



Engineering, Operations, & Technology Committee

Allen McColloch Pipeline - Inspection Update Action Plan

Item 6a

January 8, 2024

Item 6a

Allen McColloch Pipeline Inspection Update Action Plan

Subject

Allen McColloch Pipeline (AMP) Inspection Update Action Plan

Purpose

Summarize condition assessment of AMP Prestressed Concrete Cylinder Pipeline (PCCP) by including results of recent inspection & preliminary risk analysis. Review mitigation measures & present pipeline rehabilitation plan.

Next Steps

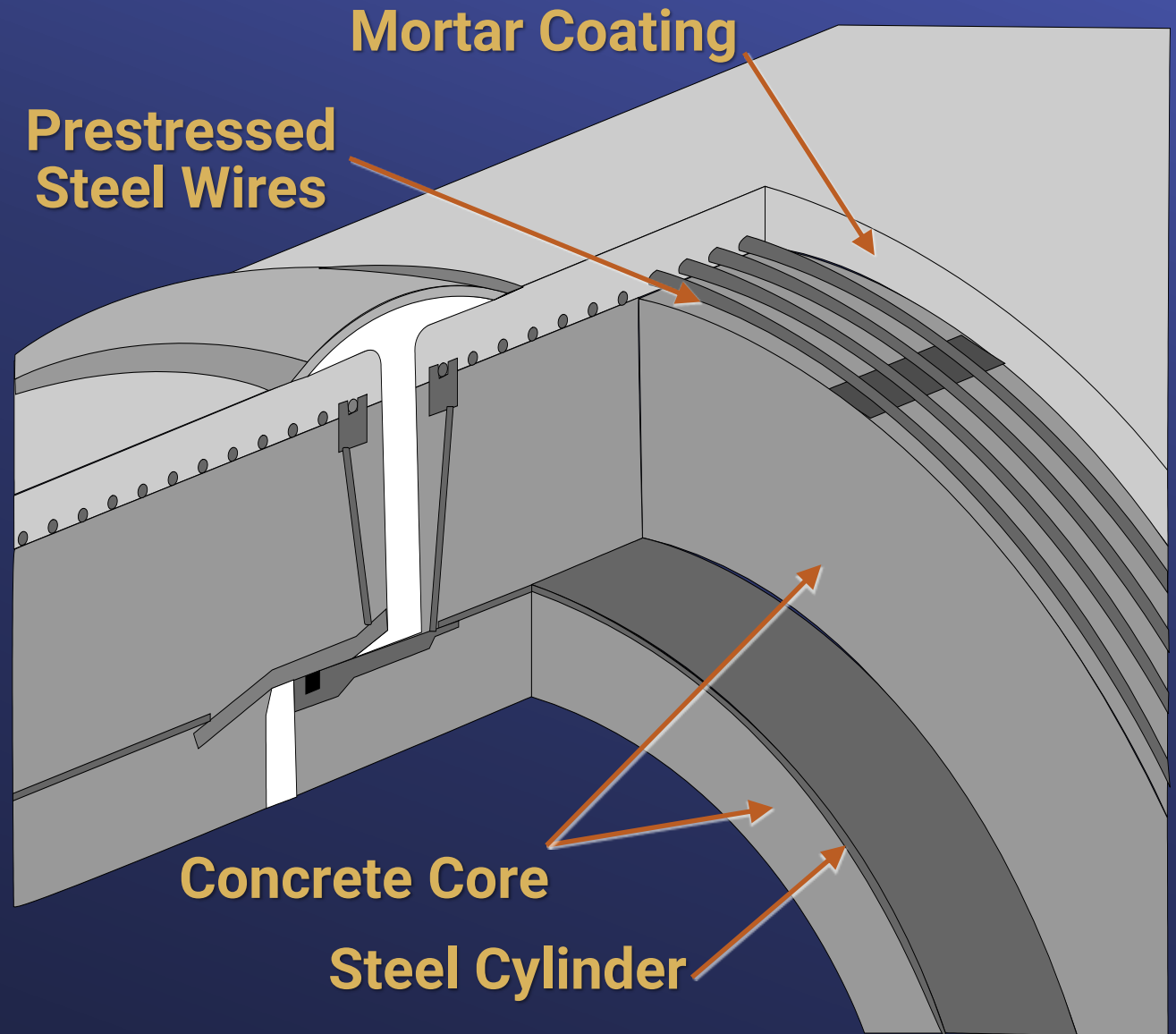
Complete immediate mitigation in January 2024. Recommend near-term rehabilitation in April 2024 and long-term rehabilitation in Winter 2024/2025.

What is PCCP?

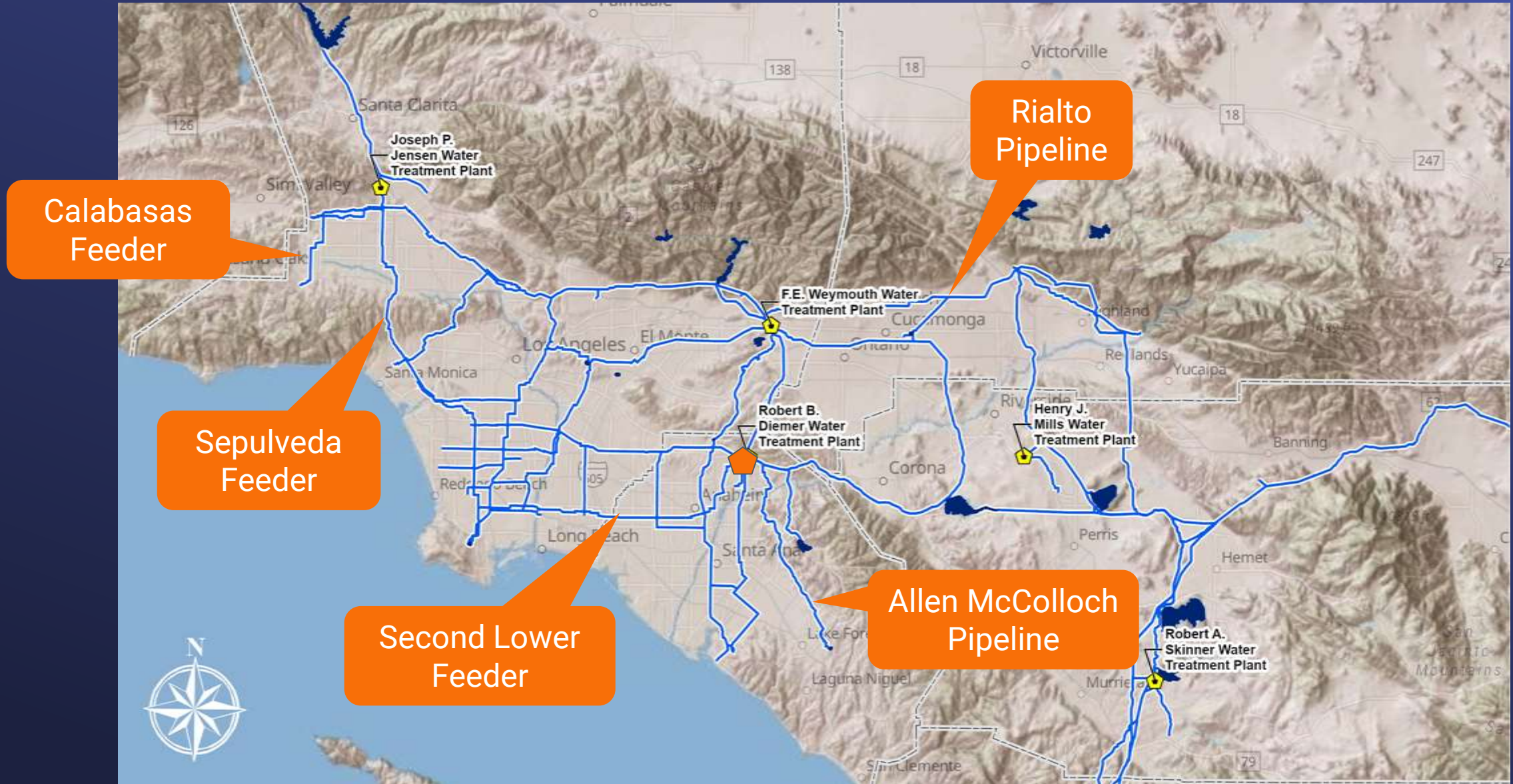
Prestressed Concrete Cylinder Pipe



Maryland PCCP Rupture (2013)



Distribution System – Five Priority Pipelines



PCCP
Risk
Management
Strategy

PCCP Management Strategy

- Conduct regular inspections, monitoring & assessments
- Monitor stray currents & install drain stations where necessary
- Perform individual segment repairs as needed
- Plan & execute long-term rehabilitation
 - Completed preliminary design
 - Coordinate planned shutdowns with member agencies

Allen McCulloch Pipeline (AMP)

Diemer Water Treatment Plant to El Toro Reservoir

- Completed: 1980
- Acquired: 1995
- Length: 26 miles
 - Steel: 17 miles
 - PCCP: 9 miles
- PCCP diameters from 78" to 54"



AMP Pipeline Failure & Repair in 1999



Allen McColloch Pipeline

Rehabilitations

*53 pipe segments
over 20 years*

Additional AMP Urgent Repairs

- Apr. 2000 – Rehabilitation of 18 pipe segments
- Feb. 2001 – Replacement of 1 pipe segment
- Oct. 2001 – Carbon fiber lining 8 pipe segments
- May 2010 – Steel lining of 6 pipe segments
- Nov. 2020 – Steel lining of 20 pipe segments



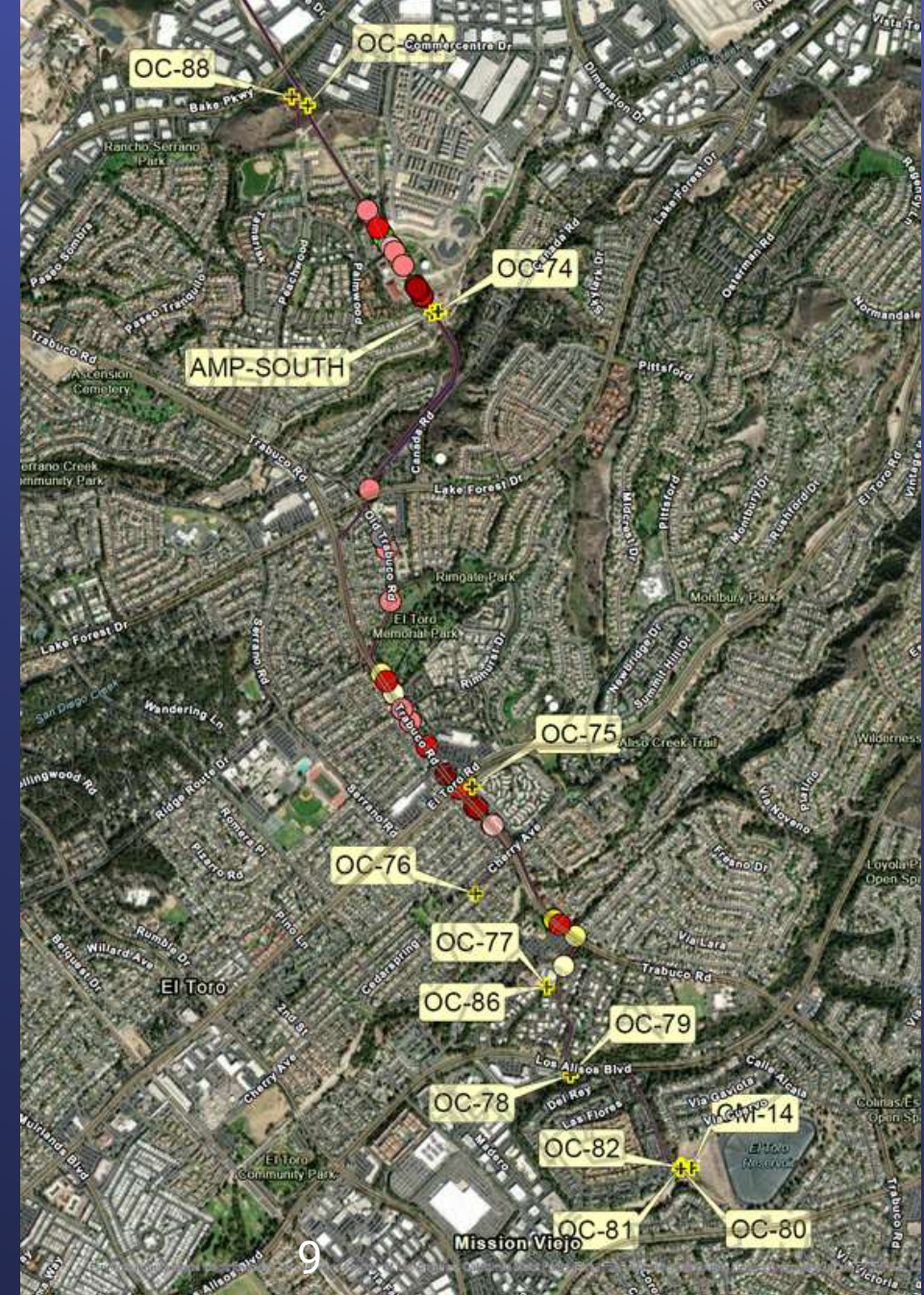
2010 Steel Lining

AMP PCCP Inspection in 2023

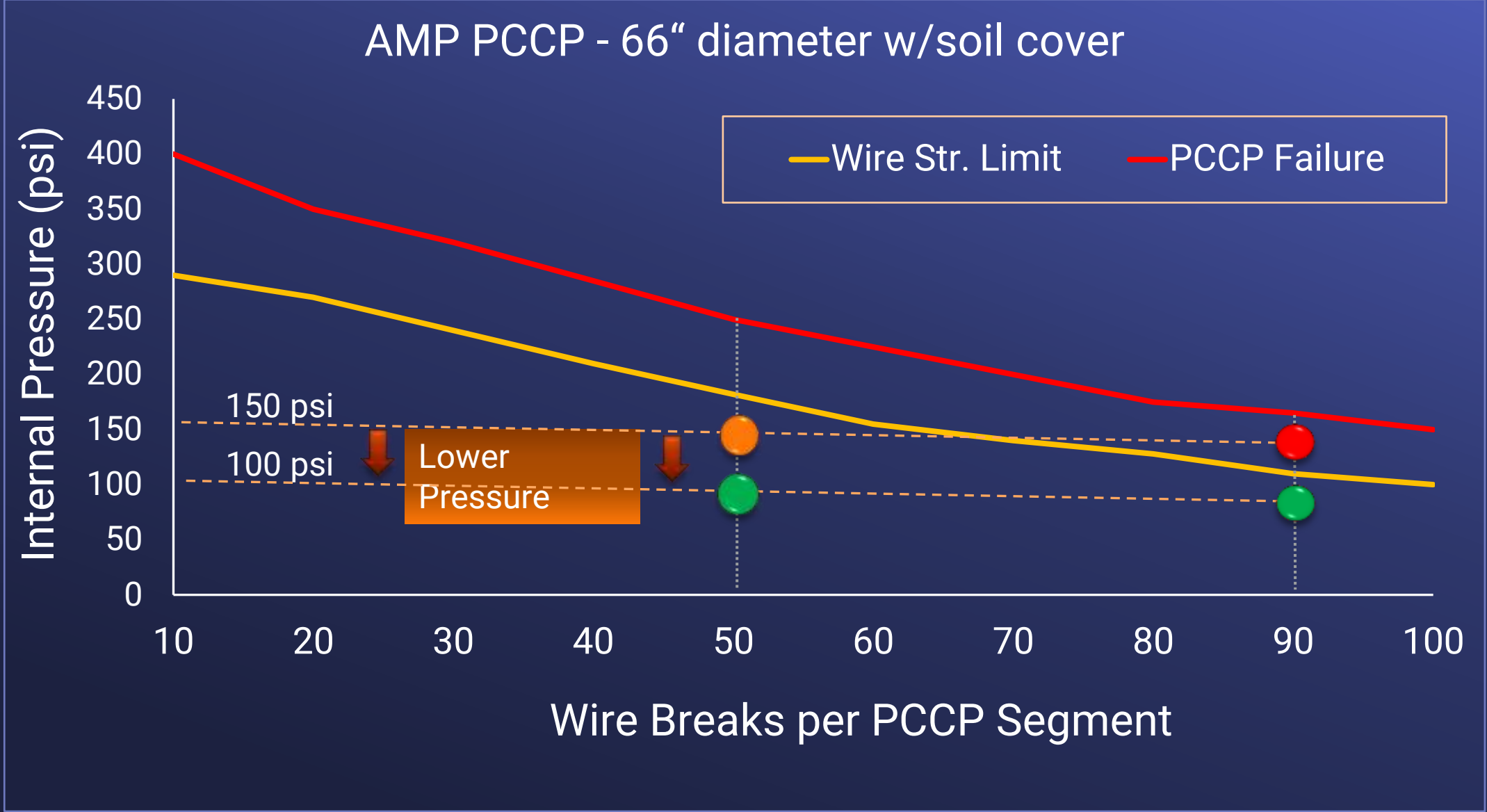
- Electromagnetic inspection in Nov 2023
- Inspection report completed in Dec 2023
 - Anomalies consistent w/prestressed wire damage
 - 81 wire break locations (5 to 130 per segment)
 - 73 new segments compared to 2018 inspection
- Inspection summary: 44 critical pipe segments

Wire Breaks (WB)	No. of pipe segments
130	1
95-70	4
60-50	8
45-40	12
35-30	5
25-20	14
15-5	37
Total	81

44



PCCP Condition Assessment - Typical Risk Curve



AMP PCCP Risk Reduction Action Plan

Risk Reduction Immediate Mitigation

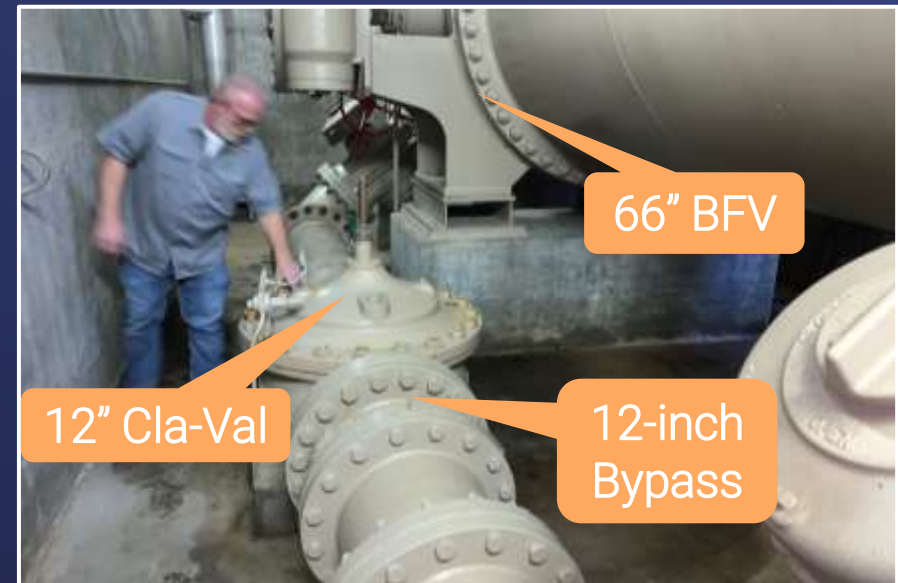
1. Immediate mitigation

- Collaborate with Member Agencies
- Lower Diemer hydraulic grade (completed in Dec 2023)
- Up-size bypass line and valves for full flow (Jan 2024)
- Reduce pressure on pipeline



AMP Junction Structure Gate

Lower Diemer outlet gate



12" Cla-Val

66" BFV

12-inch Bypass

Increase size of bypass valve to 24-inches

PCCP Risk Reduction Action Plan (Cont'd)

2. Near-term rehabilitation

- Prioritize replacement of distressed PCCP segments based on risk analysis
- Conduct rehabilitation work using multiple existing contracts on CFRP & steel-lining during April 2024 shutdown
- Install bulkhead south of OC-88 to isolate AMP for rehabilitation

3. Long-term rehabilitation

- Install steel lining for remaining distressed segments in early 2025
- Continue to assess and monitor PCCP



Carbon Fiber Reinforced Polymer (CFRP)



Steel Slip-Lining

Urgent Repairs to AMP

Approach to Contracting Urgent Repairs

- Utilize Change Order authority in existing contracts to immediately commence planning and staging work
 - Contract 2002: Lakeview Pipeline steel pipe procurement
 - Contract 2026: Second Lower Feeder PCCP relining
 - Contract 2088: Sepulveda Feeder PCCP Carbon Fiber lining
- Return to Board in February 2024 to increase change order authority on all three contracts

Project Schedule

