



# Allen McColloch Pipeline Status Update

Municipal Water District of Orange County  
Workshop Board Meeting

January 3, 2024

1

## PCCP Rehabilitation

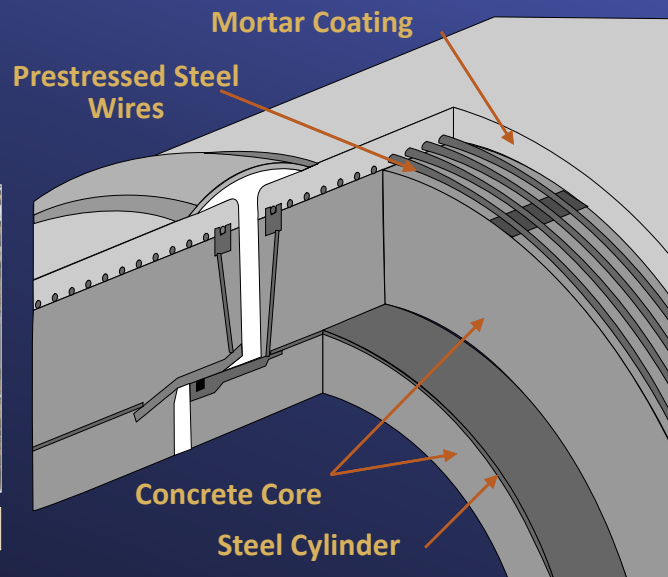
What is a "PCCP"?



Maryland PCCP Rupture (2013)

January 3, 2024

## Prestressed Concrete Cylinder Pipe



Slide 2

2





## Allen McColloch Pipeline Background

Diemer Water Treatment Plant to El Toro Reservoir

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

January 3, 2024



5

## Allen-McColloch Pipeline Failure – 1999



January 3, 2024

Slide 6

6

## Allen McColloch Pipeline

### Recent Rehabilitation

### 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 AMP  
Steel Lining

January 3, 2024

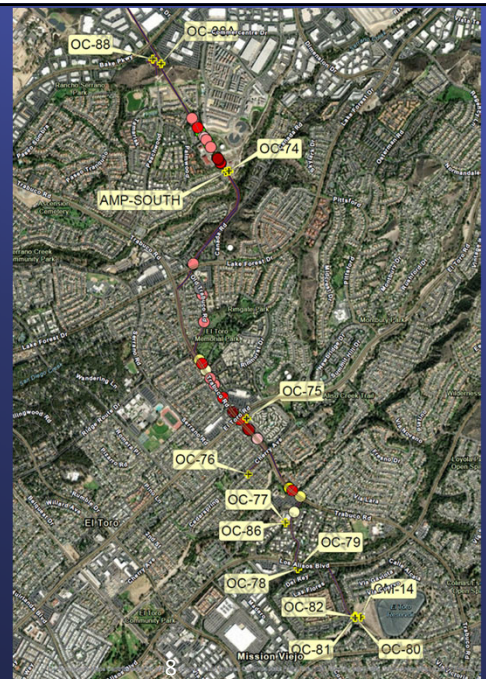
Slide 7

7

### 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
- PCCP inspection summary:

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
<b>Total</b>	<b>81</b>



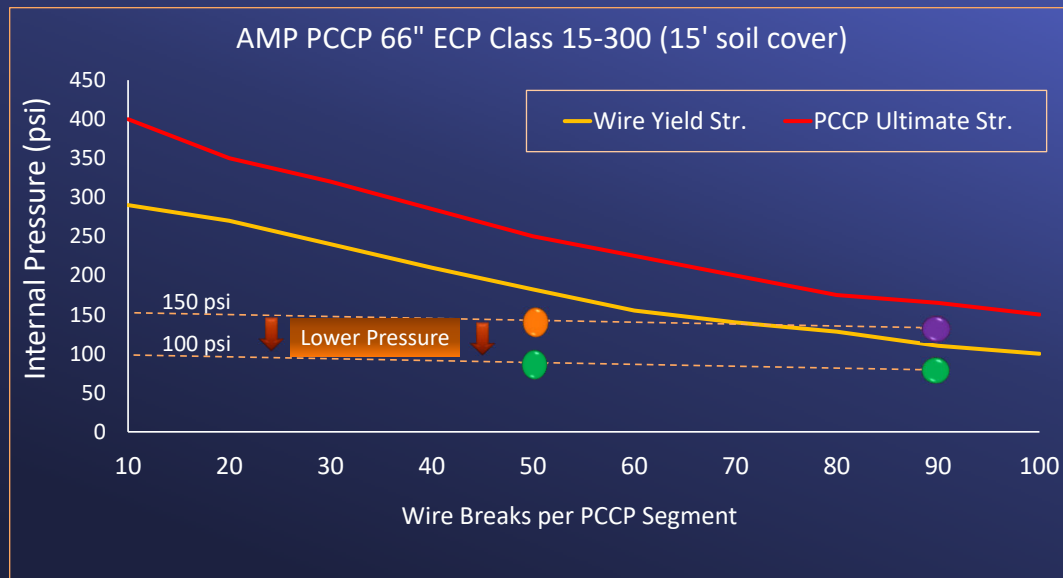
January 3, 2024

Slide 8

8



## PCCP Condition Assessment - Typical Risk Curve



January 3, 2024

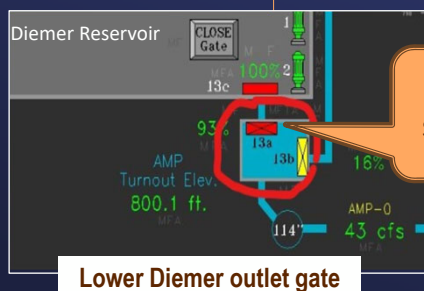
Slide 9

9

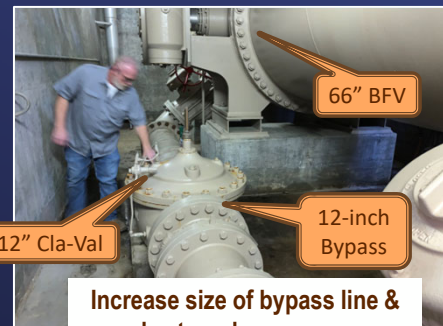
## AMP Risk Reduction Mitigation Measures

### 1. Immediate mitigation actions

- Reduce pressure on pipeline
- Collaborate with Member Agencies on approach to pressure reductions
- Lower Diemer hydraulic grade (completed in Dec 2023)
- Up-size bypass lines and valves (Jan 2024)
- 9-day AMP shutdown



January 3, 2024



Slide 10

10

## AMP Risk Reduction Mitigation Measures



Carbon Fiber Reinforced Polymer (CFRP)

### 2. Near-term rehabilitation

- Prioritize replacement of distressed PCCP segments based on risk analysis of wire breaks and pressure conditions
- Collaborate with Member Agencies on approach to shutdown and rehab work
- Install carbon fiber lining & steel-lining (April 2024)
  - Multiple alternatives being evaluated

### 3. Longer-term rehabilitation

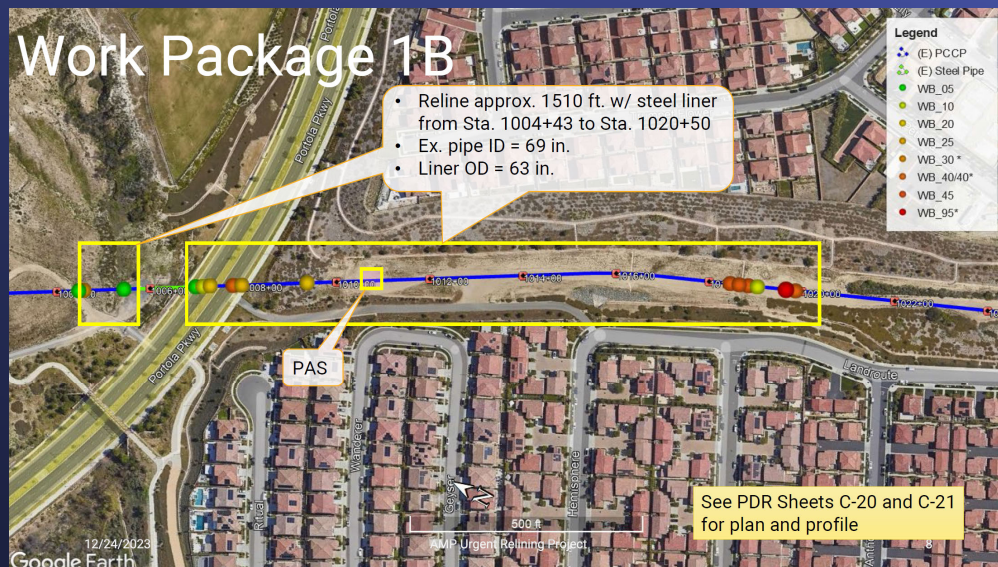
- Collaborate with Member Agencies
- Install steel lining for remaining distressed segments in Winter 2024/2025

January 3, 2024

Slide 11

11

## Example of Steel Lining Rehabilitation

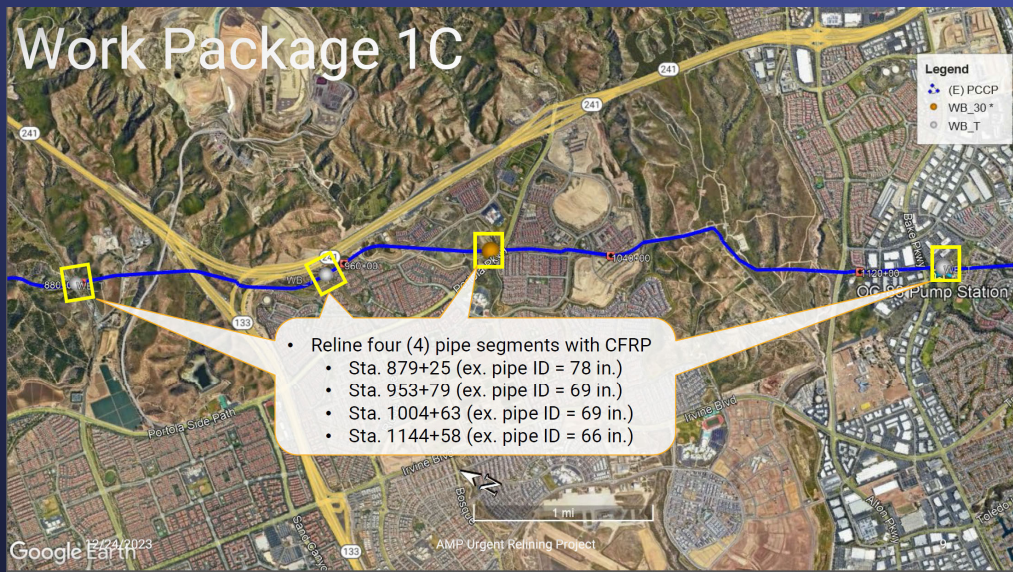


January 3, 2024

Slide 12

12

## Example of Carbon Fiber Lining Rehabilitation



January 3, 2024

Slide 13

13

### Urgent Repairs to AMP

## Approach to Contracting Urgent Repairs

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

January 3, 2024

Slide 14

14



