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Abandoned Hardrock Mines and the Role of Non-Governmental Entities
House Committee on Natural Resources
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Providing Testimony on Behalf of
Colorado Department of Natural Resources, Division of Reclamation Mining and Safety

Good afternoon. My name is Jeff Graves and I am the Director of the Inactive Mine Reclamation Program within the Colorado Department of Natural Resources. I am a geological engineer by training and have been responsible for the design and implementation of abandoned mine reclamation projects throughout Colorado for the last 17 years. I am appearing on behalf of the State of Colorado to provide testimony on the need for Good Sam provisions to facilitate cleanup of abandoned hardrock mines. I appreciate the opportunity to appear today and share our views on this issue that impacts Colorado and many other hardrock states so directly.

Colorado has enjoyed a rich mining heritage beginning with the discovery of placer gold along Cherry Creek south of Denver in 1858. What followed over the next 50 years was a rush to develop the vast mineral resources throughout the State. During that time little forethought was given to the consequences associated with unregulated extraction, leaving us with a unique legacy of environmental challenges.

By many counts, Colorado has more than 23,000 abandoned or legacy mine sites across the State. That number is likely a conservative estimate because many of these legacy sites are located in inaccessibly rugged terrain or shrouded in heavily timbered areas of the backcountry. Regardless of the actual number, the sheer magnitude of the problem drives the need for partnerships and innovative solutions, and most importantly the potential liability relief provided by Good Samaritan legislation.

The problems associated with so many abandoned mines vary considerably. Some sites pose direct physical safety hazards, as unprotected shafts, adits and other mine features put the unsuspecting public at risk. Other sites can result in personal injury or property damage from subsidence of unseen underground mines. Over 30 underground coal mine fires across our State create a heightened risk of wildfire ignition.

Colorado has been actively addressing these legacy mine issues over the last 40 years through its Inactive or Abandoned Mine Reclamation Program in partnership with other state and federal agencies, non-governmental organizations, and private entities. To date, the program has been responsible for safeguarding over 10,400 hazardous features, reclaiming over 4,000 acres of mining-disturbed lands, improving water quality at more than 220 sites, and investigating and managing 33 underground coal mine fires. The Program was recently recognized by the Association of Environmental and Engineering Geologists as Outstanding for its work to address legacy mine issues in Colorado, but much work remains to be done.

One of the largest and thorniest problems associated with legacy mines is the effects of acid mine drainage from many of our hardrock sites. Over 1,300 miles of Colorado streams are impacted by metals connected to acid mine drainage from historic mining activity, resulting from varying causes. Often, direct snowmelt and rainfall on mine waste piles and tailings leach metals from exposed waste and are then transported to adjacent streams and rivers. At other sites, horizontal mine entries or adits directly discharge acidic, metal laden water directly to surface water creating immediate downstream impacts.

In 2015, Colorado Governor John Hickenlooper championed an effort to identify and collect information on draining mine sites across the state, recognizing that draining mines and the impacts from them were a serious concern. Approximately 230 sites were identified as discharging and potentially resulting in stream water impacts. Of those 230 sites, some were already being addressed by the EPA Superfund program, but many sites had little to no data available to assist in understanding the scope of the problem. During 2016, over 170 of those sites were visited and characterized. The state is currently working with our federal and NGO partners to prioritize those sites for cleanup, based on site specific discharge criteria, and threats to the environment and downstream users. The challenge and frustration is that acid discharges into surface waters from few, if any, of those sites will be addressed absent liability protection.

Environmental laws of the 1970s, including the Clean Water Act and the Comprehensive Environmental Response and Cost Recovery Act, or CERCLA, were designed to help clean up our nation's waterways and reduce environmental problems. Provisions in those laws, however, have had the unintended consequence of preventing many states, NGOs and private entities from conducting reclamation work at mine sites for fear of incurring long-term responsibility and liability. Any Good Samaritan, including states, that attempts to improve water quality at mine sites through reclamation activities like capping and burying mine waste or passively treating mine discharge can be held liable for any remaining discharge that doesn't meet stringent water quality standards. Additionally, the Good Samaritan could be considered an "operator" under CERCLA and held responsible for any future offsite damages that result from work performed.

In an effort to illustrate how the aforementioned concerns have hampered, stalled or even resulted in cleanup abandonment, I would like to provide three specific examples in Colorado. Those examples are the Pennsylvania Mine, the Solomon Mine and the Perigo Mine.

The Pennsylvania Mine, located in Summit County within the Snake River watershed, is the single largest manmade source of metals to Peru Creek, a tributary to the Snake River. The mine was operated from the late 1800's through the early 1900's and produced silver, gold and base metals. There is no viable Potentially Responsible Party that can be held responsible for cleanup of the site, since the operator long since passed away. In the 1980s, the state began investigating ways to address contaminated discharge from the site since it was apparent that both Peru Creek and portions of the Snake River were so contaminated by metals that the streams were devoid of any aquatic life.

At the time, many states considered discharge from mines sites to be non-point sources of pollution under the Clean Water Act, and a specific discharge permit was therefore not needed to facilitate work to improve the quality of the discharged water. Additionally, states and NGOs assumed that since they did not create the problem and were merely acting to improve conditions, they would not be held responsible into the future for not meeting existing standards. With that paradigm in mind, in 1993 the state designed a passive water treatment plant at the Pennsylvania Mine to provide partial treatment of the discharge during critical times of loading to the creek. The state worked with Volunteers for Outdoor Colorado, a local NGO, to assist with construction of the treatment facility. Following construction of the facility, but prior to its operation, the State of Colorado received a letter from EPA clarifying that all discharges from mines, including seeps, would be considered point sources under the Clean Water Act, thus requiring a specific National Pollutant Discharge Elimination System (NPDES) permit. Upon receipt of that letter, all activities at the site ceased for fear of the liability associated with operating a plant not intended to meet discharge standards year round.

That treatment plant sat idle for more than 20 years without treating any discharge from the mine, and all the while discharge from the Pennsylvania Mine continued to contaminate Peru Creek and the Snake River. During those 20 years, a local stakeholders group was formed to explore alternative options or legal workarounds that might facilitate operation of the treatment system, but every avenue was stymied by the potential for long-term liability. The stakeholder group was able to facilitate cleanup of non-point sources within the watershed where long-term liability and risk could be minimized and marginal improvements to water quality could be attained, but all members recognized that without addressing the point sources, larger improvement goals could not be met.

Eventually, the stakeholder group convinced EPA to exercise its CERCLA authority under a removal action to facilitate installation of bulkhead seals to reduce discharge from the Pennsylvania Mine, but that avenue is not an option at most sites in Colorado. Even after bulkhead installation at the Pennsylvania Mine, some discharge remains that could likely be addressed using passive treatment technology if liability was not a concern.

Another site, the Perigo Mine in Gilpin County within the Boulder Creek watershed, has historically discharged metal-laden water into Gamble Gulch and has seen periodic surge events resulting in the creek running orange. Much like the Pennsylvania Mine, the state recognized the need to reduce metal loading from the Perigo Mine to help improve downstream water quality. An attempt was made during the 1980s to install a long-term passive treatment system that would reduce metal concentrations in runoff, but would not be capable of meeting discharge standards. At the time, it seemed like a viable alternative to the installation of a full-scale active treatment plant costing millions of dollars to construct and potentially operating forever.

The passive treatment system at the Perigo Mine was marginally successful in reducing metal loading, but it was abandoned in part due to the potential long-term liability and cost associated with maintaining the system. More recently, the state received

funding to conduct additional investigations at the site to explore other alternatives such as construction of a hydraulic seal bulkhead. The state partnered with EPA and the United State Forest Service to conduct a detailed site investigation, and determined that installation of a bulkhead to reduce surge events was feasible, but the potential for incurring liability associated with construction was too great a risk. At the time, EPA was reluctant to initiate action under its CERCLA removal authority. The money dedicated to installation of the bulkhead was subsequently returned, and now the site sits unattended, continuing to discharge metals into Gamble Gulch.

The final site is the Solomon Mine located in Mineral County within the Rio Grande watershed. The Solomon Mine is just like the Pennsylvania and Perigo mines in that mining was conducted during the turn of the last century, and no responsible party exists. In 1991, the state, in cooperation with the local watershed group, the Willow Creek Reclamation Committee, completed a non-point source project that cleaned up mine waste in East Willow Creek and constructed a passive treatment system for the Solomon Mine discharge. The passive treatment system operated successfully for a period of time, but was not maintained due in part to concerns regarding long-term liability.

The common thread to all these examples is the risk associated with incurring long-term liability as a result of the Clean Water Act or CERCLA. In each instance, funding was available to complete projects that would have resulted in a net improvement to downstream water quality, but liability concerns prevented additional work from taking place or even from operating treatment systems already constructed. These projects highlight the adage, "perfect is the enemy of the good." There were willing partners, either state agencies, NGOs or private entities that, if afforded Good Samaritan protections, could have accomplished water quality improvements at each site.

These liabilities deter motivated, well-intentioned volunteers from undertaking projects to clean up or improve abandoned sites, thereby prolonging the harm to the environment and to the health and welfare of our citizens. These impacts to water quality also have economic impacts that are felt nationwide. In addition, the universe of abandoned mine lands is so large and the existing governmental resources are so limited, that it will be impossible to clean up all of these sites without the assistance of Good Samaritan volunteers.

Colorado believes the pursuit of Good Samaritan protections will be immensely helpful in our efforts to remediate the vast quantities of abandoned mine sites in our state. We have seen the results from this type of approach in other states such as Pennsylvania, which enacted its own Good Samaritan law to provide protections and immunities related to state clean water requirements. Even Pennsylvania Good Samaritans, however, are still exposed to potential liability under the federal Clean Water Act for their good deeds, which imposes a chilling effect on watershed cleanup efforts.

Thank you for the opportunity to submit this testimony. Should you have any questions or require additional information, please contact me.

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