

# **CASE STUDY**

## **Vermont Confidential Site**

**August 2010**

**Prepared by  
The Interstate Technology & Regulatory Council  
Mining Waste Team**

Permission is granted to refer to or quote from this publication with the customary acknowledgment of the source. The suggested citation for this document is as follows:

ITRC (Interstate Technology & Regulatory Council). 2010. *Vermont, Confidential Site*. Mining Waste Treatment Technology Selection Web. Washington, D.C.: Interstate Technology & Regulatory Council, Mining Waste Team. [www.itrcweb.org](http://www.itrcweb.org).

### **Acknowledgements**

The ITRC Mining Waste Team would like to acknowledge Vance Weems and Timothy Tsukamoto, Ph.D., from Ionic Waters Technologies, who completed the April 2008 Mine Waste Case Study Survey, from which the information in this case study is taken.

## TABLE OF CONTENTS

1. SITE INFORMATION .....	1
1.1 Contacts .....	1
1.2 Name, Location, and Description.....	1
2. REMEDIAL ACTION AND TECHNOLOGIES.....	1
3. PERFORMANCE.....	1
4. COSTS .....	2
5. REGULATORY CHALLENGES .....	2
6. STAKEHOLDER CHALLENGES .....	2
7. OTHER CHALLENGES AND LESSONS LEARNED .....	2
8. REFERENCES .....	2

## VERMONT, CONFIDENTIAL SITE

### 1. SITE INFORMATION

#### 1.1 Contacts

Ionic Waters Technologies  
Vance Weems  
Telephone: 775-321-8101

Dr. Timothy Tsukamoto  
Telephone: 775-321-8101

#### 1.2 Name, Location, and Description

The site name and exact location has not been disclosed at this time; therefore, will be herein referred to as “the Site.” The Site is an inactive copper mine located in Vermont with limited access. Affected media include soil, sediment, surface water (e.g., stream, rivers, runoff, and drainage), surface pool water (e.g., lakes, ponds, and pools), and groundwater. Site cleanup goals are based on the mitigation of human health risk and mitigation of ecological risk.

### 2. REMEDIAL ACTION AND TECHNOLOGIES

At the Site, the primary impacts are from acidity, sulfate, and metals (aluminum, cadmium, cobalt, copper, iron, manganese, and nickel). Reclamation of the site falls under the provisions of the Clean Water Act (CWA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The primary treatment technology in place at the Site is chemical precipitation.

Chemical precipitation is being used at the Site to treat up to 60 gallons per minute. The treatment system uses a calcium oxide, dry feed system and pump to provide a lime slurry to the rotating-cylinder treatment system (RCTS). This arrangement eliminates the need for a slaker system. The system uses a silo, volumetric feeder, cone-bottom dosing tank, RCTS-60HS unit, and settling pond. This system has been operating at full scale. Treatment began in July 2008, and the system was scheduled to be winterized in mid-October to November 2008 and restarted in the spring of 2009. Treatment is expected to continue indefinitely.

### 3. PERFORMANCE

Performance and applicable standards must meet the Clean Water Act and CERCLA. Performance criteria include measuring the contaminant concentrations in water. At the Site, the RCTS is operating effectively and has eliminated the need for a lime slaker system, greatly

reducing operating costs. The project has shown a 30% reduction in sludge production when compared to standard titration of the affected waters. The system will be operated seasonally.

#### **4. COSTS**

Cost of activities at these site are reported as a total:

- Capital: \$500,000–\$1,000,000
- Operation and maintenance: less than \$100,000 per year

#### **5. REGULATORY CHALLENGES**

None encountered; pilot test only.

#### **6. STAKEHOLDER CHALLENGES**

No information available.

#### **7. OTHER CHALLENGES AND LESSONS LEARNED**

None reported.

#### **8. REFERENCES**

No information reported.