US ERA ARCHIVE DOCUMENT

# **R9 Laboratory - Water Quality Monitoring Capabilities**

# **Water Quality Sondes/Sensors**



#### **Acid Mine Drainage**

pH , Temperature Conductivity Oxidation-Reduction Potential Dissolved Oxygen Depth (9 Sondes)



## Lake/River Studies

Temperature
Chlorophyll
Phycocyanin
Phycoerythyrn
Rhodanine Dye
Green Algae
Blue-Green Algae
Turbidity
Oil
Depth
(1 system)



## **NPDES**

pH , Temperature
Conductivity
Dissolved Oxygen
Ammonia
Nitrate
Chloride
Turbidity
Depth
(1 system)

# **Automated Sampling**

#### Multipurpose

ISCO Samplers – Grabs or Composites (triggered collection based on time, depth/flow, or sensor-based thresholds (e.g., pH, Specific Conductance) 3 systems



## Storm Water

Global Water (peristaltic pump) 2 systems



D-TEC (Passive First Flush – 2 Systems



## Remote Internet Access (30 minute to one-hour intervals 24/7)



Cellular Telemetry – 1 system

Satellite Telemetry - 3 systems

# Test Site – Satellite Telemetry Leviathan Mine Superfund Site Alpine County – Sierra Nevada, California Elevation 6000-7000 feet

Acid Mine Drainage (AMD) emanates from a former copper sulfate mine as sulfuric acid and drains directly into Leviathan and Aspen Creeks. A satellite telemetry system provides project management a near real-time system to monitor two separate treatment systems and a compliance point. A sonde collects, and records water quality-monitoring data (pH, specific conductivity, ORP, DO, temperature, and depth), and a satellite modem transmits hourly to a third-party database provider that posts the data on the internet. The system works entirely off solar charged 12-volt battery power. Each location presents a unique set of challenges/concerns (satellite access, adequate sunlight, heavy snowfall, lightning strikes, flash floods, possible vandalism).





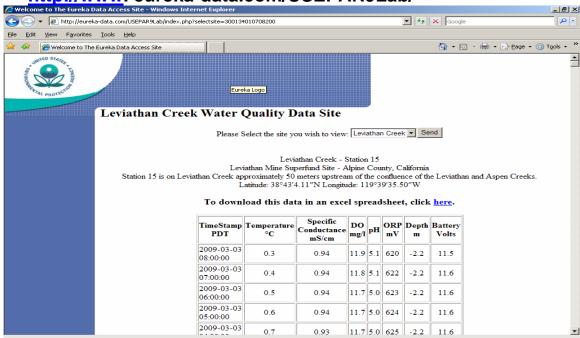


Aspen Creek

Leviathan Creek

Bryant Creek

# http://www.eureka-data.com/USEPAR9Lab/



Presently, three satellite telemetry systems transmit data hourly, monitoring: 1.) Bioreactor-treated AMD in Aspen Creek, 2.) Lime-treated and un-treated (seasonal) AMD in Leviathan Creek, and 3.) Downstream compliance in Bryant Creek. Each site is accessible from a drop down menu on a public internet site (password protection available). Download data in an Excel® spreadsheet format.