



Water Main Break Update

Operations Committee

April 5, 2024



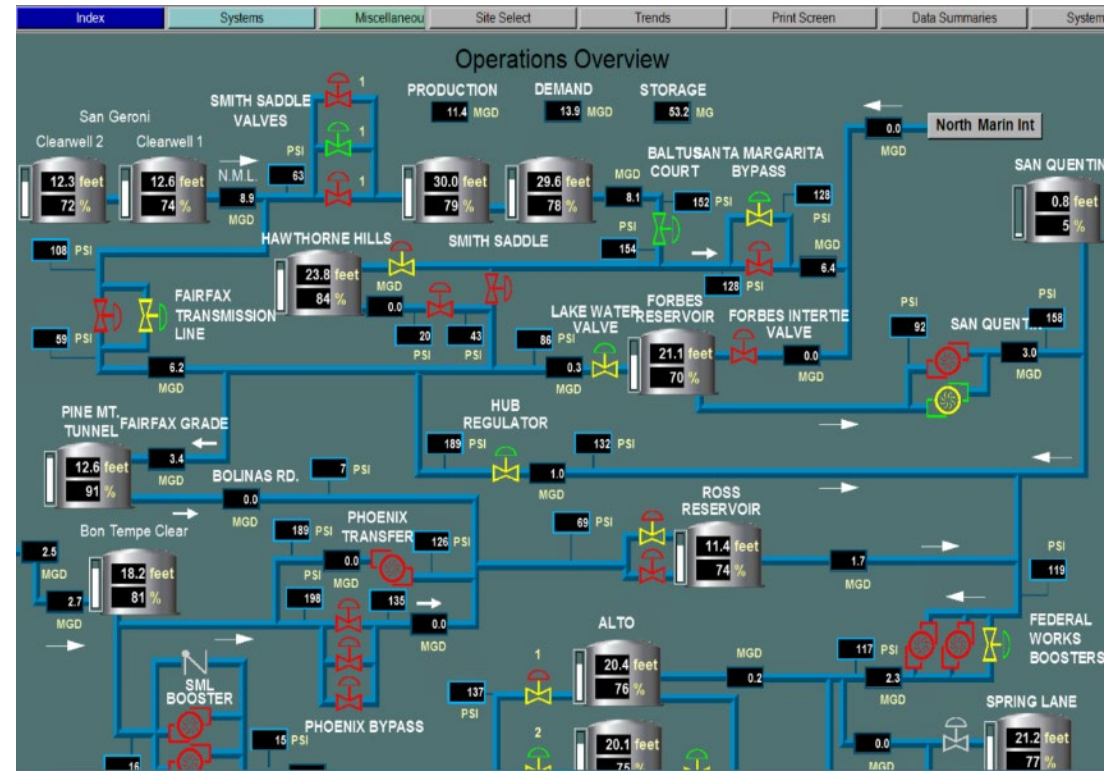
Overview

- Notification & response
- Classifications
- Detection & repairs
- Summary

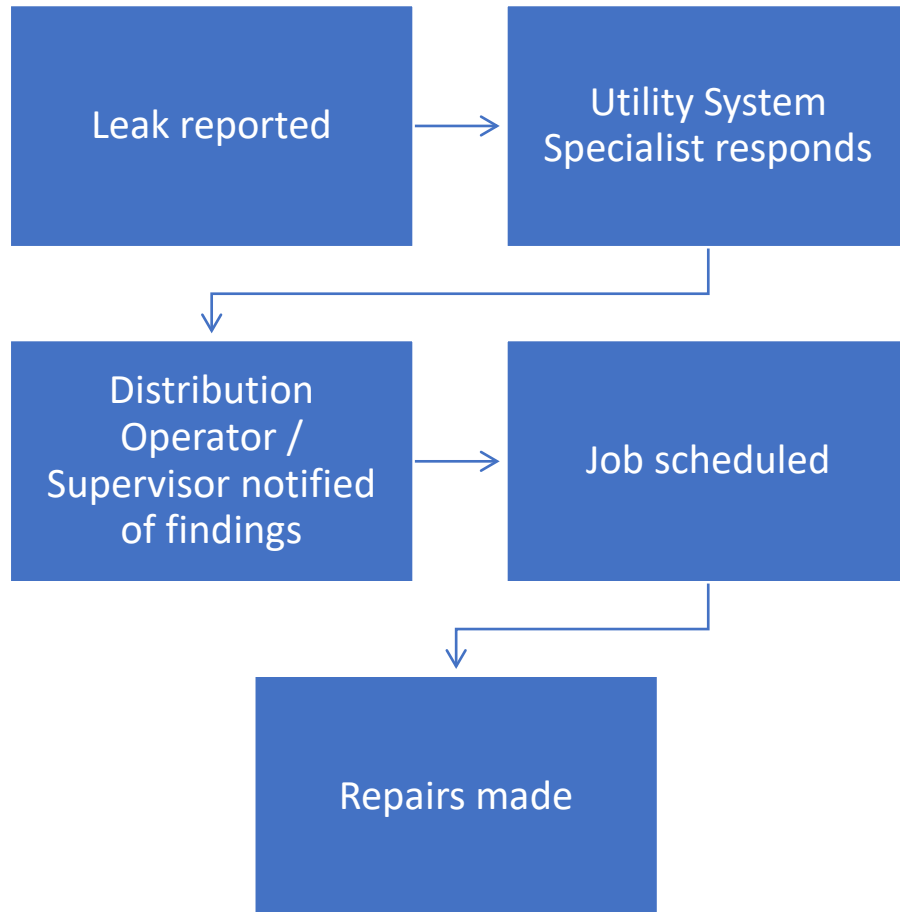


Notification & Response

- Water main break reported by public, emergency services or SCADA alarm
- 24/7 Distribution Operator informs a Utility System Specialist of reported leak location to investigate.
- Utility System Specialist reports findings and classifies leak to Distribution Operator.
- Field Supervisor notified.



Response



Utility System Specialist & Distribution Operator Response

▪ Utility System Specialist

- Identify leak
- Secure leak location (*best management practices*)
- Documentation (*photos/written notes*)
- Notify Underground Service Alert
- Request repair crew and additional resources if needed
- Send discharge notification
- Communicate type of work needed to Supervisor and responding Utility Crew Leader

▪ Distribution Operator

- Contact repair crew
- Notify emergency services (road closure)
- Notify Fisheries Program Manager or Ecologist if water discharge enters waterway with aquatic life. (*fisheries notification*)
- Management notification if necessary
- Notify District's claims adjustor (*property damage*)
- Call the District's water remediation contractor if necessary

Supervisor Response

■ Supervisor

- Assign resources
- Create work order for documentation
- Make jobsite visit
- Notify local agency of leak repair
 - File encroachment permit
 - Design/submit traffic plan
 - Submit site plan
- Creates work order packet for District's legal department
 - Potential claims
- When leak repair is completed, sends street opening information to District's paving coordinator
 - Compaction testing
 - Final paving restoration

Leak Classification Categories

- **Class I**

- Access to drinking water is impacted (a mainline must be shut off).

- **Class II**

- Service is not impacted due to leak, will be managed based on available resources.

- **Class III**

- The leak is very minor and water loss is estimated to be low, the leak will be repaired within 2-3 weeks depending on other priorities.

Class I Water Leak

Tunstead Ave, San Anselmo – June 2023



Water Main Repair

Broken 8 inch cast iron water main



Repaired 8 inch water main



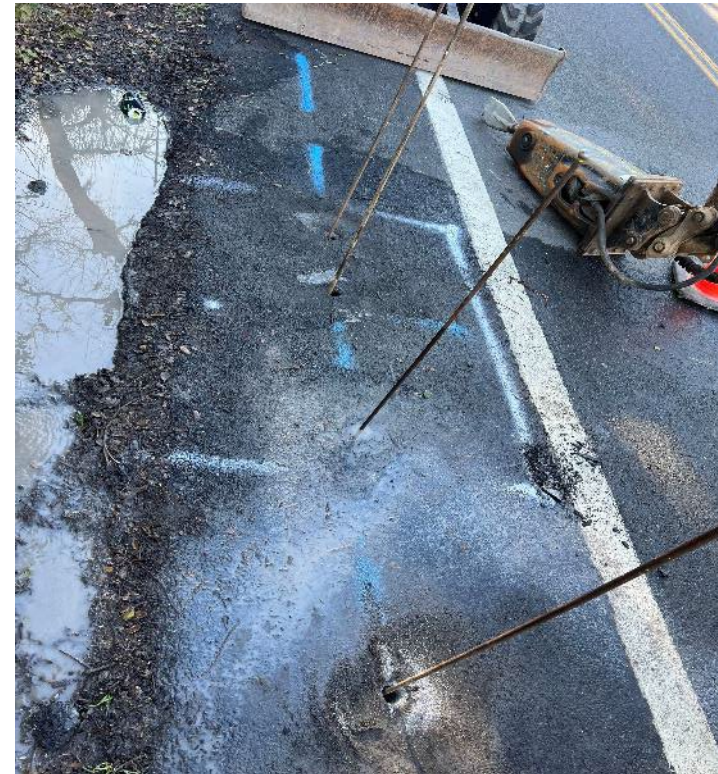
Class II Water Leak

San Geronimo Valley Drive, San Geronimo – March 2024

Visible water leak



Test holes locating leak location



Class II Leak Repair

1 inch copper leak



Repaired 1 inch copper



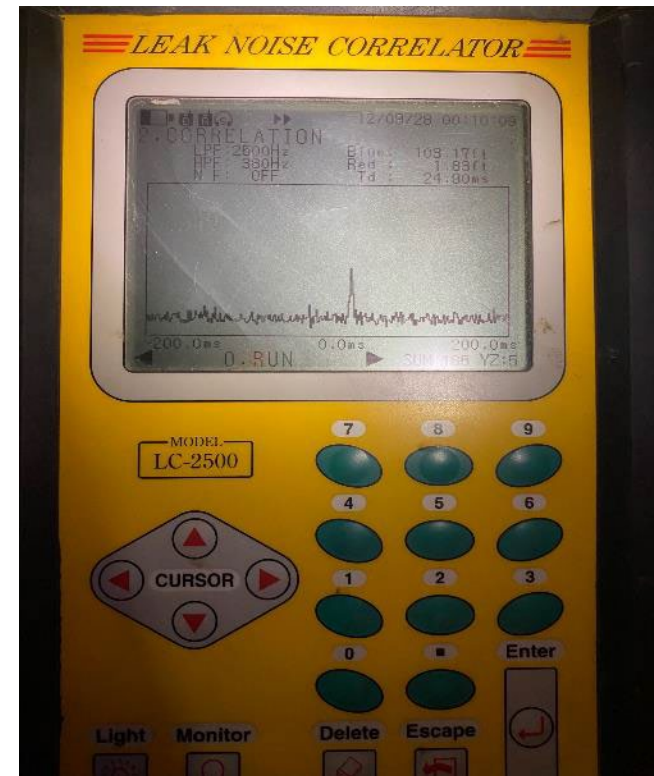
Class III Water Leak

Canal St. San Rafael – March 2024

Visible water leak at valve



Leak noise correlator



Class III Leak Repair

Leaking 2 inch gate valve

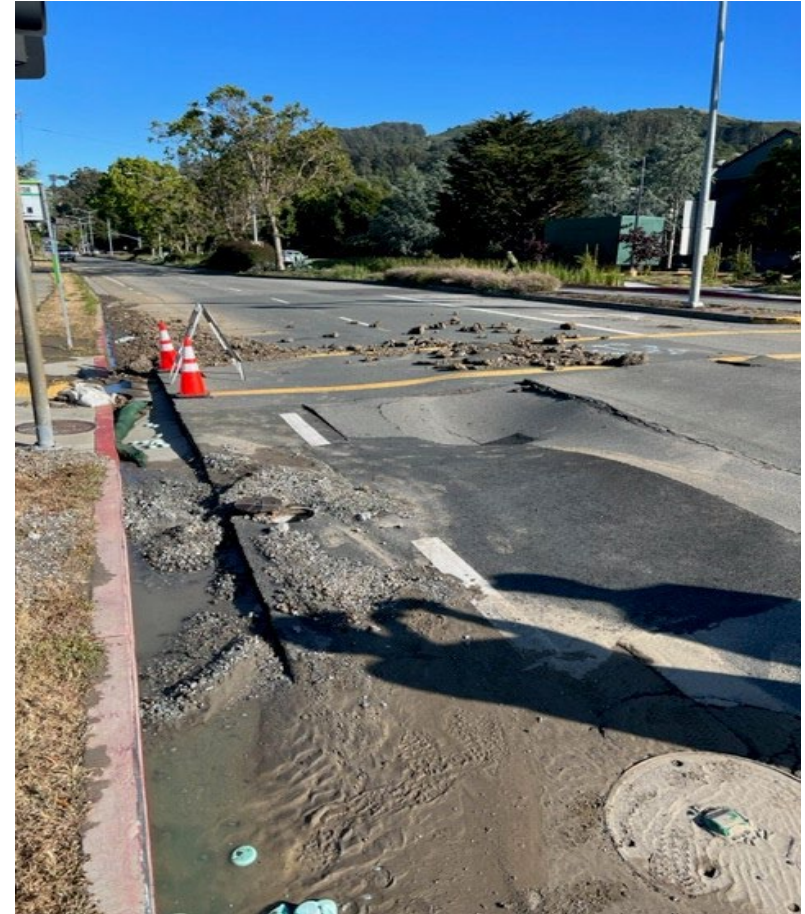


New 2 inch gate valve

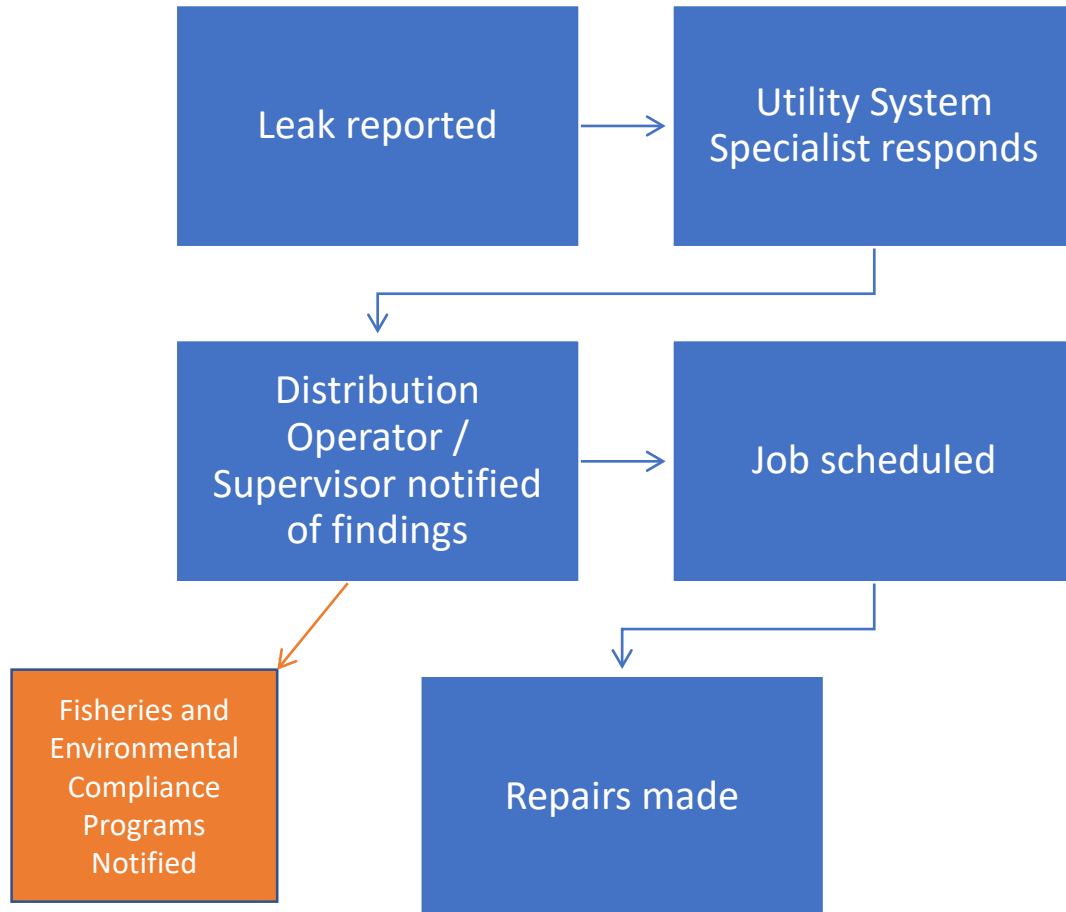


Key Considerations For Water Main Breaks

- Outage – extent / duration
 - System Impacts
 - Multiple customers
- Property damage
 - Residential & business
- Chlorinated discharge impacts to nearby aquatic life



Response



Discharges from Drinking Water Systems

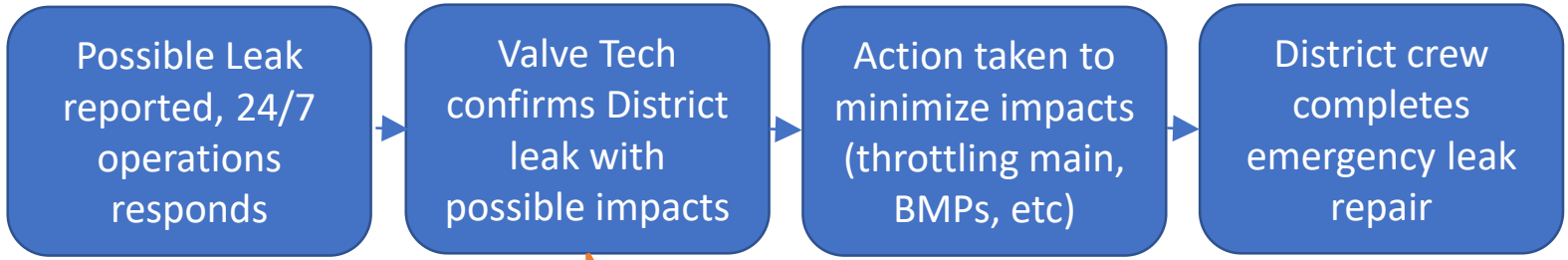
- District is enrolled under Statewide General NPDES Permit
- Permit covers discharges from drinking water system
 - Planned Discharges: essential operational activities for system maintenance – e.g. storage tank releases, flushing from distribution system, fire flow/hydrant testing, etc.
 - Unplanned Discharges: Emergency drinking water system failures/repair (main breaks)
- Compliance with NPDES permit requires use of Best Management Practices (BMPs), monitoring, training, recordkeeping, and reporting

Best Management Practices (BMPs) for Chlorinated Discharges

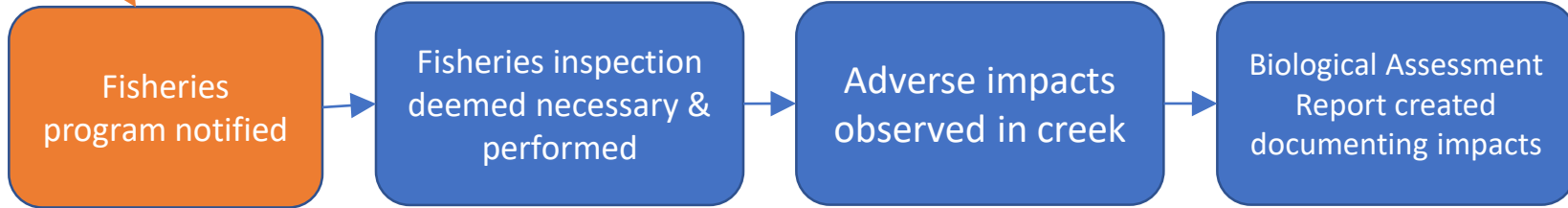
- Sediment and erosion control
 - Wattles in flow path
 - Storm drain swales to slow water flow
 - Cover over storm drains
- Dechlorination
 - Dechlorination mats and tablets
 - Dechlorinating diffuser (attached to hydrant or fire hose)
 - Broadcast dechlorination granules



Operations



Watershed



Water Resources



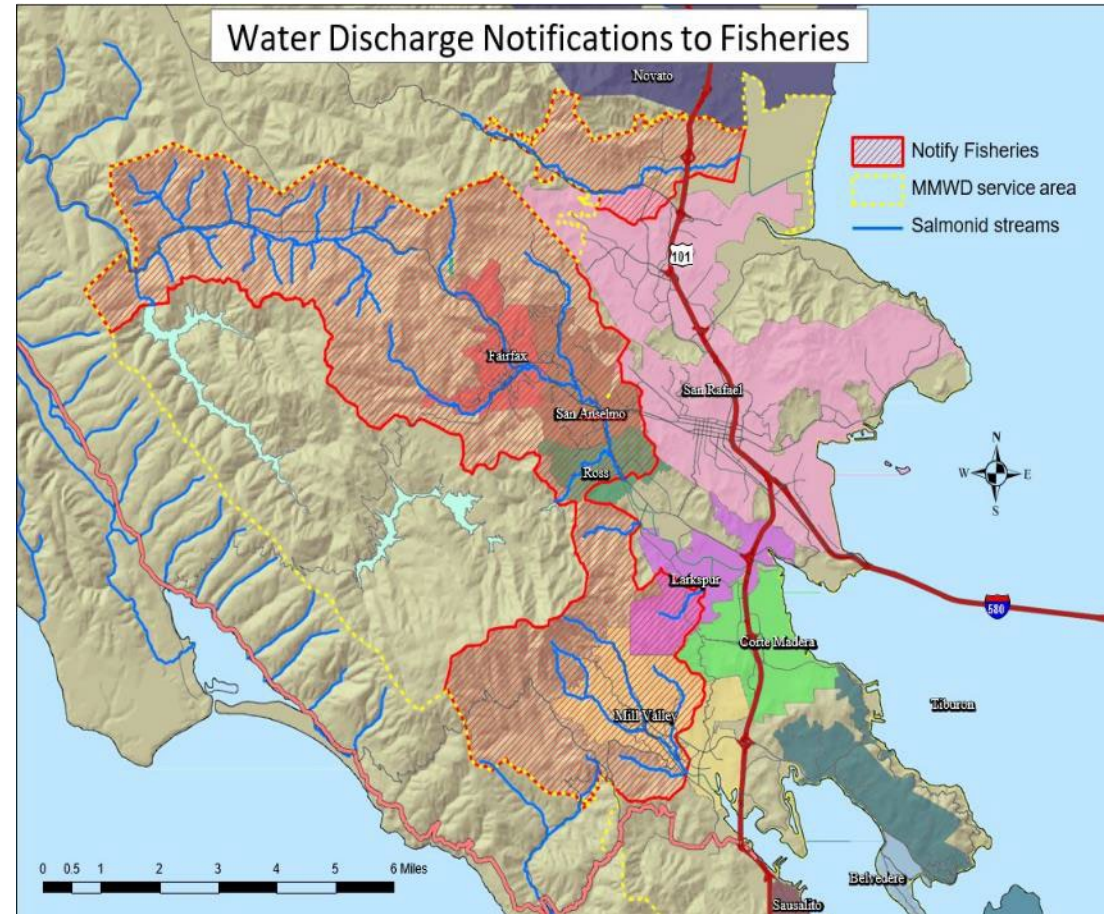
Fisheries Response

■ Response

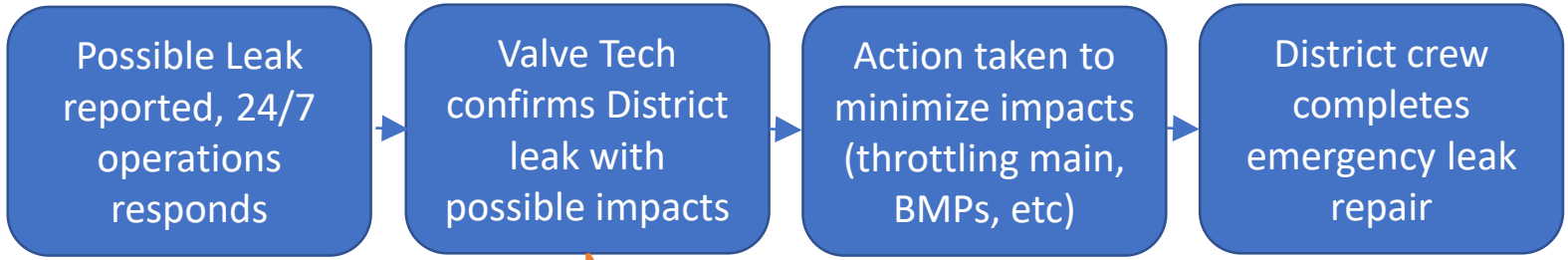
- Typically day of or within a day based on discharge information.
- Notified by Distribution Operator.

■ Inspection

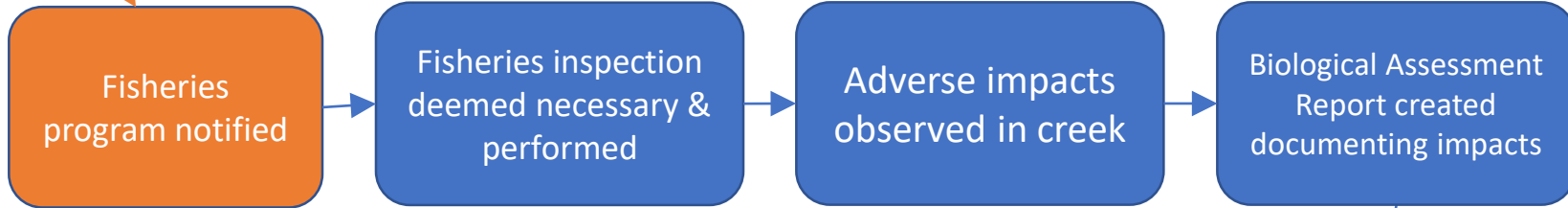
- Respond to site.
- Wade upstream and downstream of the discharge point.
- Identify adverse affects
- Documentation
 - Field inspection form
 - Photos and journal



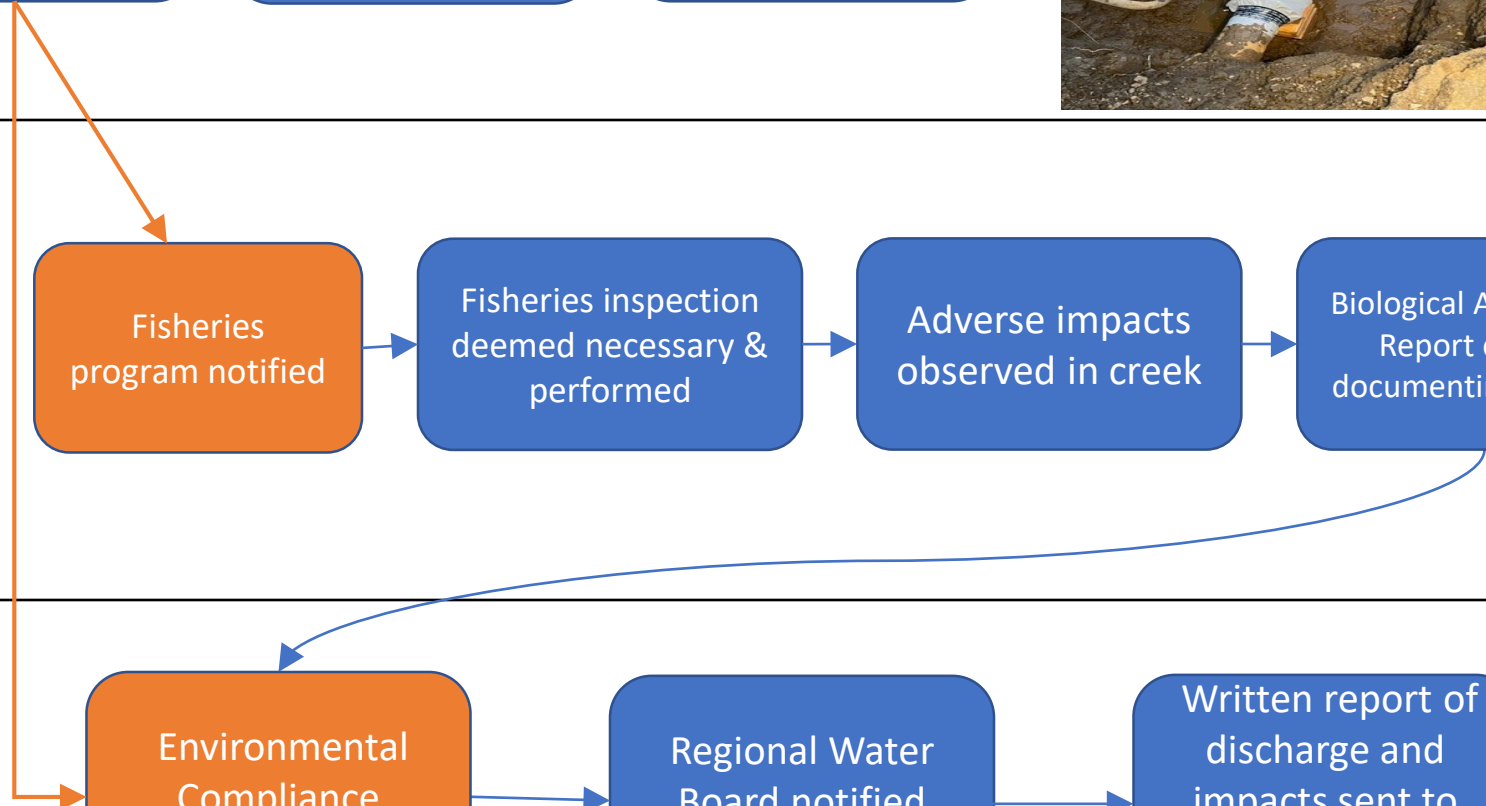
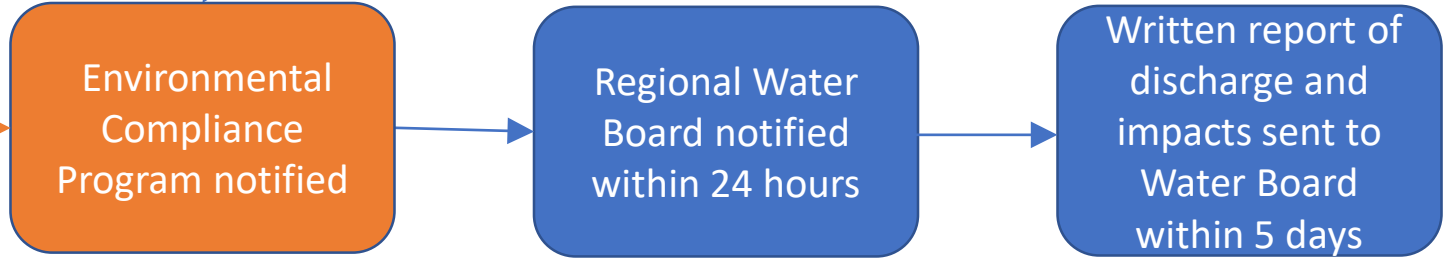
Operations



Watershed



Water Resources



Monitoring & Reporting: Unplanned Discharge

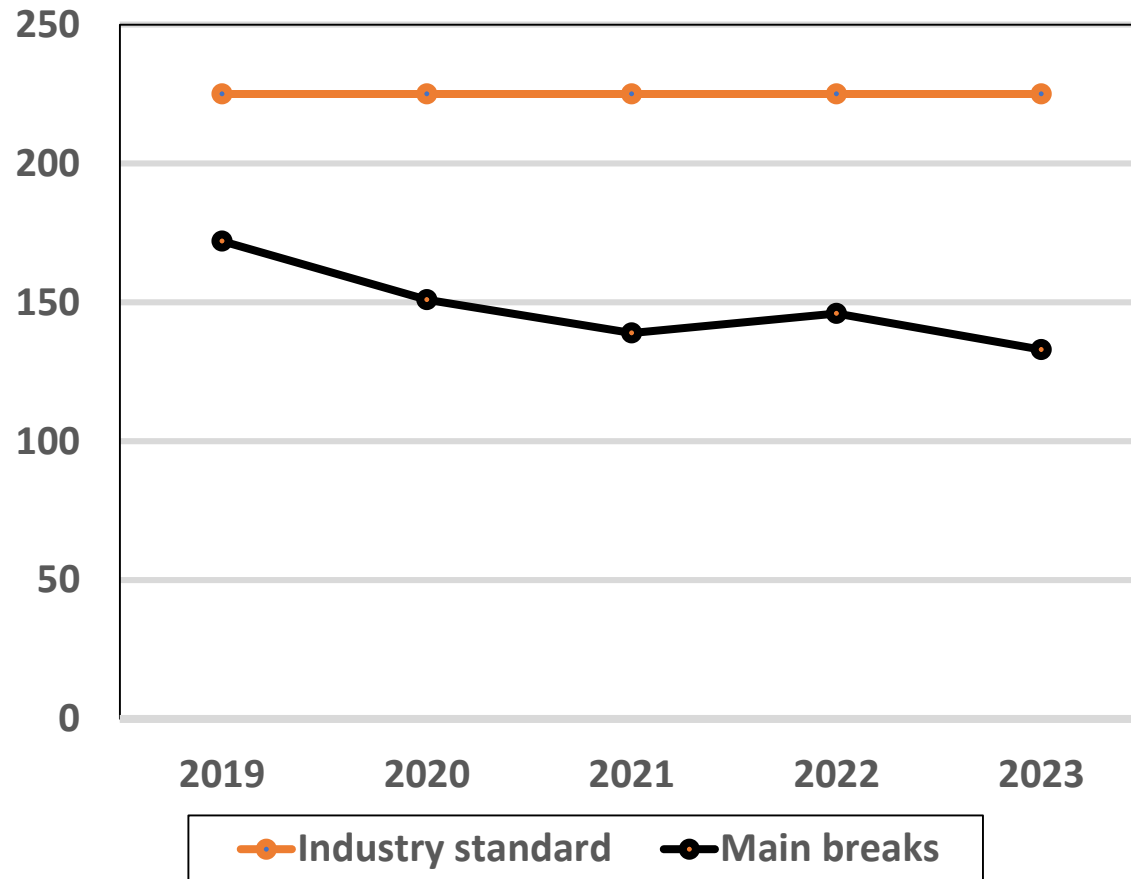
If aquatic habitat is adversely impacted by main break:

- Notify Regional Board within 24 hours of becoming aware of adverse effect
- Submit a written report within 5 days
 - Location of discharge
 - Date, time, duration and estimated volume of discharge
 - Stream or creek adversely impacted
 - Corrective actions taken

Systemwide Main leaks (2019-2023)

Year	Class I	Class II	Class III	Total
2019	90	14	68	172
2020	73	13	65	151
2021	67	14	58	139
2022	77	15	54	146
2023	70	12	51	133

Water Main Leaks Compared To Industry Average



■ **AWWA industry average** -----

- 25 water main breaks per 100 miles of pipe per year (12 month period)
- 900 miles of pipe = 225 main breaks per year

■ **Water main breaks** -----

- 2019 total = 172
- 2020 total = 151
- 2021 total = 139
- 2022 total = 146
- 2023 total = 133

Summary

- Water main leaks are an inherent part of a pressurized distribution system.
 - Frequency driven by age, material and corrosive soils.
- District averages 2-3 main leaks per week.
 - Continued investment in rehabilitation to support infrastructure.