Superfund or Not in the Animas Basin

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Animas River Stakeholders Group
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Natural Geological Acid Rock Drainage


Mine Waste
Acid Rock Drainage
(Prospect Gulch)

Acid Mine Drainage

Accomplishments without Superfund

- Formation of the Animas River Stakeholders Group (ARSG) in 1994. Initiated by the Colo. Dept. of Public Health and Environment (CDPHE).
- Threat of Strict Water Quality Standards from Colo. Water Quality Control Commission.
- Threat of Superfund Designation from EPA.

ARSG Approach

- ARSG is not a formal entity. Use San Juan Resource Conservation and Development Council for 501 (c)(3).
- Anyone can be a stakeholder and participate.
- Make decisions by informal consensus.
- Don't try to assign blame.
- Don't get involved in permitted sites.

ARSG Approach

- Characterize abandoned and inactive mine sites (~185 draining mines and ~200 mine waste piles sampled; about 15% of the sites contribute 90% of the loading, pre-Gladstone issues).
- Determine feasibility of remediation of sites and prioritize sites to address.
- Propose water quality standards based on remediation feasibility (in 2001).
- Remediate sites.

Koehler Tunnel

Before

After

Pride of West Stope Infiltration Control Project


Pride of the West

NPS 319 Infiltration Control Project
Carbon Lakes Ditch (2003)

Mine Workings Below Ditch

San Antonio Mine Dump

Carbon Lakes Trans-basin ditch

Before

After


Koehler Bulkhead

Grouting
Koehler Bulkhead

Remediation

Over 60 Mine Remediation Projects Have Been Completed in the Animas Basin.

Most of the Mine Waste Sites Have been Completed.

Only about 5 Draining Mines Have Been Addressed.

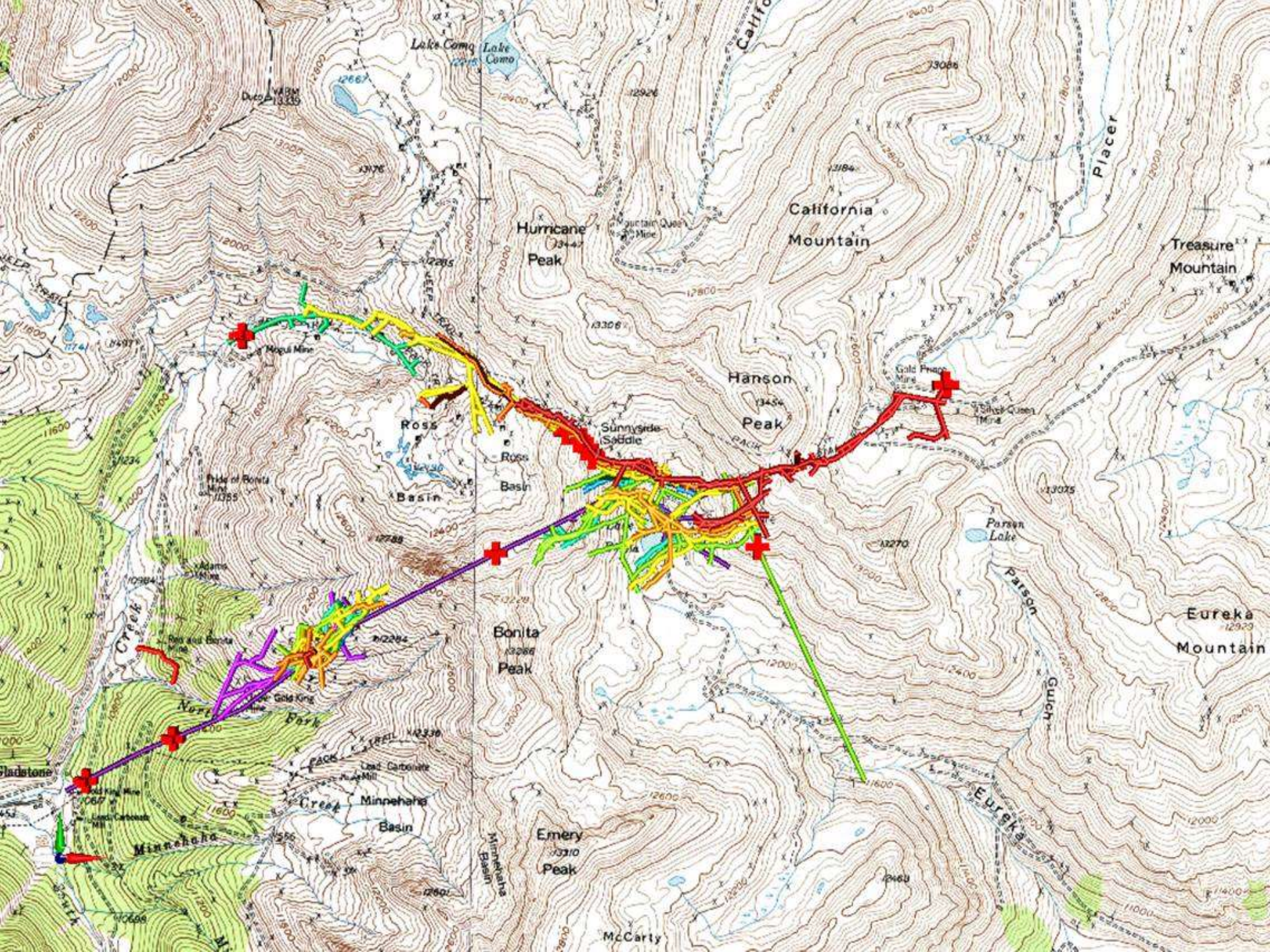
Liability Concerns – Lack of Good Samaritan Provision.

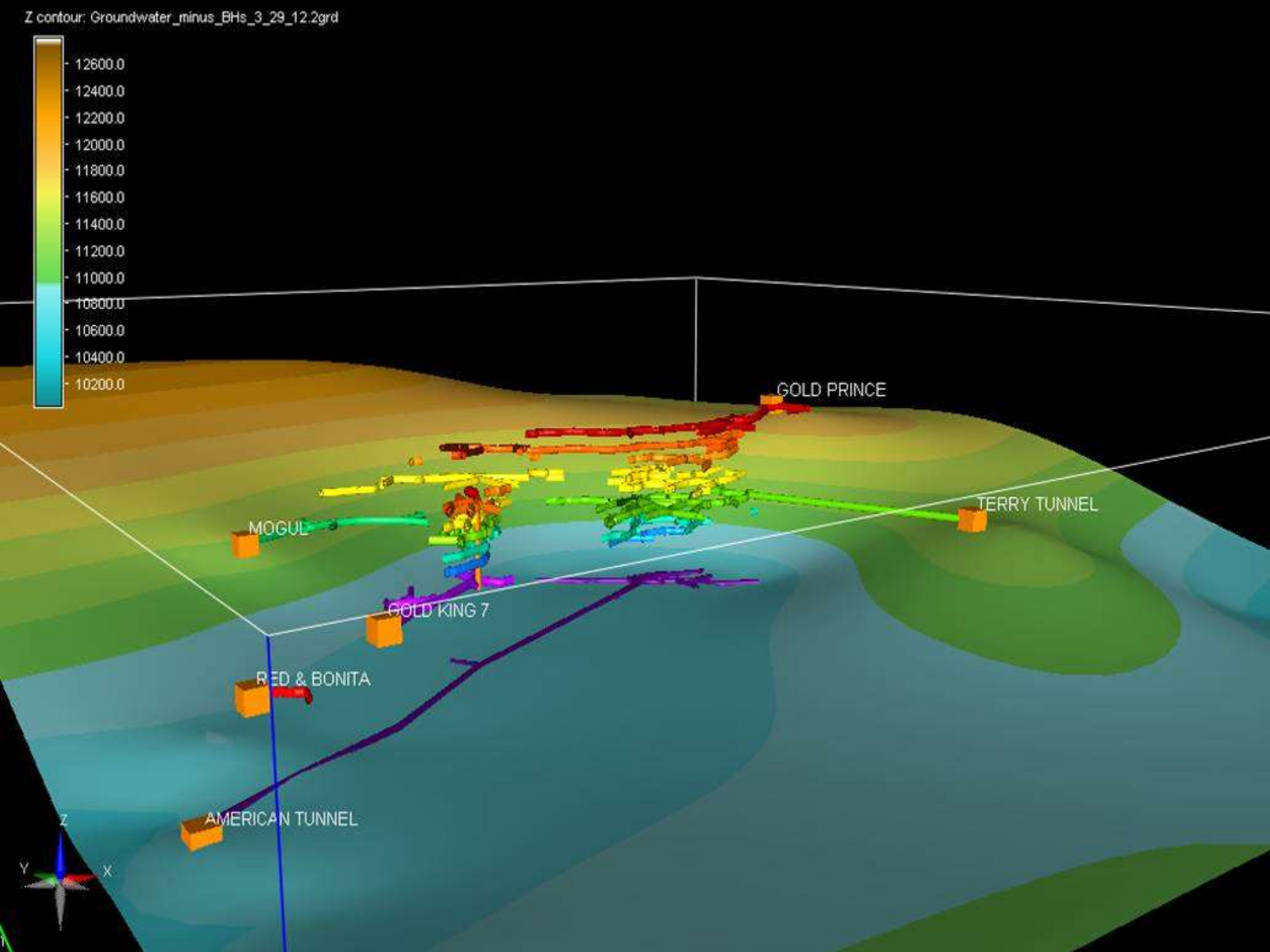
Results

Up to a 70% Reduction in Zinc and Copper in Mineral Creek.

By Early 2000's, Much Improved Fishery Downstream of Silverton.

However, by mid 2000's Previously Permitted Sites Became Much Bigger Metal Contributors that Significantly Worsened Water Quality.


Lake Como
Lake Como
Hurricane Peak
California Mountain
Placer
Treasure Mountain
Hanson Peak
Sunnyside Saddle
Ross Basin
Bonita Peak
Parson Lake
Parson Gulch
Eureka Mountain
Eureka
Emery Peak
Minnehaha Basin
Minnehaha Creek
North Fork
Gladstone
McCarty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TERRY TUNNEL
MOGUL
GOLD KING 7
RED & BONITA
AMERICAN TUNNEL
Z
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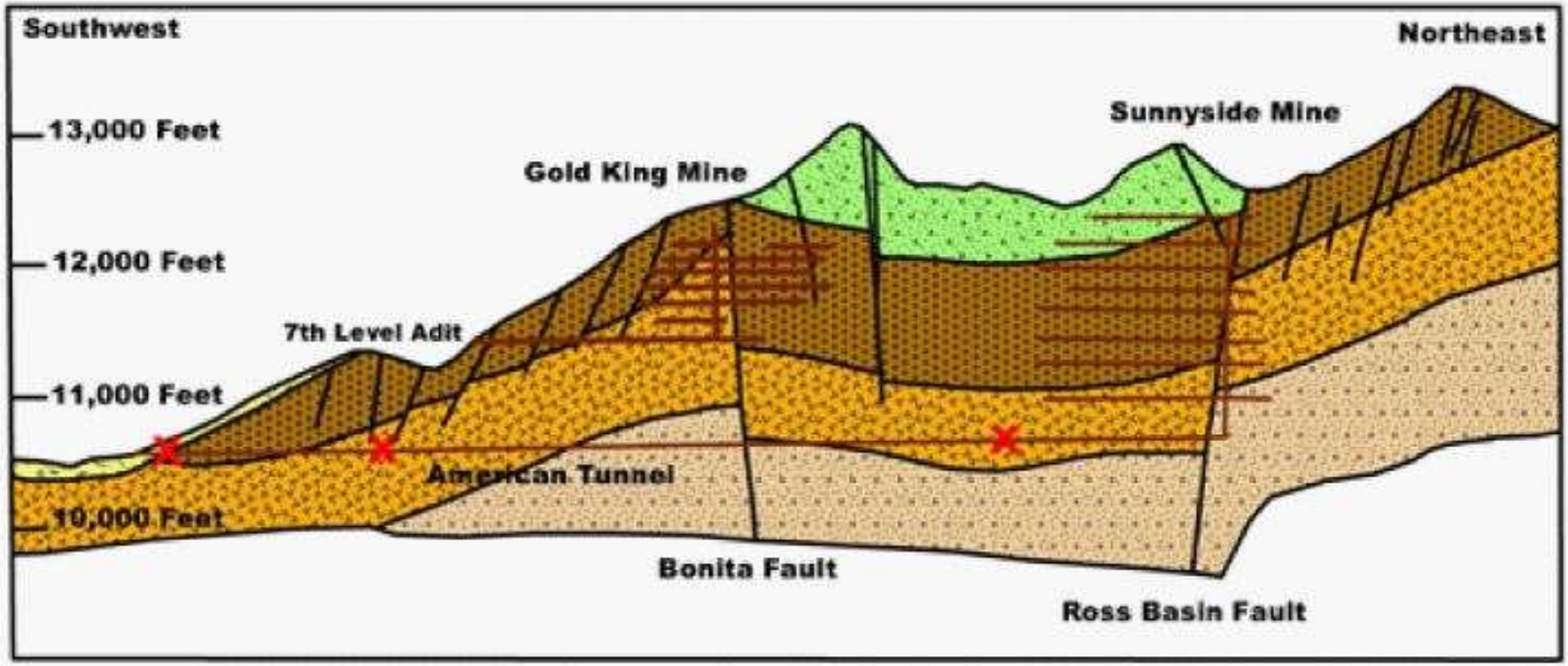

0 1,000 2,000 3,000 4,000 5,000 Feet

Scale

Modified from U. S. Geological Survey
Professional Paper 535, Plate 6

X Bulkhead

Legend

Rock Unit

- Talus and Qal
- Andesite-Rhyodacite
- Upper Rhyodacite Flow
- Lower Rhyodacite Flow
- Rhyodacite Tuff

Cross-Section of Gold King and Sunnyside Mines

Discharges Around Gladstone

In 1990's: Sunnyside Gold Treated 1600 gpm from American Tunnel.

Now: New Untreated Drainage from Four Portals is about 700 gpm with High Metal Load.


Gold King 7 Level Drainage


Mogul Mine


American Tunnel


Red & Bonita
In 2009


Red & Bonita
In 2012

Road Blocks for Moving Forward without Superfund

- Lack of Liability Protection to Address Draining Mines.
- Lack of a Substantial Funding Sources to Address Abandoned and Inactive Mines.
- Uncertain Liability for any Potentially Liable Party (PRP's). (Difficult for Voluntary Cleanup or Natural Resource Damages Lawsuit approaches.)

Community Concerns with Superfund

- Lack of Human Health Risk and Superfund Over-Extended, So Funding May Not Materialize.
- Lack of Local Control.
- Listed Sites Cannot Be Addressed Outside of Superfund.
- Resources Go to Attorneys and Consultants instead of Moving Dirt.
- Impact of Tourism and Property Values.

Final Comments

- All Aquatic Life Water Quality Standards Are Met in Durango.
- Superfund Designation Moving Forward; 48 Mine Sites/Areas to be Listed. Some Sites Are Minor Compared to Others.
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- Improvements in Water Quality Will Be Made. Potential Mine Blowouts Unlikely to Be Addressed.
- Timeline Unknown. Costs Unknown.