

Testimony by

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on behalf of

THE WESTERN GOVERNORS' ASSOCIATION

&

THE WESTERN STATES WATER COUNCIL

Regarding

Barriers to the Cleanups of Abandoned Mines

Before the

House Resources Subcommittee on Energy and Mineral Resources

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Mr. Chairman, and members of the Subcommittee, thank you for the opportunity to appear before you today to discuss an issue of great importance to Western states—abandoned or inactive mines and the barriers that exist to the cleanup of these mines. Abandoned or inactive mines are responsible for many of the greatest threats and impairments to water quality across the Western United States. Thousands of stream miles are severely impacted by drainage and runoff from these mines, often for which a responsible party is unidentifiable or not economically viable.

Regulatory approaches to address the environmental impacts of abandoned or inactive mines are often fraught with difficulties, starting with the challenge of identifying legally responsible and financially viable parties for particular impacted sites. Mine operators responsible for conditions at a site may be long gone. The land and mineral ownership patterns in mining districts are extremely complex and highly differentiated. The surface and mineral estates at mine sites are often severed and water rights may exist for mine drainage. It is not uncommon for there to be dozens of parties with partial ownership or operational histories associated with a given site.

In view of the impacts on water quality caused by these abandoned mines and the difficulties in identifying responsible parties to remediate the sites, Western states are very interested in undertaking and encouraging voluntary “Good Samaritan” remediation initiatives, i.e., cleanup efforts by states or other third parties who are not legally responsible for the existing conditions at a site. However, “Good Samaritans” currently are dissuaded from taking measures to clean up the mines due to an overwhelming disincentive in the Clean Water Act.

To date, Environmental Protection Agency (EPA) policy and some case law have viewed

abandoned or inactive mined land drainage and runoff as problems that must be addressed under the Clean Water Act Section 402 National Pollutant Discharge Elimination system (NPDES) permit program. However, there is currently no provision in the Clean Water Act that protects a “Good Samaritan” who attempts to improve the conditions at these sites from becoming legally responsible for any continuing discharges from the mined land after completion of a cleanup project. This potential liability is an overwhelming disincentive to voluntary remedial activities to address the serious problems associated with inactive or abandoned mined lands.

The Western states have found that there would be a high degree of interest and willingness on the part of federal, state and local agencies, volunteer organizations and private parties to work together toward solutions to the multi-faceted problems commonly found on inactive mined lands if an effective Good Samaritan provision were adopted. Consequently, for over a decade Western states have participated in and encouraged—in cooperation with Congressional Offices, the environmental community, the mining industry, EPA, and other interested parties—efforts to develop appropriate Good Samaritan legislation. The Western Governors’ Association and the Western States Water Council have focused on amending the Clean Water Act in order to eliminate the current disincentives that exist in the Act. However, the Western States believe that there could be benefits to addressing potential liabilities under CERCLA as well.

Responses to Major Issues

Scope of “Good Samaritan” or “Remediating Party” Definition

The Western states believe that participation in Good Samaritan cleanups should not be limited solely to governmental entities, since there are many other persons likely willing to contribute to Good Samaritan cleanup initiatives. The states believe the statutory provisions should do the following:

- 1) broadly exclude those with prior involvement at the abandoned or inactive mine site;
- 2) broadly exclude those with current or prior legal responsibility for discharges at a site;
- 3) assure that any non-remediation-related development at a site is subject to the normal NPDES rules, rather than the Good Samaritan provision; and
- 4) be narrowly enough constructed to minimize fears over potential abuses of this type of discharge permit.

Delegation Authority

The Western states support including authority to the EPA Administrator to delegate permitting authority to states. At a minimum, the program should be delegable to states where the remediating party is not a state government agency.

If Good Samaritan permits can only be issued by the Administrator, it will be important to clarify the states’ and tribal roles in this process when entities other than states act as remediating parties. The Western states believe the proposal should include a requirement that the Administrator only issue a permit with the concurrence of the applicable State or Indian tribe. By “concurrence,” the states mean that a permit shall not be issued or modified unless the EPA Administrator and the applicable State, and if appropriate, the applicable Indian Tribe, have

agreed to all terms specified in the permit.

Standard for Cleanup

An important issue that any Good Samaritan bill will need to address is the standard to which sites need be cleaned. The Western states believe only those Good Samaritan projects that will result in significant improvements should be approved, but recognize the difficulty in legislatively defining such terms as “significant.” A Good Samaritan clean up permit should be approved only if the remediation plan demonstrates with reasonable certainty that the actions will result in an improvement in water quality. Further, we believe Good Samaritans will have no reason to undertake the expense of an abandoned mine cleanup project unless they believe that meaningful water quality improvement will result.

The analysis of a proposed project needs to occur at the front end of a project. Once there is agreement that a project is expected to result in water quality improvement, with no reasonable likelihood of resulting in water quality degradation, the Good Samaritan’s responsibility must be defined as implementing the approved project rather than meeting specific numerical effluent limits or standards. The exception to this structure that the states agree upon is that if a Good Samaritan seeks early termination of a permit, meaning they will not fulfill the obligations of the permit, then they have to ensure that the conditions at the site are no worse than before they started the project.

Mining Site Eligibility

The Good Samaritan proposal was developed initially with a focus principally on impacts from abandoned or inactive hardrock mines in the Western United States. However, the Western states recognize that there are also remaining challenges regarding the remediation of abandoned or inactive coal mines. Therefore, the Western states accept that the proposed definition of “abandoned or inactive mined lands” could be drafted to include coal sites eligible for reclamation or drainage abatement expenditures under the Surface Mining Control and Reclamation Act (SMCRA). However, to avoid interference with complex issues regarding the implementation of SMCRA, the definition should not include sites under Title V of SMCRA where mining has occurred subsequent to SMCRA’s adoption. The Western Governors’ Association would have concerns with efforts to allow Good Samaritan permits for lands regulated under Title V of SMCRA. The Western states advocate that any Good Samaritan bill include a provision exempting state AML programs certified under SMCRA from having to obtain a Clean Water Act – Good Samaritan permit. SMCRA-certified AML programs already receive liability protections, and the states want to ensure that these SMCRA protections are preserved.

Search for Parties with Existing Liabilities

Western states agree that any Good Samaritan cleanup must include a summary of the results of a reasonable effort to identify parties whose past activities have affected discharges at the site. Additionally, Western states agree that the permitting authority should make a determination that no identifiable, financially viable, owner or operator exists before issuing a permit. Western states further agree that existing liabilities for mined lands should not be affected by the clean up.

Remining

The Western states find that, while providing incentives for remining is an important topic that warrants further public discussion and analysis, the issue brings into play policy considerations and stakeholders that go well beyond those involved in Good Samaritan remediation issues. Aside from the stated opposition a remining provision would bring, it would also necessarily involve other statutes beyond the Clean Water Act and thus trigger other congressional committee jurisdictions, all of which would greatly complicate enactment of a Good Samaritan provision. Western states believe it is appropriate to allow limited incidental reprocessing of tailings or waste rock piles to take place during an approved Good Samaritan cleanup, so long as the revenues which result from such reprocessing would go toward offsetting the total costs of cleaning up the site.

Citizen Suit Enforcement

The citizen suit enforcement tool under the Clean Water Act has proven to be a useful incentive to encourage permit compliance by point source dischargers subject to the NPDES program. From the outset of development of the Good Samaritan proposal, the Western states have believed that a different set of enforcement tools is warranted for Good Samaritan permittees. Other permittees are required to get Clean Water Act Section 402 permits because they are undertaking activities that cause pollution, and a policy decision has been made that a broad array of enforcement tools are appropriate to assure that these polluting activities are adequately controlled. A Good Samaritan is not a “polluter,” but rather an entity that voluntarily steps in to remediate pollution caused by others. In this case, sound public policy needs to be focused on creating incentives for the Good Samaritans’ actions, not on aggressive enforcement that creates real or perceived risks to those that might otherwise undertake such projects. It is clear that the perceived risk of Clean Water Act citizen suit action is currently a major disincentive for such efforts.

Funding for Remediation

Historically, Clean Water Act Section 319 funds for addressing nonpoint sources of pollution have been utilized for a number of cleanup projects at inactive and abandoned mines. To ensure that Section 319 funds will continue to be available for such cleanup projects, any Good Samaritan legislation should include a provision expressing that Section 319 funds may be used for approved Good Samaritan projects. Such provision would not be intended to change the current Section 319 allocation formula or a state’s prioritization of projects under a state nonpoint source management program.

H.R. 5404, “Good Samaritan Clean Watershed Act”

The Western Governors commend Administrator Johnson and the U.S. Environmental Protection Agency for their efforts in developing H.R. 5404, “Good Samaritan Clean Watershed Act” and its companion in the Senate, S. 2780. We strongly support these efforts, and believe the bill represents a solid basis for moving forward. There are a limited set of issues for which we would like clarification, but we are confident that these issues can be easily resolved. A description of the issues follows:

- *Scope of Liability Protection* – WGA supports allowing liability relief to Good Samaritans for both the Clean Water Act and CERCLA (as contained in the bill under the definition of “Environmental Laws”). However, we would like clarification of how the CERCLA liability relief would function under the bill.
- *Federal Lands* – WGA would like clarification regarding the extent to which Good Samaritan cleanups would be allowed on federal lands, and the potential role of federal agencies in Good Samaritan projects.
- *Early Termination of a Permit* – WGA would like clarification regarding the standards for cleanup in the event of early termination, e.g., “no worse than before,” and clarification of whether the permitting agency would have the authority to set such standards.
- *Implementing Regulations* – WGA would like clarification of whether EPA would be required to issue regulations before Good Samaritan permits could be issued.

Conclusion

The Western governors have consistently identified the Good Samaritan provision as one of their high priorities regarding water quality. The Western states urge Congress to proceed with the enactment of a Good Samaritan program that will allow states to proceed on Good Samaritan cleanups in accordance with the principles I have described. We urge Congress to avoid expanding the Good Samaritan proposal to include issues such as remining or a general fee on mining. The Western states are concerned that efforts to expand the scope of this program are likely to generate significant opposition that may further delay or frustrate the ability to get this needed and widely supported proposal enacted into law.

The Western Governors’ Association and the Western States Water Council commend you for this oversight hearing and for your interest in H.R. 5404, “Good Samaritan Clean Watershed Act.” We would welcome the opportunity to work with you to clarify a limited set of issues in that bill as outlined in this testimony. We look forward to working with the appropriate Congressional committees, Senator Salazar, Senator Allard--the sponsors of S.1848, Representative Udall and Representative Beauprez--the sponsors of H.R.1266, the EPA, the mining industry, environmental groups and other interested parties to see Good Samaritan legislation enacted this year. As soon as a law is passed allowing Good Samaritan cleanups of abandoned or inactive mines, water quality in the West will begin to improve.

Attachments

- Examples of Abandoned or Inactive Mines which have been Assessed for Remediation in Western States
- WGA Policy Resolution 04-10 “Cleaning Up Abandoned Mines”

ATTACHMENT TO JOAN CARD'S TESTIMONY ON BEHALF OF WGA

Examples of Abandoned or Inactive Mines which have been Assessed for Remediation in Western States

The following cleanups have been postponed due to potential NPDES liability.

California

Walker Mine Copper Mine, Plumas County

Regional Board spent over 30 years unsuccessfully suing the mine owner to cleanup acid mine drainage discharge that sterilized a creek. Finally, the Board plugged mine shaft and accepted settlement from mine owner's estate. The Board remains liable for any point source discharge that may occur from the plug.

Buena Vista/Klau Mine Mercury Mine, San Luis Obispo County

Central Coast Board has unsuccessfully tried to secure cleanup from mine owner for over 20 years. These mines are the source of 80 percent of mercury pollution in Nacimiento Reservoir, which is under a fishing advisory. US EPA is willing to do cleanup on condition California takes over the long-term operation and maintenance. The state is unwilling to accept liability for NPDES discharges at site and so relieve the recalcitrant mine owner of responsibility. Cleanup may be delayed until potential state liability is resolved.

Mt. Diablo Mine Mercury Mine, Contra Costa County

Owner discovered mine after spending entire savings to buy land for a residence. Mine pollution has sterilized a creek and caused a fishing advisory in a nearby reservoir. With liability protection, a government agency could do partial remediation to significantly reduce pollutant discharges from the site. Without liability protection it is likely no remediation will occur.

Stowell Mine, Keystone Mine, and Mammoth Mine, Shasta County

In 1991, the Board secured \$1 million from the State Cleanup Account to hire consultants to perform remedial work at those three mines. Although a responsible party eventually came forward to take remedial action, the Board decided to return the funds rather than apply them to mine cleanup because of liability concerns (brought on by the Penn Mine case.)

Balaklala and Shasta King Mines, Shasta County

These mines discharge abandoned mine drainage to West Squaw Creek, a tributary to Shasta Lake. Impacts include elimination of aquatic life in the stream below the mines, frequent fish kills where the stream enters Shasta Lake and degradation of recreational/aesthetic uses in this part of the National Recreation Area. The owner, Alta Gold Company, has performed some remedial work but final site restoration is probably beyond their capability. There is a unique opportunity here for Alta Gold to sell the property to the public resource agencies for development of an off-road vehicle park with funds from the sale to be used for mine drainage control. This arrangement could provide substantial funds for problem solution but is presently

not being actively pursued due to the liability issue.

Mammoth Mine, Shasta County

This large abandoned copper mine discharges abandoned mine drainage to Little Backbone Creek and Shasta Lake. Impacts are similar to those previously described for the West Squaw Creek mines. The owner, Mining Remedial Recovery Company, has implemented a comprehensive mine sealing program but the results to date have been disappointing. Substantial modification of the sealing program or a new control strategy, such as collection and treatment, will be required to address the problem. The issue is further complicated by a lawsuit filed by the California Sport Fishing Protection Alliance. We believe that a cooperative effort at Mammoth Mine between the owners, resource protection groups, and the agencies would be more effective than lawsuits and enforcement orders.

Greenhorn Mine, Shasta County

this acid mine west of Redding discharges abandoned mine drainage to Willow Creek which is a tributary to the Wiskeytown Lake National Recreation Area. The discharge impacts aquatic life and recreational uses in the area. There is no responsible owner capable of implementing a control program. A reclamation feasibility study has been prepared by the Department of Water Resources (under contract to Regional Board), but no work has been done. Water quality and beneficial use improvements could be achieved through a combination of surface drainage control and mine sealing.

Corona Mine and Abbott Mine, Lake County

These two mercury mines would each benefit from actions to contain tailings and solid wastes and to divert surface waters. Staff estimates a cost of \$1-2 million per mine.

Afterthought Mine, Shasta County

Proposed actions at this mine include sealing the multiple portals, removing and covering the tailings pond, and rehabilitating the access road.

Bully Hill Mine, Shasta County

Staff proposes solid waste containment and portal scaling at this site.

- S. 1787 would also support watershed cleanups. US EPA is working on regulations to permit publicly owned sewage treatment works (POTWS) to cleanup pollution within a watershed as an alternative to removing pollutants that exist at very low levels in the POTWS' discharge. This will provide much greater removal of pollutants from watersheds and will help California comply with its mandate to implement Total Maximum Daily Load allocations. However, POTWS are not likely to cleanup abandoned mines under a watershed program unless they get some liability protection.

Colorado

St. Kevin Gulch, Lake County

The St. Kevin Gulch project is located northwest of Leadville in the small perennial drainage known as St. Kevin Gulch. Mine drainage from the lower Griffin Tunnel flows as a series of springs from the waste rock pile approximately two miles above the confluence of St. Kevin Gulch and Tennessee Creek. The mine drainage has a pH of 2.6 to 2.9 and has rendered St.

Kevin Gulch virtually devoid on any aquatic life below the drainage, and has an adverse effect on trout reproduction in Tennessee Creek. The mine drainage is to be treated using a combination of an anoxic limestone drain and a sulfate reducing bioreactor (wetland). An interceptor trench has been completed to help site the treatment system. The project is in the final design state. Commitments for materials, labor, services, and cash were obtained from local individuals, Lake County, and the USGS. These commitments have at least partially been withdrawn and the project postponed because of concerns about assumption of liability.

McClelland Tunnel, Clear Creek County

The McClelland Tunnel project is located along Interstate 70, one-half mile southeast of the town of Dumont. The McClelland Tunnel drains approximately 15 gallons per minute of metal laden water into Clear Creek. The site also contains mine and mill waste along Clear Creek , a county road, and a State Highway. The Colorado School of Mines, Department of Transportation, Department of Public Health and Environment, Clear Creek County, and Coors have been collaborating with DMG on this project. The DMG's part of the project is to construct a small sulfate reducing bioreactor and a small aerobic wetland to treat the mine drainage. Final designs for the water treatment aspects of the project have been prepared and are ready to be bid. The project portion has been halted because of the concern of the State for incurring perpetual liability for maintaining the treatment system.

Perigo, Gilpin County

The Perigo project is located approximately 6 miles north of Central City in a small perennial steam known as Gamble Gulch. The Perigo mine drains an average of 70 gallons per minute of pH 2.9-3.9 metal laden water. Gamble Gulch below the mine drainage is virtually devoid of aquatic life for six miles before its confluence with South Boulder Creek. In 1989 and 1990, a small project was completed in this drainage to remove mine waste rock and mill tailings from the steam bed in two locations and construct a test treatment system at the Perigo mine. The proposed treatment techniques for this site include an aqueous lime injection system, settling pond and sulfate reducing bioreactor, which will be capable of treating all the mine drainage. The design for the project is completed but will not be bid out for construction because the state is concerned about incurring perpetual liability for maintaining the treatment system.

Pennsylvania Mine, Summit County

The Pennsylvania Mine project is located just east of Keystone ski area on Peru Creek. Acidic metal laden water drains from caved mine workings making the creek biologically dead. Through a 319 grant from EPA, DMG has installed an innovative hydro-powered water treatment mechanism and a settling pond. The drainage water is diverted from the mine adit into a hydropower turbine, thus generating the power to drive a feeder that doses limestone to buffer the water. Once in the pond metal precipitate can settle out, and the effluent progresses through three wetland cells. Here, sulfate reducing bacteria and low oxygen waters remove much of the remaining acid and metal. The project is 80% complete with only a redesigned feeder mechanism necessary. The project is on hold pending resolution of NPDES liability issues.

Animas River Mine Sites, San Juan County

The Division of Minerals and Geology in conjunction with the Animas River Stakeholders Group has investigated hundreds of mine sites in the vicinity of Silverton. The resulting

feasibility reports for Mineral Creek, Cement Creek, and the Animas River have identified at least 32 sites having a significant impact on the Animas River water quality. Treatment recommendations have been made but project work can not proceed until the NPDES issue is resolved.

Frank Hough Mine, Hinsdale County

The Frank Hough Mine is located in Palmetto Gulch near the top of Engineer Pass in Hinsdale County. The water quality of Palmetto Gulch and Henson Creek (the receiving stream) was investigated in 2005. The water quality analysis shows that runoff from the Frank Hough Mine is one of the main sources of heavy metals during spring snowmelt. During low-flow periods, the Frank Hough Mine drainage is a significant source of heavy metals. This site is at an elevation of 12,700 feet, which severely limits access and also limits the available treatment options.

Dinero Tunnel, Lake County

Dinero Tunnel is located in Sugarloaf Gulch approximately 1/4 mile southwest of the Turquoise Lake Dam in Lake County. This is a cooperative project with the Lake Fork Watershed Group and BLM. The Dinero Tunnel drains approximately 40-45 gallons per minute of metal laden water into the Lake Fork of the Arkansas. Previous investigations had shown that there was a collapse damming the water approximately 400 feet from the entrance. The collapse had formed a chimney that extended to the surface approximately 100 feet above. Work to remove the blockage in the adit to facilitate underground investigation of inflows was completed in the fall of 2004. Water behind the collapse was drained slowly and treated, and then the tunnel was rehabilitated. During the summer of 2005, the Dinero Tunnel Underground Phase II project installed compressed airline for oxygen ventilation in the tunnel and rehabilitated the tunnel up to 2000 feet. At 2000 feet the tunnel contains another cave-in, which extends laterally for at least 150 feet. Treatment and hydrologic control methods are being considered at this site with NPDES issues also needing to be resolved.

Commodore Mine/Nelson Tunnel, Mineral County

The Commodore Mine and Nelson Tunnel are located 1 mile north of Creede in Mineral County. This is a long-term cooperative project with the Willow Creek Reclamation Committee (WCRC) near Creede, Colorado. Nine open connections between the Commodore Mine and the Nelson Tunnel have been identified and rehabilitated. Approximately three miles of mine workings have been rehabilitated. Current work is to install the infrastructure to pump the flooded portion of the Nelson Tunnel. This is the area where historic documents have indicated that the majority of the flow enters the Nelson Tunnel workings. Currently, these workings are completely flooded and are inaccessible. The Nelson Tunnel drainage is the principal source of metals to Willow Creek. The feasibility of constructing hydrologic controls will be investigated. Hydrologic controls may reduce the flow from the Nelson Tunnel, but it is doubtful that all the acid mine drainage can be eliminated by construction of hydrologic controls and other treatment methods have significant liability concerns.

Solomon Mine, Mineral County

The Solomon Mine is located in East Willow Creek approximately 2 miles north of Creede in Mineral County. A sulfate reducing wetland was constructed to treat the mine drainage in 1991.

The Solomon Mine drainage is the largest source of zinc and cadmium in East Willow Creek. The sulfate reducing wetland worked well for several years, but without maintenance is currently providing very little treatment. The Willow Creek Reclamation Committee is very interested in resurrecting the wetland system, but has been unable to reconstruct the system because of liability concerns.

Carbonero Mine, San Miguel County

The Carbonero Mine is located in San Miguel County near the small mining town of Ophir. The Carbonero mine drains in excess of 1,000 gallons per minute. Metals concentrations are relatively low, but because of the high flow the metal loading to the Howards Fork is very high. There has been considerable interest in the past to use the mine drainage to generate power because of the high flow rate and over 2,000 feet of relief from the mine to the Howards Fork. Power generation can offset or partially offset the cost for treating the mine drainage should liability concerns be addressed.

Mary Murphy Mine, Chaffee County

The Mary Murphy Mine is located near the small mining town of St. Elmo in Chaffee County. The Mary Murphy Mine drains metal laden water from two different portals. Underground water quality sampling has shown that over 70% of the metals in the mine drainage come from one inflow in the mine at the 1400 level. The purpose of this project is to determine if the main inflow source of water can be diverted inside the mine before it become contaminated. To date, all of the accessible mine workings have been investigated, and the contaminated water flow has been followed up to the 1000 level. Initial water sampling has indicated that the zinc level is as high at the 1000 level as at the 1400 level. Currently, DMG is investigating the potential to freeze the upper mine workings. The first step in this process was to install air-locks on the 2200 level and on the 1400 level. The 1100 level was opened and safeguarded to prevent access while allowing airflow. The temperatures are being monitored to see if the mine cools or warms as a result. If this natural ventilation of the upper levels does not work, consideration will be given to installing and running a fan during the winter months. Other treatment methods would be investigated if liability concerns could be addressed.

Montana

The State of Montana has inventoried its abandoned non-coal mine sites. Thus far, Montana has found 245 abandoned mines which have the potential to impact surface waters because they are within 100 feet of a stream. Of these, 71 sites have discharging adits (mine entrances emitting acid mine drainage into the environment). 89 of 245 sites are already known to be degrading water quality. These 89 sites have caused downstream water quality samples to exceed at least one Clean Water Act parameter—either the Maximum Contaminant Limits or Aquatic Life Standards.

Given recent developments in federal case law, Montana officials are gravely concerned that cleanup projects addressing abandoned mines which are known to be seriously degrading the state's water quality will be halted due to Clean Water Act liability concerns.

Nevada

Tybo Tailings Site, Nye County, Nevada

The Tybo Tailings Site is located in the Tybo mining district in Nye County, Nevada. It is approximately 58 miles east of Tonopah on U.S. Highway 6 and thence 6.5 miles northwest on the Central Nevada Test Sites Base Camp access road. The site is located in the Hot Creek hydrographic basin. Tybo Creek flows from Tybo Canyon in the Hot Creek Range and then easterly into the Hot Creek Valley. The tailings are the result of mining activity, which began around 1866. Silver, lead, zinc, copper, mercury, and small amounts of gold were recovered. By 1877, Tybo was the second largest lead producing area in the United States after Eureka, Nevada. Production continued on an intermittent basis until around 1940. Some very minor production occurred in the 1950's and early 1960's. Total recorded production from the district is valued at over \$9 million.

The tailings impoundment is located just downstream from the mouth of Tybo Canyon. The actual impoundment is located in an ephemeral wash and is about 1,000 feet long and up to 600 feet wide (approximately 12 acres total). The dam has been breached, allowing tailings to migrate down the creek for at least 6 miles. The tailings appear to be about 20 feet thick at the dam. The tailings are highly acidic (surface water on the tailings has a pH of 1-3), have a strong sulfur smell, and are stained brown-orange to purple, red and black. Surface water has eroded channels into the tailings. All vegetation along the migration path from the impoundment is stressed or dead for at least 3 miles downstream.

Preliminary studies have detected arsenic and lead range up to 10,000 ppm, zinc up to 7,500 ppm, and copper up to 233 ppm. At this time, the State of Nevada has recommended evaluating groundwater use and the habitat of threatened and endangered species. Additional recommendations include measures to prevent wildlife from drinking surface water, and restricting site access by fencing and gating. NDOW has expressed concern about the effects on plants and wildlife and groundwater.

Rip Van Winkle Mine, Elko County, Nevada

The Rip Van Winkle Mine site is located in the Merrimac mining district, Elko County, Nevada. The site is located at approximately 7,000 feet above mean sea level on Lone Mountain in the Independence Mountains, and is situated in the Maggie Creek Area hydrographic basin, which flows into the Humboldt River near Elko, Nevada. The Rip Van Winkle Mine recorded first production in 1918. It was the only active producer in the district after 1949 with limited production of lead, zinc and silver through 1966.

The mine site consists of shafts and underground workings, a mill, building foundations and several cabins, waste dumps and tailing impoundments. The tailings impoundments cover approximately 3 acres and contain acid-generating materials. Vegetation on the site is sparse and in the vicinity of the tailings, plants show signs of stress. Impacts to Humboldt River flows are unknown at present, but may be impacting endangered species.

Norse-Windfall Mill Site, Eureka County, Nevada

The Norse-Windfall Mill Site is located 5 miles south of Eureka, Nevada. It is located in the Diamond Valley hydrographic basin in which perennial springs are prolific in the mountainous regions south of Eureka, with many flowing springs existing at the mill site. The Windfall Mine was discovered in 1908, and was operated intermittently for about 30 years as an underground

operation with a cyanide vat leach facility. Around 1968, Idaho Mining Corp. acquired the property and mined the same ore body via open pit methods. Between 1975 and 1978 the Windfall Pit, and associated cyanide heap-leach piles, waste dumps, mill process building, office and laboratory were constructed. The last operator of the site was Norse Windfall Mines, Inc. The site has been abandoned since 1989 and little or no reclamation has occurred. In July 1994, the Nevada Division of Environmental Protection conducted a compliance inspection of the site and noted that unmaintained process components and materials left scattered about the property may have the potential to cause environmental damage by degrading the waters of the state.

Springs located within the site exceed the Nevada Water Quality Standards for arsenic, mercury, nickel, and cyanide. Within a 4-mile radius of the site, six municipal springs and one domestic well provide drinking water for Eureka. Water from the nearby springs are blended and pumped into 2 water tanks located just outside of Eureka. This water serves as the main water supply for the entire town.

South Dakota

In the early 1990's, South Dakota completed an inventory of abandoned hardrock mines occurring in the Black Hills of western South Dakota in conjunction with the South Dakota School of Mines and Technology. Approximately 900 mines were identified in a four-county area (about 700 on private land and about 200 on federal land). The inventory purpose was primarily to identify abandoned mine locations, so little or no assessment work was completed for many of the mines identified. Many of these historic mines pose significant safety hazards, and some pose environmental problems, including impacts to water quality. The Good Samaritan bill would certainly be an incentive for getting some of these mines cleaned up.

South Dakota has been working on reclaiming several hardrock mines that occur in the Black Hills with EPA and the federal agencies that administer the land upon which the mines are located. Several mines have been reclaimed, including the Belle Eldridge gold mine (BLM land), the Minnesota Ridge gold mine (Forest Service and private land), and the Blue Lagoon uranium mine (Forest Service land). The state is working with the Forest Service in developing plans to reclaim the following mines:

Riley Pass Mine (Harding County)

The Riley Pass uranium mine (Forest Service land) is located in the northwest corner of the state. The main hazards associated with the mine are eroding waste material high in radioactivity and heavy metals and unstable highwalls. In the 1990s the Forest Service began to take steps to minimize impacts at some of these sites by constructing sediment ponds to capture contaminated sediment, notably at the Riley Pass mine in the North Cave Hills. These ponds were cleaned periodically and the material stored in an on-site repository. The Forest Service is currently working on an environmental evaluation and cost estimate for the site.

The King of the West Mine (Pennington County)

The King of the West gold mine is located approximately 20 miles west of Rapid City. The main hazards associated with the King of the West mine include eroding unvegetated tailings, acid mine drainage, and unfenced mine shafts. These hazards have been documented in a report developed for the Forest Service by the South Dakota School of Mines and Technology. They

recommended the King of the West Mine as a priority site for remediation in the Black Hills.

Freezeout Mine (Fall River County)

The Freezeout uranium mine is located approximately 14 miles northwest of Edgemont. The main hazards associated with the Freezeout mine are unstable pit highwalls, erosion, and waste material with high radioactivity. The Forest Service has completed a preliminary assessment and site investigation for the mine.