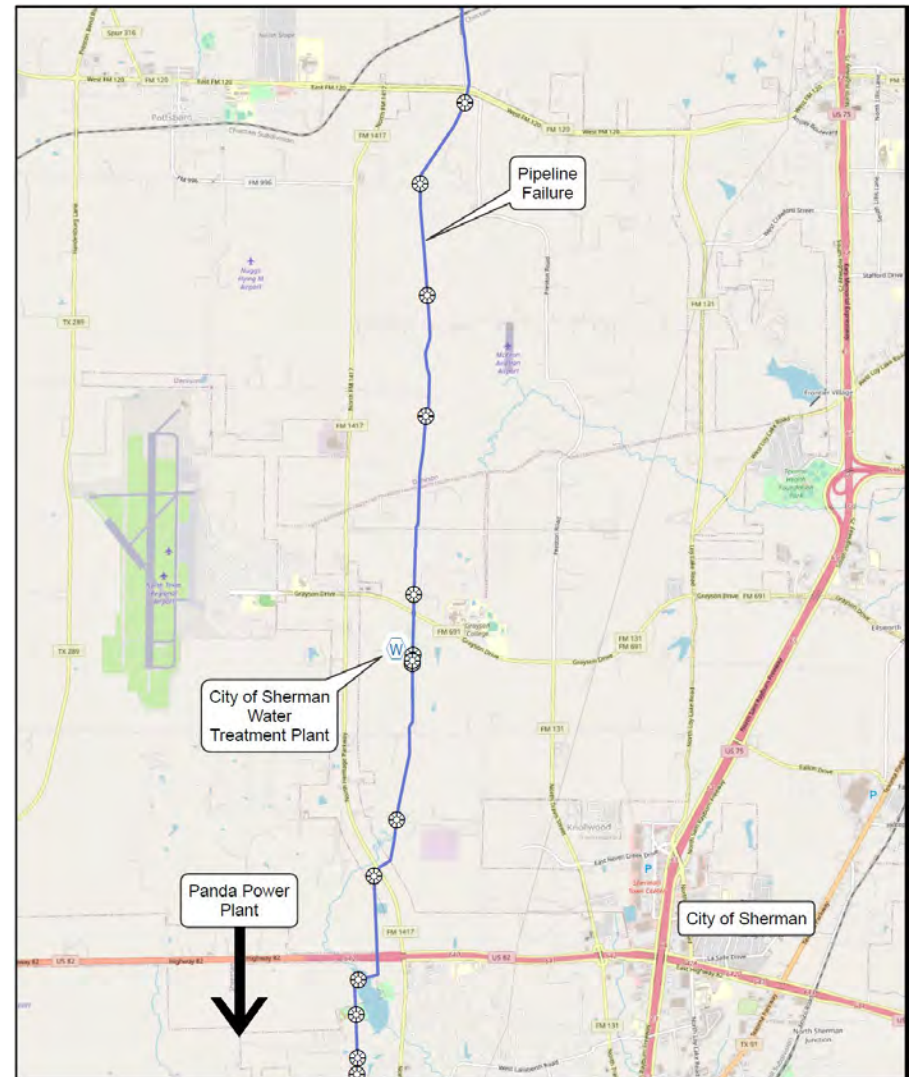
Discussion Items

A. Update on Texoma Pipeline Failure



AUGUST 31, 2021 72-INCH TEXOMA PIPELINE FAILURE

- 72” Pre-stressed Concrete Cylinder Pipe (PCCP) installed 1988
- Jointly owned between NTMWD and Greater Texoma Utility Authority (GTUA): 80-20%
- Pipeline serves:
 - NTMWD
 - City of Sherman
 - Panda Power Plant





72-INCH TEXOMA PIPELINE FAILURE

August 31, 2021

- Mid-morning: Operational transition from NTMWD to Sherman pump
- Early afternoon:
 - Sherman reported raw water not reaching their water treatment plant (WTP)
 - NTMWD dispatched personnel
 - Failure located ~2.5 miles north of the Sherman WTP (Pipe Piece #2173)
 - Procurement of materials and mobilization of equipment began immediately
- Evening: Emergency declaration issued





72-INCH TEXOMA PIPELINE REPAIR

- NTMWD Maintenance Services mobilized to site. Began excavation and site safety.
- Sherman issued emergency conservation message to their service area due to limited shutdown tolerance
- Failed section (125 psi working pressure) removed
 - Immediately prior to failure section saw 155 psi
- Replacement segment (100 psi working pressure) install complete on afternoon of September 2nd
- Pipeline recharged and returned to service early morning hours of September 3rd





ACTIONS TAKEN SINCE REPAIR

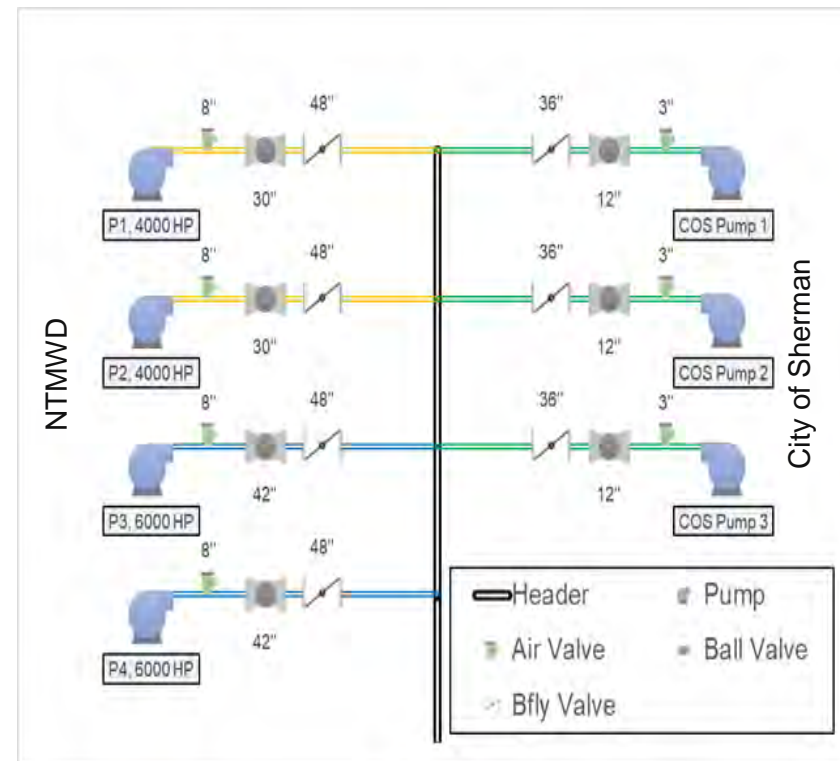
- Forensic analysis of failure
 - Freese & Nichols: hydraulic analysis
 - SGH: structural analysis
- Multiple meetings with GTUA and Sherman
- Updated Standard Operating Procedures for pump transitions
- Sherman SCADA improvements:
 - Sherman pumps stop if pressure threshold met at plant
 - Sherman pumps stop/won't start if 18-inch bypass valve is closed





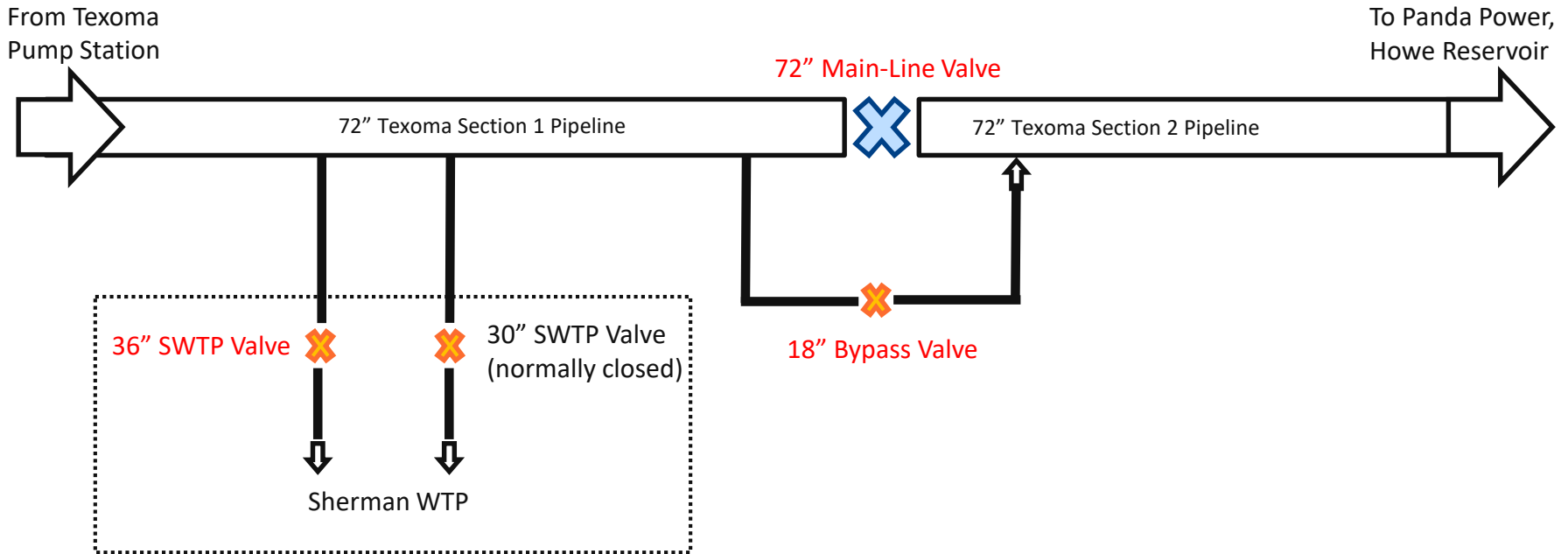
PUMP OPERATIONS

- NTMWD Pumps
 - Serve Wylie WTP
 - Simultaneously serve Sherman WTP and Panda Power
- City of Sherman Pumps
 - Operate only when NTMWD pumps are off to serve Sherman WTP and Panda Power
- Pump Transitions
 - Changes from NTMWD to Sherman pumps (and vice versa) require certain sequence of valve operations at Sherman WTP





TEXOMA VALVE CONFIGURATION AT SHERMAN WTP



| Valve | Normal Position When: | | Operated By: |
|----------------|-----------------------|-----------------|--------------|
| | District Pumping | Sherman Pumping | |
| 72" Main-Line | Open 28% | Closed | NTWMD |
| 18" Bypass | Closed | Open | Sherman |
| 36" SWTP Inlet | Open | Open | Sherman |

During Pump Transitions

- Sherman closes WTP intake valve temporarily to reduce high turbidity water entering plant
- Therefore, one of 72" and 18" valves must be open to prevent pumping into a closed system



CONTRIBUTING CAUSES OF FAILURE

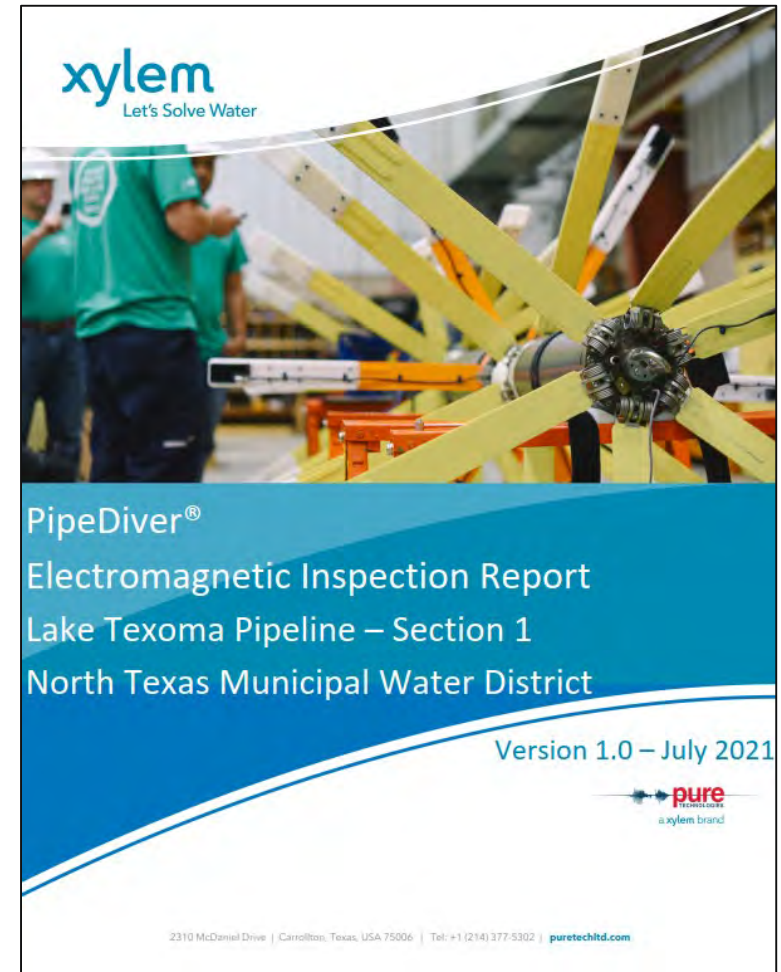
- Structural: Piece #2173 was degraded due to corrosion, which led to broken wire wraps (BWW)
- Hydraulic: Pumping transition occurred with an incorrect valve sequence of operations, resulting in excessive pressure
- Resulting pressure exceeded the degraded capacity of Piece #2173





INSPECTION HISTORY

- 1st EM inspection: 2009
- 2nd EM inspection: 5/13/21
 - 2,180 segments scanned
 - EM report received: 7/14/21
- Leak detection survey: 9/29/21
- EM results
 - 2009: 7 segments with BWW
 - 2021: 8 segments with BWW
 - One new segment was reported with BWW, but with reduced certainty due to pipe property variation.





PIPE PROPERTY VARIATIONS AND ANOMALIES

- Certain pipe characteristics may interfere with and/or mask EM signal, reducing accuracy and adding uncertainty when quantifying BWV.
 - Pipe Property Variations: Change in pipe structural components e.g. wire diameter/spacing, cylinder thickness, welds in cylinder, etc.
 - Feature Pipes: Segments w/ flanged outlets, ARVs, blowoffs, tees, etc.
 - Anomalies: Undocumented pipe features e.g. weld leads, repair clamps, etc.
- Verification EM scanning can improve accuracy
 - Requires excavation of top of pipe to perform external scan



NEXT STEPS

- Replace 100 psi segment with higher pressure class during upcoming shutdown season
- Perform verification scans of 6 to 10 segments with variations and anomalies
- Install additional air valves
- Reinspect Section 1 in 2026



COST SUMMARY FOR REPAIRS AND FORENSIC STUDY

- Total cost for repairs and forensic analysis: \$474,280.87
- 80/20 cost share per maintenance agreement
- NTMWD Cost: \$379,424.70
- Invoice submitted to GTUA for \$94,856.17

| | |
|---------------------------------|---------------------|
| Labor | \$ 24,690.27 |
| Equipment | \$ 14,923.30 |
| Materials | \$180,841.30 |
| FNI Hydrualic Forensic Analysis | \$170,106.00 |
| SGH Structural Analysis | \$ 83,720.00 |
| Total | \$474,280.87 |

*No materials procured under emergency declaration



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QUESTIONS?





AGENDA

Discussion Items

- B. Opportunity for Committee members to provide feedback on Water Committee meeting or request potential future agenda items**

Adjournment