Gold King Mine Response and Recovery

October 26, 2015
Upper Animas River Basin

Mines Discharging a Combined 330 million gallons/year
Work Completed in Upper Animas

• Since 1990, over 50 reclamation projects have been completed in the Upper Animas River Basin, including:
  • moving or capping contaminated tailings and waste rock, installing passive treatment and ponds, water diversions, and mine adit hydraulic controls including bulkheads to halt or allow the management of flow from discharging mines.

• Projects have been completed in each of the three major tributaries above Silverton: the Upper Animas, Cement Creek, and Mineral Creek drainages.

• Projects have been completed by private mining companies (Sunnyside Gold Corp., Gold King Mining and others), Federal agencies (Bureau of Land Management and United States Forest Service), State of Colorado agencies (Division of Mining Geology/Division of Reclamation Mining and Safety), and by stakeholder groups (Animas River Stakeholder Group and others) through CWA Section 319 Funds.
Gold King Mine Site Operations

• Stabilizing mine access to establish control of water flow over the winter.

• Piping water discharge approx. 4600 feet from mine to treatment ponds at Gladstone.

• Further entry and stabilization will occur next season.
Gold King Mine Adit: Shotcrete Stabilizing Opening
Treatment Pond
Temporary Water Treatment Plant
Water Treatment

- Temporary treatment plant installed to treat GKM discharge over winter and during mine site operations; treating ~550 gpm from GKM

- Water treatment performance:
  - Neutral pH effluent > 6.0, < 9.0
  - Dissolved solids will be reduced by removal of metals and formation of metal hydroxide sludge.
  - Total solids will be reduced by coagulation, flocculation, and settling through the clarifier.
  - Color is currently caused primarily by iron oxidation, and staining is caused both by iron and manganese in the mine water forming precipitates on rocks and in sediments. The treatment process will remove both iron and manganese by more than 90%, reducing the potential for color.
  - For metals of concern, the treatment process typically removes metals between 95% and 99%.
Groups Working on Animas Issues

The Animas River Stakeholders Group (ARSG) mission is to:
- Improve water quality impacts resulting from historic mining
- Consensus building
- Usually meets on the 4th Tuesday of the month in Silverton or Durango
- More information: http://www.animasriverstakeholdersgroup.org/

Other Groups Active in addressing water quality issues in the Animas River:
- Animas Watershed Partnership http://animaswatershedpartnership.org/
- San Juan Citizen’s Alliance http://sanjuancitizens.org/

State of Colorado, La Plata County and San Juan County officials are also active in understanding concerns and options for addressing impacts to the Animas River.
Near Shiprock 8-9

West of Farmington/
Near Kirtland 8-9

Near Farmington: Animas/
San Juan Confluence 8-8

Durango 8-7
• EPA and NN EPA agree that the San Juan River is now safe for irrigation and livestock.
Post-Gold King Mine Release Incident: Conceptual Monitoring Plan for Surface Water, Sediments, and Biology

• Objectives
• Monitoring (locations, frequency, analytes)
• Data Management and QA/QC
• Decision model for continued monitoring
• Stakeholder input
Resources Available to Assist Tribes in Developing Emergency Planning and Response Readiness Programs
Emergency Planning and Community Right-to-Know Act (EPCRA)

• Emergency planning
• Chemical reporting
• Emergency release notifications
EPCRA Sections

301  Establish State Emergency Response Commissions (SERCS); Tribal Emergency Response Commissions (TERCs) & Local Emergency Planning Committee (LEPCs)

302  Covered substances & facilities; set up notification

303  Comprehensive emergency response plan (LEPC)

304  Emergency release notification

311  Hazardous chemical inventory (MSDS)

312  Hazardous chemical inventory (Tier I or Tier II)

313  Toxic chemical release reporting (TRI)

321-29 Miscellaneous
Benefits of TERCs

• Proven, regulation based structure for emergency planning to serve relevant community needs
• Forum for Emergency Management, Public Health, and Environmental Management Collaboration
• Focal point for hazardous materials inventory information, hazard assessment and hazard awareness
• Demonstrated vehicle for training, grant and technical assistance coordination for chemical emergency preparedness and response
• Can support all-hazards planning and preparedness
Tribal Options for EPCRA Implementation

- Directly implement program within Indian Country
- Enter into cooperative agreements with another tribe, consortium of tribes, or a state
- Cooperative agreement with SERC
  - Tribe chooses to implement some requirements
  - State implements remainder
- Authorize SERC to perform functions of TERC within Indian Country
  - Tribe establishes a LEPC or joins off-reservation LEPC that works with the SERC
- Tribal chief executive officer operates as the TERC when a TERC is not established or cooperative agreement not developed
Information Resources

• EPRCA Implementation in Indian Country  
  http://www2.epa.gov/tribal/emergency-planning-and-right-know-programs

• U.S. EPA EPCRA Hotline: 1-800-535-020

• National Response Center: 1-800-424-8802

• EPA REGION 9 SERC, TERC and LEPC Liaison  
  Bill Jones  
  Emergency Prevention and Preparedness Section, Superfund Division  
  (619) 235-4776, jones.bill@epa.gov
Information Resources (continued)

  • Meets quarterly in locations throughout the Region
  • Great exercise, training and coordination opportunities

• EPA Tribal Portal: [http://www2.epa.gov/tribal](http://www2.epa.gov/tribal)

• FEMA: [https://www.fema.gov/preparedness-resources-tribes](https://www.fema.gov/preparedness-resources-tribes)

• Inter-Tribal Councils in AZ, CA, NV

• Cal OES: [http://www.caloes.ca.gov/cal-oes-divisions/tribal-coordination](http://www.caloes.ca.gov/cal-oes-divisions/tribal-coordination)


• ITERCNV: [http://www.itercnv.org/about.htm](http://www.itercnv.org/about.htm)

• **Tribal Emergency Management Assn.**: [http://itema.org/](http://itema.org/)
Grants – Some Examples

• General Assistance Program [EPA]

• Brownfields 128(a) [EPA]

• Hazardous Materials Emergency Planning [DOT]

• Tribal Homeland Security Grant Program [FEMA]
Questions