CASE STUDY

American Tunnel Mine
San Juan County, Colorado

August 2010

Prepared by
The Interstate Technology & Regulatory Council
Mining Waste Team

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AMERICAN TUNNEL MINE, SAN JUAN COUNTY, COLORADO

1. SITE INFORMATION

1.1 Contacts

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Timothy Tsukamoto, Ph.D.
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1.2 Name, Location, and Description

The American Tunnel Mine is located in central San Juan County in southwestern Colorado (Lat. 37.817407N, Long. 107.636689W). The American Tunnel 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 American Tunnel 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 American Tunnel Mine is chemical precipitation.

Chemical precipitation at the American Tunnel 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. The quantity of affected water being remediated is up to 100 gallons per minute.

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

3. PERFORMANCE

Performance applicable standards include CERCLA and CWA. Performance criteria include measuring the contaminant concentrations in water, the amount of lime consumption, and sludge production. The RCTS demonstration showed the ability to be quickly mobilized and operated on the entire flow of up to 100 gallons per minute of water contaminated with high concentrations of reduced iron. The system was tested at varying flow rates of 30, 60, and 100

gallons per minute (total flow). As of October 2008, confirmation laboratory results were pending. On-site testing was positive, including lime efficiency calculations and sludge production.

4. COSTS

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

- 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

No information available.

7. OTHER CHALLENGES AND LESSONS LEARNED

No information available.

8. REFERENCES

No information available.