

CASE STUDY

Cement Creek Mine San Juan County, Colorado

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

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CEMENT CREEK MINE, SAN JUAN COUNTY, COLORADO

1. SITE INFORMATION

1.1 Contacts

Ionic Waters Technologies
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<http://wvmdtaskforce.com/proceedings/06/Tsukamotopres.pdf>

1.2 Name, Location, and Description

Cement Creek, located near Silverton, Colorado, is influenced by many tributaries in the surrounding basin related to several historic mining adits. Cement Creek flows through the town of Silverton, Colorado and is a tributary of the Upper Animas River.

The Cement Creek Mine is located in central San Juan County in southwestern Colorado (Lat. 37.817407N, Long. 107.636689W). The Cement Creek Mine was an underground silver mine. 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.

2. REMEDIAL ACTION AND TECHNOLOGIES

At the Cement Creek Mine, the primary impacts are from acidity, sulfate, and metals (aluminum, arsenic, cadmium, copper, iron, lead, manganese, nickel, and zinc). 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 Cement Creek Mine is chemical precipitation.

The quantity of affected water being remediated is up to 2,000–10,000 gallons per minute. Chemical precipitation at the Cement Creek Mine includes lime neutralization and aeration and oxidation of reducing metals with the rotating-cylinder treatment system (RCTS) system. Chemical precipitation has been operating as a pilot-scale demonstration for a period of three days using varying flow rates.

Site cleanup goals are based on the mitigation of human health risk and mitigation of ecological risk.

3. PERFORMANCE

Performance criteria include measuring the contaminant concentrations in water. The applicable standards are from CWA and CERLA. At the Cement Creek Mine, the RCTS demonstration (using a single RCTS-60HS unit) showed the ability to effectively treat contaminated water at rates of up to 400 gallons per minute with limited accessory components. It was determined that the system could operate in a full-scale mode in excess of 600 gallons per minute with a single RCTS-60HS unit.

4. COSTS

- Capital: Unable to report since project is in pilot-scale testing phase.
- Operation and maintenance: Cost figures not provided.

5. REGULATORY CHALLENGES

None encountered.

6. STAKEHOLDER CHALLENGES

None reported.

7. OTHER CHALLENGES AND LESSONS LEARNED

No information available.

8. REFERENCES

No information available.