



SANTA ANA WATERSHED
PROJECT AUTHORITY

Reach IV Condition Assessment Status Update

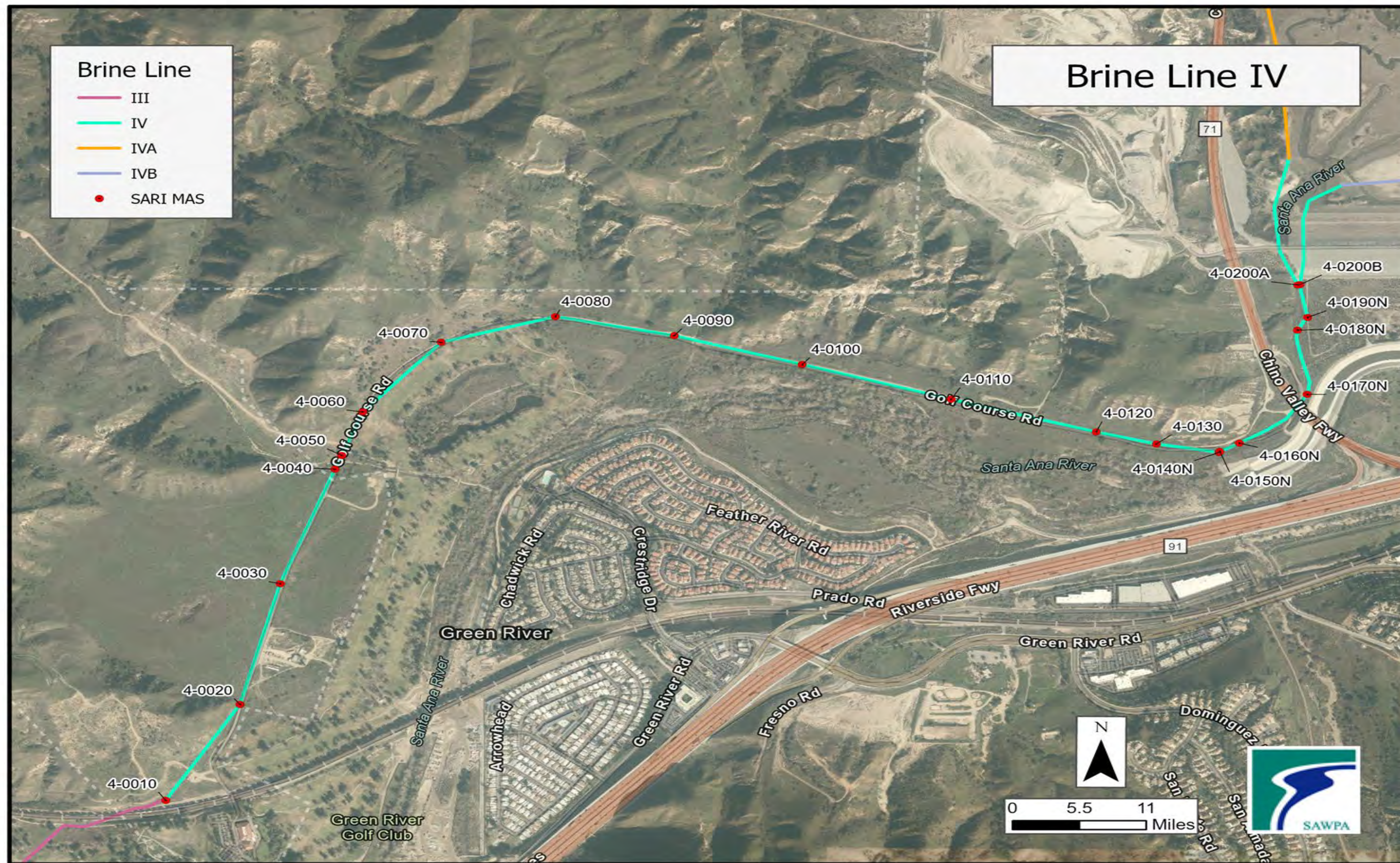
PA 24 Committee
Item No. 6.A
Daniel Vasquez
Manager of Operations
July 2, 2024

Recommendation

- Receive and file an informational report on Reach IV Condition Assessment Draft Final Report Findings.

Background

- In February 2023, the PA 24 Committee authorized Woodard & Curran to perform condition assessments on Reach IV.
- This condition assessment was identified as being necessary in a 2021 Criticality Assessment performed by Dudek.



P:\projects\DanielVasquez\ReachIV\ReachIV.aprx LoIV_MAS SW-3102

Reach IV Pipeline and Man-Entry Inspection Locations

Testing Methods Used

- Visual Assessments
- Concrete Sounding and Penetration Testing.
- Concrete Surface pH Testing
- Surface Penetrating Radar
- CCTV Inspections



Interior of MAS in good condition



Liner Termination at influent pipe good condition








Up to 1/4" of sediment observed on pipe walls

Manhole Access Structures and Pipeline found to be in Good Condition

Condition Assessment Conclusions

- Reach IV pipeline shows intact liner and no signs of significant degradation.
- Small buildup of debris in the pipe invert along various sections.
- Minor discoloration and bubbling at a small number of joints.
- On a scale of 1-5, with a Level 1 rating indicating little or no damage and Level 5 rating indicating severe damage with imminent failure the consultant rated the pipe at condition Level 1.
- Estimated 20 years of remaining useful life.

| Condition Rating | Description | Representative Photograph |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Level 1 | <p>Little or no damage to concrete</p> <ul style="list-style-type: none"> ▪ Hardness..... hard surface ▪ Surface profile smooth, apparently intact ▪ Cracks hairline width, minimal frequency ▪ Spalling none ▪ Reinforcement not exposed or damaged |  |
| Level 2 | <p>Minor surface damage</p> <ul style="list-style-type: none"> ▪ Hardness..... soft surface layer to 1/8-inch depth ▪ Surface profile fine aggregate exposed ▪ Cracks hairline width, moderate frequency ▪ Spalling shallow spalling, minimal frequency ▪ Reinforcement not exposed or damaged |  |
| Level 3 | <p>Moderate surface damage</p> <ul style="list-style-type: none"> ▪ Hardness..... soft surface layer to 1/4-inch depth ▪ Surface profile large aggregate exposed or protruding ▪ Cracks up to 1/32-inch width, moderate frequency ▪ Spalling shallow spalling, minimal frequency ▪ Reinforcement exposed; minor damage, minimal frequency |  |
| Level 4 | <p>Loss of concrete mortar and damage to reinforcement</p> <ul style="list-style-type: none"> ▪ Hardness..... soft paste beyond 1/4-inch depth ▪ Surface profile large aggregate exposed, loose, or missing ▪ Cracks 1/8- to 1/4-inch width, moderate frequency ▪ Spalling deep spalling, moderate frequency ▪ Reinforcement exposed with damage, moderate frequency |  |
| Level 5 | <p>Bulk loss of concrete and reinforcement</p> <ul style="list-style-type: none"> ▪ Hardness..... soft paste beyond 1-inch depth ▪ Surface profile large aggregate exposed, loose, or missing ▪ Cracks over 1/2-inch width, or narrower and frequent ▪ Spalling deep spalling, high frequency ▪ Reinforcement consumed; loss of structural integrity |  |

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Metal Condition Index Rating System

Summary of Recommendations

- **Near Term:** No pipe renewal actions are recommended due to pipeline condition found.
- **Mid-Term:** Reinspect pipe in 10 years to determine rate of deterioration and refine remaining useful life estimate.
- **Long-Term:** Due to the unlikelihood of structural failure within the next 20 years, Long-Term action plans are contingent of any refinements made at the Mid-Term Reinspection.

Next Steps

- Distribute draft report to Member Agency staff for review and comment.
- Present Final Report to PA 24 Committee.
- Develop plan for Mid-Term shutdown and associated work.

Questions?

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SANTA ANA WATERSHED
PROJECT AUTHORITY

Inland Empire Brine Line Reach IV-D Condition Assessment

PA 24 Committee

Item No. 6.B

David Ruhl

Executive Manager of Engineering and Operations

July 2, 2024

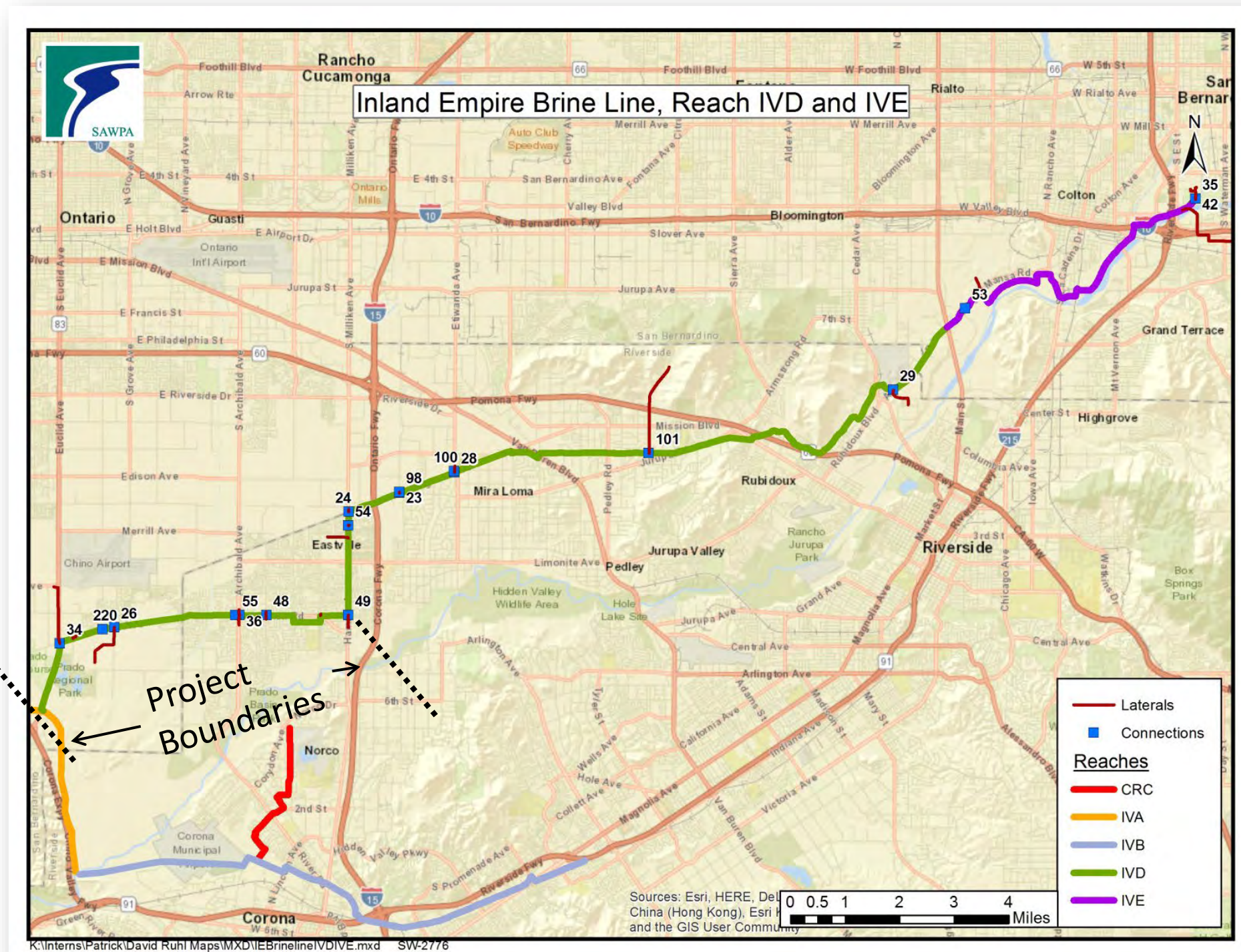
Brine Line Reach IV-D Pipeline Corrosion

Reach IV - D

- 21 Miles
- Built in mid 1990s
- Pipe size 36" - 48"
- Ave. Flow 5.5 MGD

Project Boundaries

- 7 Miles
- 42" RCP with 270 degree T-
Lock
- Within Cities of Chino and
Eastvale



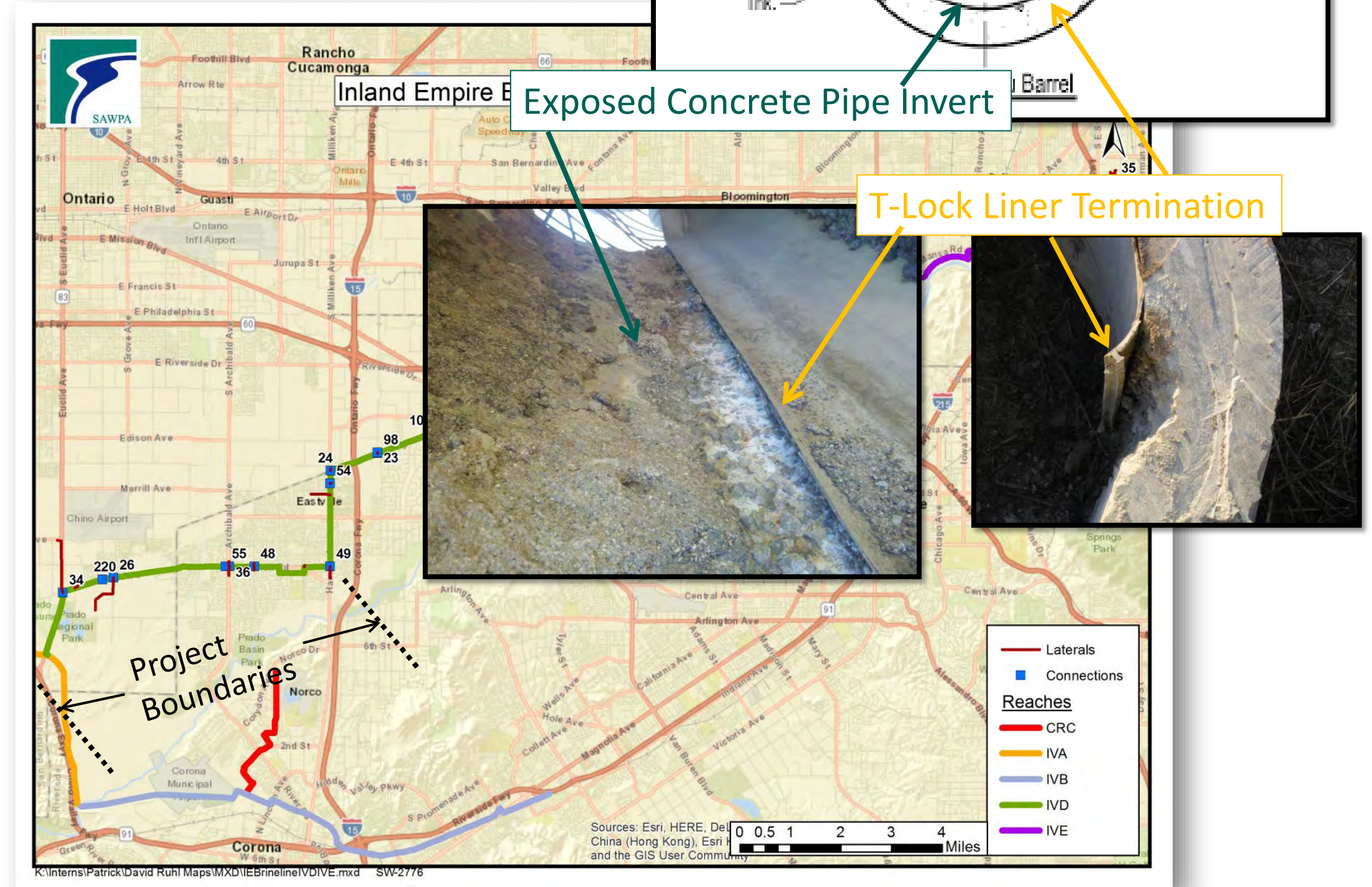
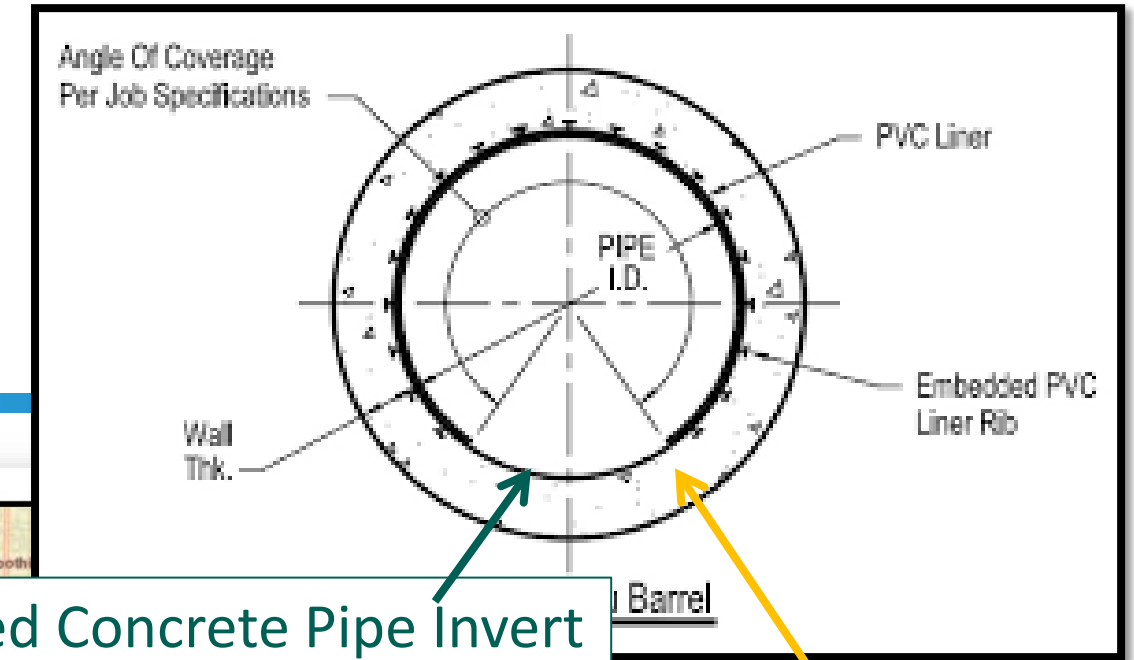
Brine Line Reach IV-D Pipeline Corrosion

Reach IV - D

- 21 Miles
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- Ave. Flow 5.5 MGD

Project Boundaries

- 7 Miles
- 42" RCP with 270 degree T-Lock
- Within Cities of Chino and Eastvale



Field Investigation



Dischargers shutdown beginning on February 26th



Condition assessment 30 hours beginning on February 27th



Line cleaning and CCTV



Manned entry at 7 locations to conduct visual assessment and physical tests



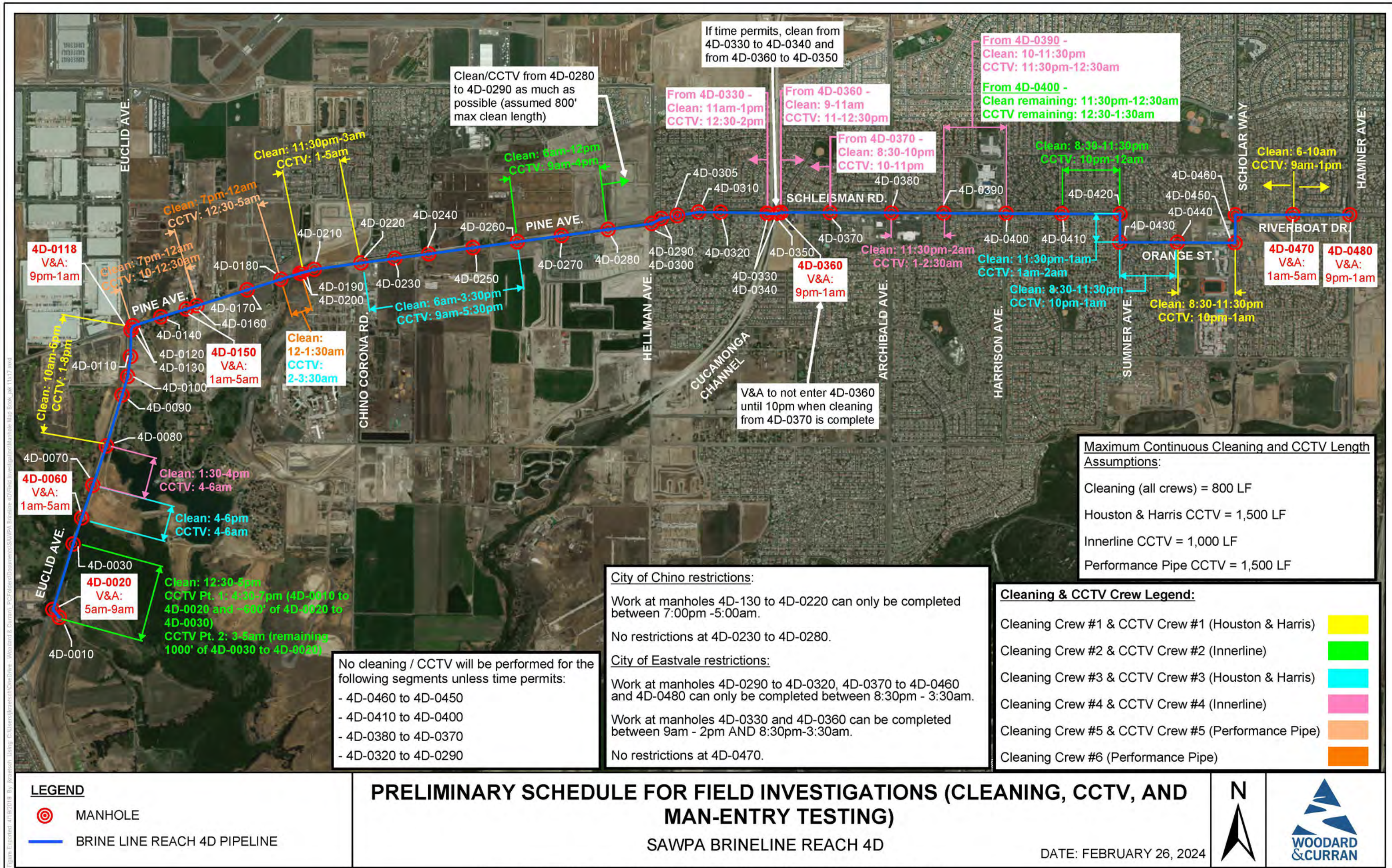
Draft report in June 2024



Figure 1: Behind the liner testing



Figure 2: Unlined concrete testing



Clean/CCTV from 4D-0280 to 4D-0290 as much as possible (assumed 800' max clean length)

If time permits, clean from 4D-0330 to 4D-0340 and from 4D-0360 to 4D-0350

From 4D-0390 -
Clean: 10-11:30pm
CCTV: 11:30pm-12:30am

From 4D-0400 -
Clean remaining: 11:30pm-12:30am
CCTV remaining: 12:30-1:30am

From 4D-0370 -
Clean: 8:30-10pm
CCTV: 10-11pm

From 4D-0360 -
Clean: 9-11am
CCTV: 11-12:30pm

Clean: 6-10am
CCTV: 9am-1pm

4D-0470 V&A: 1am-5am
4D-0480 V&A: 9pm-1am

V&A to not enter 4D-0360 until 10pm when cleaning from 4D-0370 is complete

Maximum Continuous Cleaning and CCTV Length Assumptions:

- Cleaning (all crews) = 800 LF
- Houston & Harris CCTV = 1,500 LF
- Innerline CCTV = 1,000 LF
- Performance Pipe CCTV = 1,500 LF

City of Chino restrictions:

- Work at manholes 4D-130 to 4D-0220 can only be completed between 7:00pm - 5:00am.
- No restrictions at 4D-0230 to 4D-0280.

City of Eastvale restrictions:

- Work at manholes 4D-0290 to 4D-0320, 4D-0370 to 4D-0460 and 4D-0480 can only be completed between 8:30pm - 3:30am.
- Work at manholes 4D-0330 and 4D-0360 can be completed between 9am - 2pm AND 8:30pm-3:30am.
- No restrictions at 4D-0470.

No cleaning / CCTV will be performed for the following segments unless time permits:

- 4D-0460 to 4D-0450
- 4D-0410 to 4D-0400
- 4D-0380 to 4D-0370
- 4D-0320 to 4D-0290

Cleaning & CCTV Crew Legend:

- Cleaning Crew #1 & CCTV Crew #1 (Houston & Harris) █
- Cleaning Crew #2 & CCTV Crew #2 (Innerline) █
- Cleaning Crew #3 & CCTV Crew #3 (Houston & Harris) █
- Cleaning Crew #4 & CCTV Crew #4 (Innerline) █
- Cleaning Crew #5 & CCTV Crew #5 (Performance Pipe) █
- Cleaning Crew #6 (Performance Pipe) █

LEGEND

- ⊙ MANHOLE
- BRINE LINE REACH 4D PIPELINE

PRELIMINARY SCHEDULE FOR FIELD INVESTIGATIONS (CLEANING, CCTV, AND MAN-ENTRY TESTING)
SAWPA BRINELINE REACH 4D

DATE: FEBRUARY 26, 2024



Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. Data Sources:

Preliminary Findings and Recommendations

| Project | Anticipated Schedule | Project Recommendation | Order of Magnitude Cost |
|-------------------|----------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Near-Term | 2 years | Man-entry inspections at two key locations, Clean and CCTV 1 pipe segment | \$90,000 |
| Mid-Term | 5 – 10 years | Clean and CCTV 7 miles of pipeline. Man-entry inspection at 7 locations. Refine useful life estimate. | \$900,000 |
| Long-Term Phase 1 | 10 – 15 years | Rehabilitate 23,000 feet of Brine Line | \$28 Million (+/-) Subject to reevaluation |
| Long-Term Phase 2 | 20+ years | Rehabilitate 12,000 feet of Brine Line | \$15 Million (+/-) Subject to reevaluation |



Next Steps

- Receive and review draft report from Consultant
- Distribute draft report to Member Agency staff for review and comment
- Present final report to PA 24 Committee



Recommendation

Receive and file and information report on the Reach IV-D
Condition Assessment.

Questions?

Thank You

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