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Challenges of Responding to a Railcar Coal Spill in a Remote River

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MEET OUR TEAM



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Outline

1. The Event
2. The Response
3. The Remediation

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The Event

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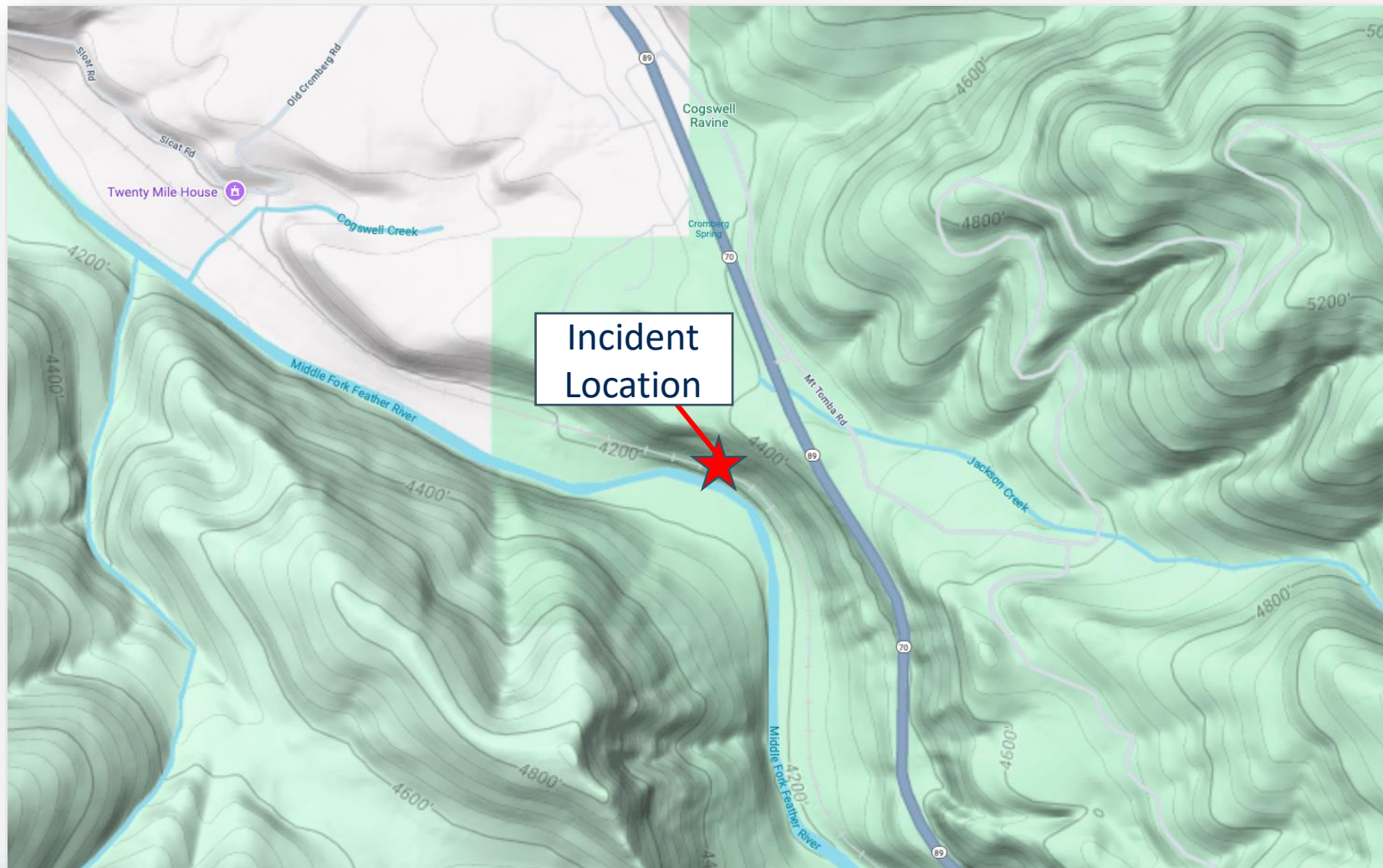
Background

- 2/11/2024 – 15 railcars with bituminous coal derailed near Sloat, CA
- 3 cars went into the Middle Fork Feather River.
- ~1770 tons spilled. ~300 into the river.
- ~4000' elevation and ~3 miles from staging area and paved road.

Location



Location



Day 1



The Response

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Initial Activities

Day 1

- Incident Command Trailers
- Water Sampling
- Creation of staging area

Day 2

- Response Team – Implements the Incident Command System
- Unified Command – Union Pacific Railroad (UPRR), US Environmental Protection Agency (USEPA), and CA Fish & Wildlife (CDFW)
- Virtual interaction with CA Department of Water Resources (CDWR), CA Regional Water Quality Control Board (RWQCB), US Fish & Wildlife Service (USFWS), US Forest Service (USFS) and US Army Corps of Engineers (USACE).

Response Team

- Responsible Party
- CTEH
- Arcadis
- GrayMar Environmental
- ZA Construction (ZA)
- Whitewater Rescue Institute (WRI)
- Weston Consulting- EPA Contractor
- Republic Services
- GHD

Challenges

- Coal
- Elevation
- Winter Weather
- Fluctuating water levels
- Wild & Scenic River
- Logistics
- Hi-Rail
- Active Tracks



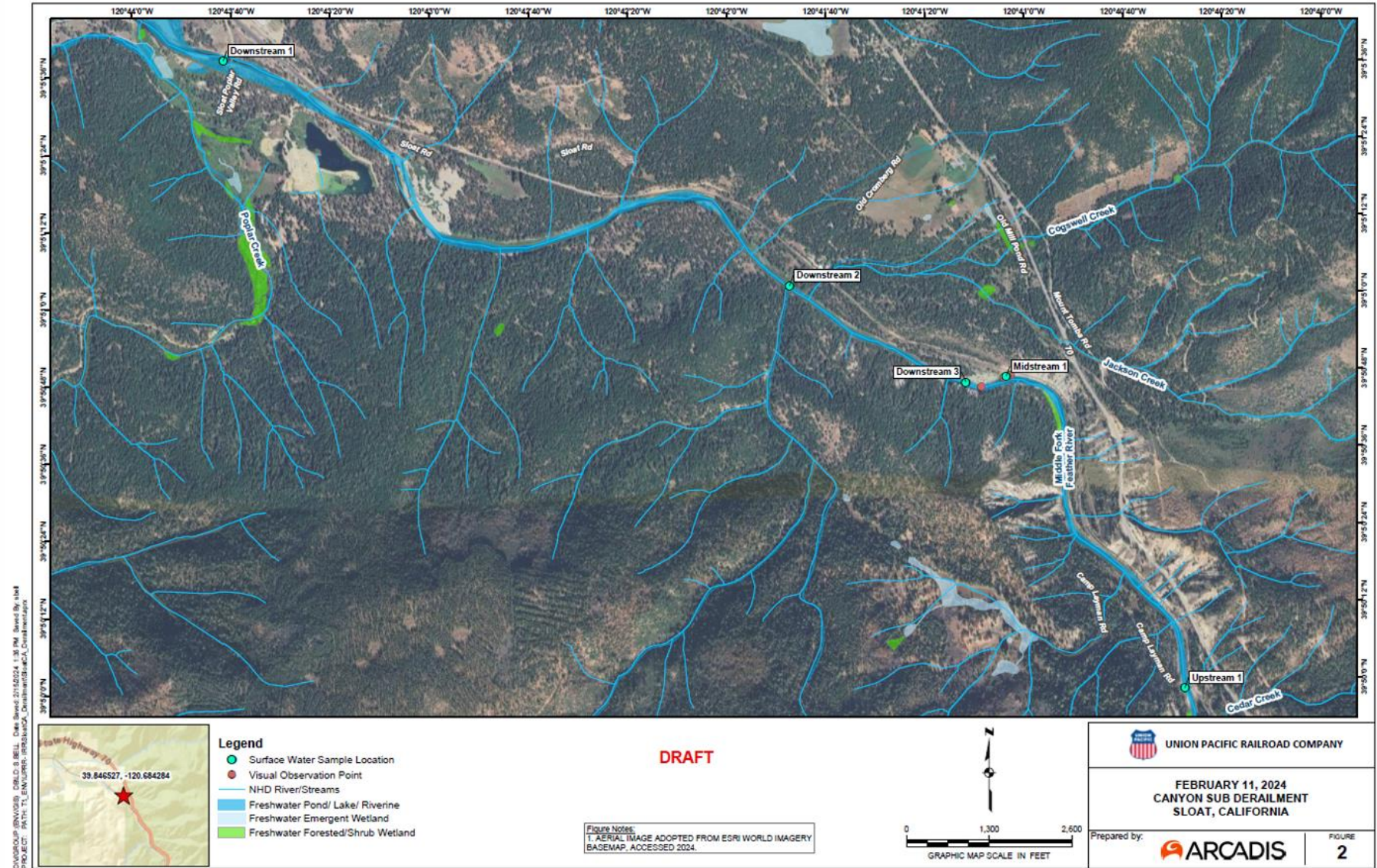






Environmental - Water Sampling

- Qualitative- Temperature, Turbidity, pH, Dissolved Oxygen, Oxidation-Reduction Potential, Conductivity
- Quantitative- Polycyclic Aromatic Hydrocarbons (PAHs), CAM 17 Metals, Dissolved Metals, Sulfur, Total Dissolved Solids, Total Suspended Solids, Total and Dissolved Organic Carbon (TOC and DOC), Inorganic Anions, Nitrate/Nitrite, and Inorganic Cations



Environmental - Rapid Assessment Technique (RAT)

- Modified/simplified Shoreline Characterization and Assessment Technique (SCAT)
- Visual Assessment:
 - River bank and shallow water deposition
 - Submerged (river bed) deposition - Plastic Dipper and/or Ekman Dredge sampler
- Categorization:
 - No Coal, Very Light, Light, Moderate, and Heavy
 - Coarse, Medium, and Fine
- Documentation - GPS, Photos, and Maps

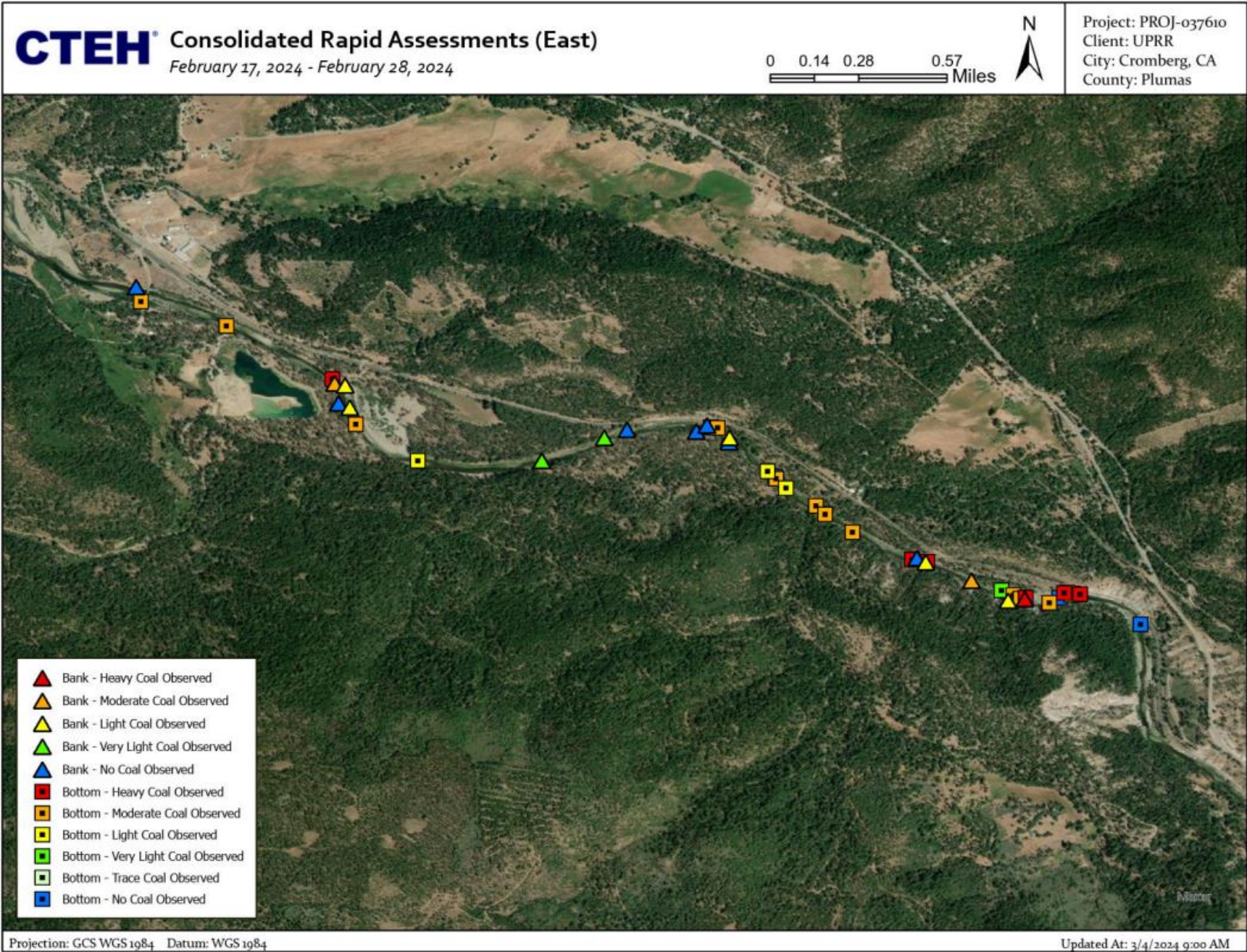
RAT Sampling



Ekman Dredge and Sediment Sample



Example RAT Map



Environmental - Boom Deployment & Erosion/Sedimentation Controls



The Remediation

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Affected Areas

- Track
- Slope
- In Water
- Downstream

Permits

- Federal
 - USACE- Section 404 Clean Water Act (CWA)
 - USFWS- Section 7 Endangered Species Consultation (yellow-legged frogs)
- State
 - RWQCB- 401 Water Quality Certification
 - CDFW- 1610 Lake and Streambed Alteration (LSA)

Waste

- Containment
 - At derailment site
 - In Staging Area
- Characterization Sampling for Disposal
 - Recovered coal stockpiles
 - Coal stockpiles dewatered into frac tanks
- 1000 yds sent to Lockwood Landfill, NV



Track

- Removed Cars
- Removed Coal
- Repaired Tracks
- Resumed Train Traffic

Slope

- Removed Cars
- Removed Coal
- Ensured Bank Stabilization

In Water

- Removed Top 2 Cars
- Constructed for Remaining Car:
 - Haul Road
 - Rock Dike
 - Cofferd Dam to Create Impoundment
 - Crane Pad with Diver Conex
 - Water Treatment
 - Coal Staging Area
- Tactics in the Impoundment:
 - Clam Shell
 - Diver with Vac Hose
 - Water Treatment and Monitoring
- Attain Endpoints















End Points

- Developed 20' x 20' Sampling Grid
- Agreed endpoints:
 - 10% coal cover per grid square
 - No Coal Patches > 1 sq. ft.
 - No Coal Patch > 1" Thickness
- Verified by Diver Camera and ROV
- Emergency Response Ended on 4/1/24

CTEH Containment Pond Sampling Grid
Canyon Sub Derailment

0 10 20 40
Feet



Project: PROJ-037610
Client: UPRR
City: Cromberg, CA
County: Plumas

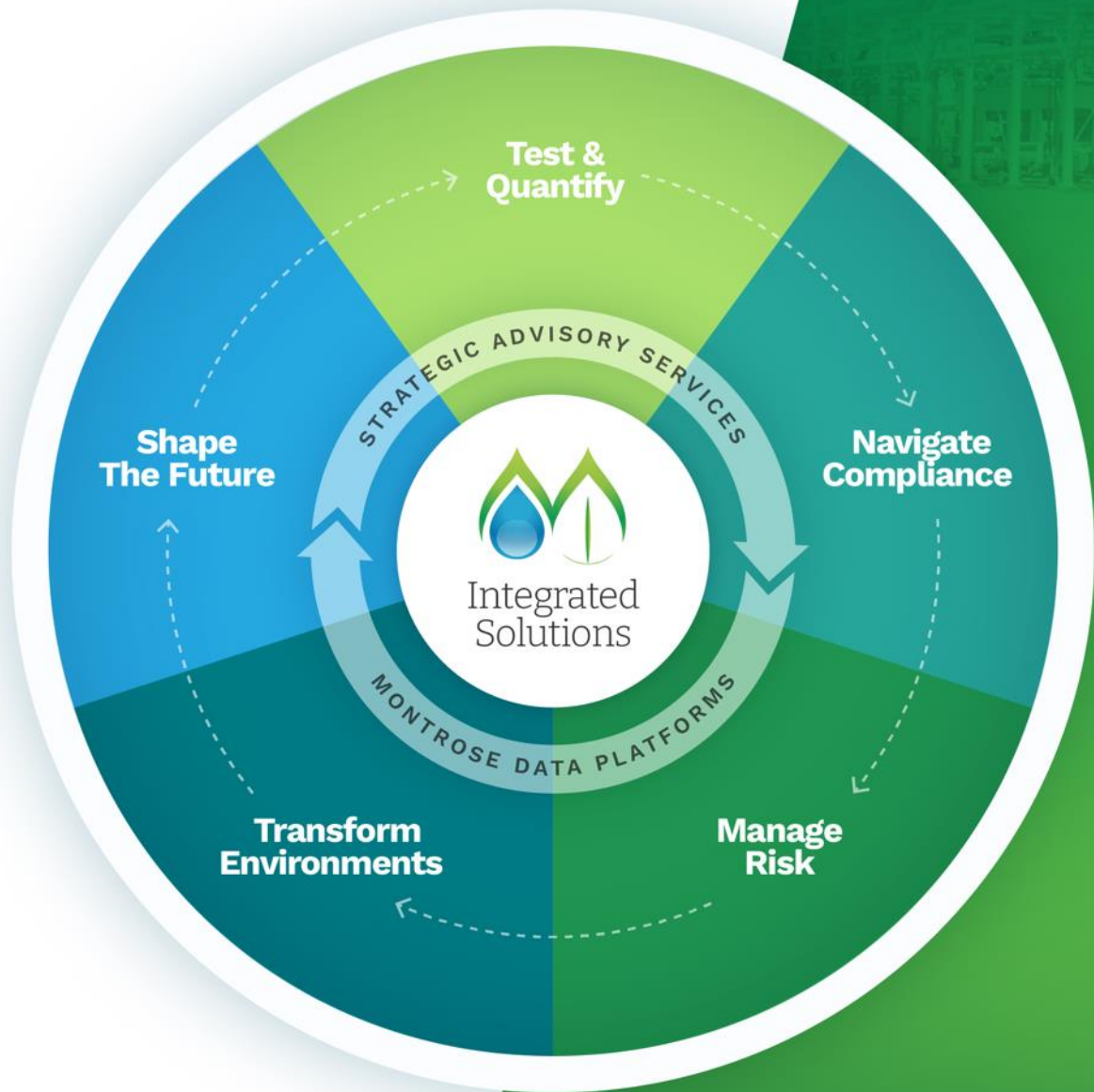


Downstream

- Joint RAT/Strike Team Clean up
- Long-Term Clean up and Monitoring







Montrose At A Glance

Montrose provides strategic, integrated solutions that guide organizations through environmental challenges, ultimately delivering business value and positively impacting our planet and society.

We implement environmental solutions that scale.

- ⑩ ~3,200 employees
- ⑩ ~100 locations worldwide
- ⑩ ~5,600 clients from the private and public sectors
- ⑩ 6 patents issued in 2022, for a total of 18 patents





Questions?

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