National challenge of leaking mines dwarfs Colorado spill

August 14 2015, byMatthew Brown, Michael Biesecker And P. Solomon Banda

Wastewater flows from a trough and down a steep ravine at the site of the blowout at the Gold King mine which triggered a major spill of toxic wastewater, outside Silverton, Colo., Thursday, Aug. 13, 2015. It will take years, if not decades, and many millions of dollars to clean up and manage the toxic wastewater from a this Colorado mine that unleashed a 100-mile-long torrent of heavy metals, affecting the livelihoods of residents in three states, according to some experts. (AP Photo/Brennan Linsley)

It will take many years and many millions of dollars simply to manage and not even remove the toxic wastewater from an abandoned mine that unleashed a 100-mile-long torrent of heavy metals into Western rivers and has likely reached Lake Powell, experts said.

Plugging Colorado's Gold King Mine could simply lead to an eventual explosion of poisonous water elsewhere, so the safest solution, they said Thursday, would be to install a treatment plant that would indefinitely clean the water from Gold King and three other nearby mines. It would cost millions of dollars, and do nothing to contain the thousands of other toxic streams that are a permanent legacy of mining across the nation.

Federal authorities first suggested a treatment plant for Gold King more than a decade ago, but local officials and owners of a nearby mine were reluctant to embrace a federally-sponsored cleanup.

"They have been not pursuing the obvious solution," said Rob Robinson, a retired abandoned mines cleanup coordinator for the U.S. Bureau of Land Management. "My hope is this has embarrassed the hell out of them and they're going to finally take it seriously."

The Gold King delay illustrates a problem dwarfing the 3 million-gallon waste plume accidentally released by contractors working for the U.S. Environmental Protection Agency: There are about 500,000 abandoned mines nationwide, and only a fraction have been dealt with, despite decades of effort.

EPA has estimated the cost of cleaning up abandoned mines nationwide, not including coal mines, at between $20 billion and $54 billion.

Many of the abandoned mines—including in the Silverton area where Gold King is located—were developed after an 1872 federal mining law encouraged development and allowed people to lay claim to minerals

beneath public lands.

They've since become legacies of the industry's boom-bust cycles, in which companies fold up operations when metals prices fall, leaving behind sources of toxic wastewater that chronically leave rivers barren and taint drinking water supplies.

Of the abandoned mines in the U.S., more than 48,000 had been inventoried through the BLM's Abandoned Mine Lands program, which began after new federal laws focused on environmental protection in the 1960s, 1970s and early 1980s.

But only about one in five of the inventoried mines is being cleaned up or requires no more action. More than 38,000 await further analysis or work, according to the bureau.

AP10ThingsToSee - Melanie Bergolc walks along the banks of Cement Creek in

Silverton, Colo., Monday, Aug. 10, 2015. The area is a few miles downstream from the Gold King mine, where a wastewater accident several days earlier allowed water contaminated with heavy metals to pour into the creek that feeds rivers critical to survival on the largest Native American reservation in the United States and across the Southwest. (Jon Austria/The Daily Times via AP)

Under the federal Clean Water Act, the mine owner is supposed to control discharges, but Gold King's landowner, Todd Hennis, is not considered legally responsible for the cleanup because the mine stopped operating in 1923, long before the modern era of environmental protection.

"A lot of these are Mom and Pops, they've inherited the property or they bought it years ago before the environmental laws were passed, and they just don't have the resources," said Doug Jamison, with the hazardous materials division at Colorado's state health department.

In Colorado alone, there are hundreds, possibly thousands of abandoned mines discharging acid rock drainage, Jamison said. The potent stew of heavy metals accumulates as chemical reactions brew up sulfuric acid at concentrations high enough to dissolve steel, and leach poisons down mountainsides and into groundwater decades after mines close.

The EPA announced Thursday that surface-water testing in Colorado revealed very high levels of lead, arsenic, cadmium and other heavy metals in the middle of the sickly yellow plume released on Aug. 5. These metals far exceeded government exposure limits for aquatic life and humans in the hours after the spill.

The EPA said its analysis shows the heavy metals quickly returned to "pre-event levels" once the plume passed through the area it tested, on

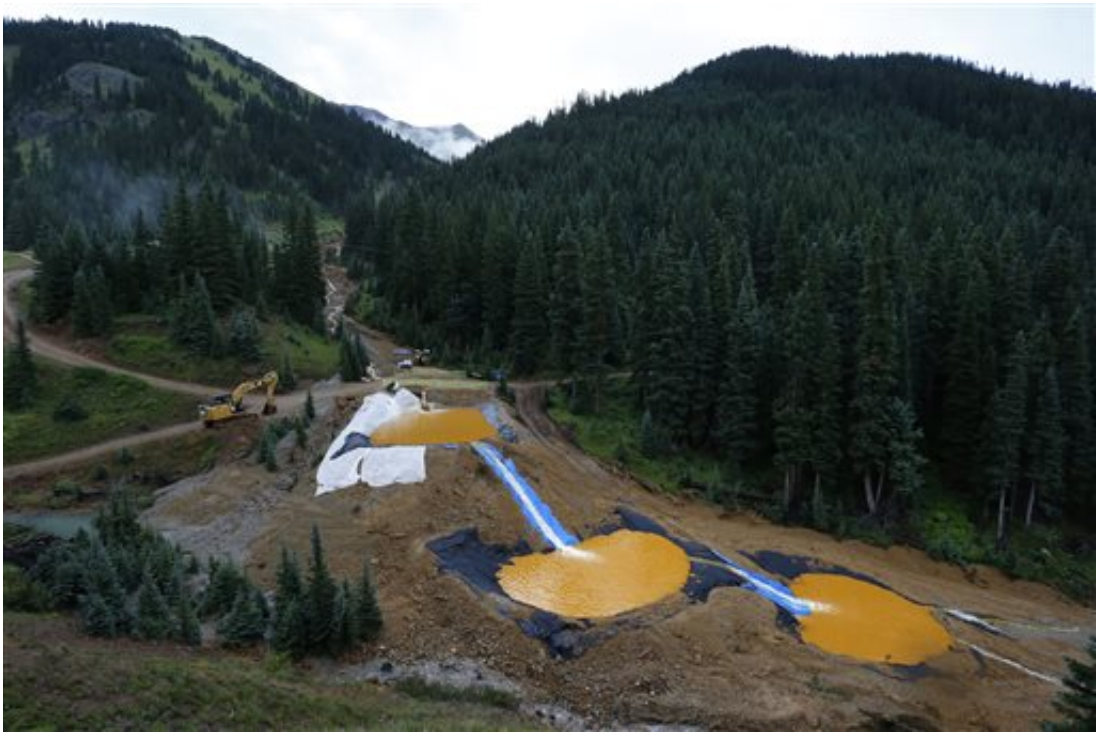
the Animas River between Silverton and the municipal water intake for Durango, a downstream city of 16,000.

Utah officials said Thursday that the plume had likely reached Lake Powell, although it has been diluted on the 300-mile journey to the reservoir and lost the bright yellow color seen closer to the site. Authorities could not immediately confirm the presence of heavy metals and other contaminants close to the lake and said tests on Utah river water suggest the spill has dissipated enough that the water is safe to drink and officials aren't expecting to see fish dying off at the lake.

The state continued to warn people not to use it for irrigation or livestock water, however, Utah Department of Environmental Quality spokeswoman Donna Spangler.

EPA Administrator Gina McCarthy, who took full responsibility and promised that the agency will pay for any damage, said Thursday that these results show the river is "restoring itself." She also announced that the EPA has released $500,000 to help supply clean water for crop irrigation and livestock in northwestern New Mexico.

Absent technological breakthroughs, the EPA expects to be treating water at abandoned mines for generations.



Water flows through a series of retention ponds built to contain and filter out heavy metals and chemicals from the Gold King mine wastewater accident, in the spillway about 1/4 mile downstream from the mine, outside Silverton, Colo., Wednesday, Aug. 12, 2015. The EPA has taken full responsibility for the mine waste spoiling rivers downstream from Silverton, but people who live near the idled and leaking Gold King mine say local authorities and mining companies spent decades spurning federal cleanup help. (AP Photo/Brennan Linsley)

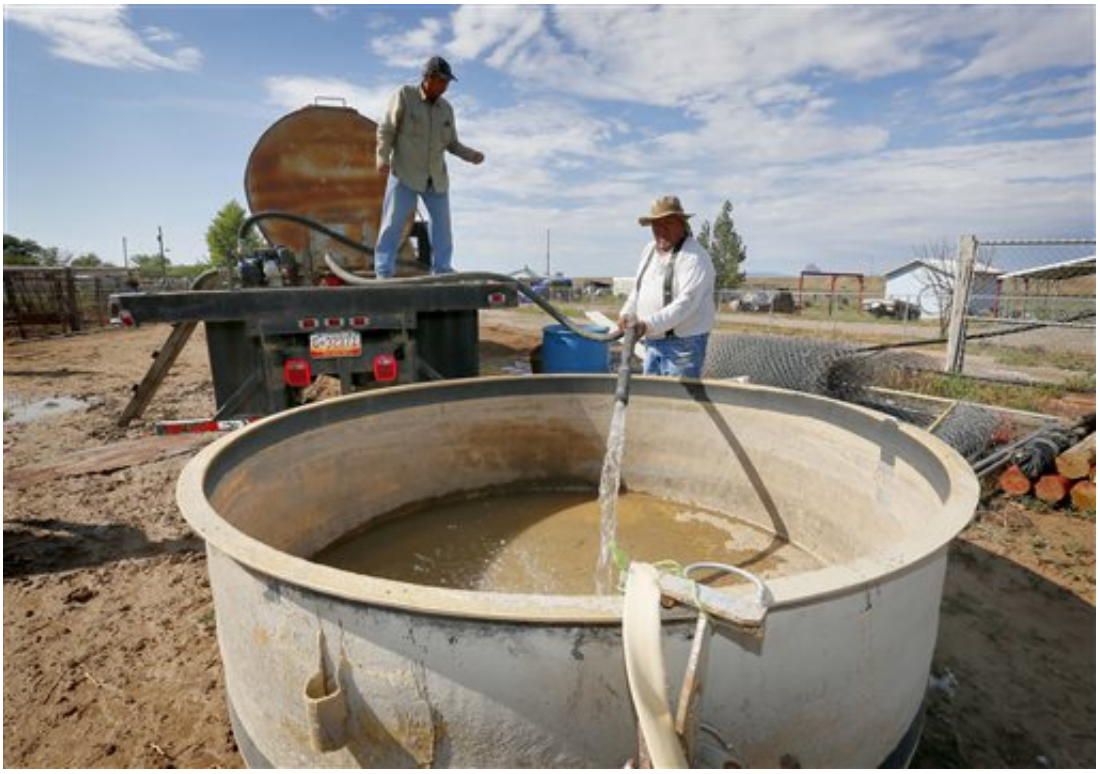
"Mine sites continually produce more waste," said John Hillenbrand, remedial project manager with the EPA's Superfund program in California.

California's 150-year-old Iron Mountain mine discharged six tons of toxic sludge a day before a clean-up by the EPA, which declared it a Superfund site in 1983, 20 years after it shut down. The sludge caused massive fish kills in the Sacramento River system, which supplies a fifth of the state's water, more than 30 times. Authorities now spend $5

million a year to remove poisons, and expects to keep at it forever.

At Montana's Berkeley Pit, meanwhile, an acid lake created when Atlantic Richfield Co. turned off the pumps at its copper mine in 1982 grows by millions of gallons every day. The EPA made it a Superfund site, too, planning to keep acid spills from Butte Valley waterways. Meanwhile, the notorious pit grows in infamy: In 1995, an entire flock of migrating snow geese perished after setting down in the water.

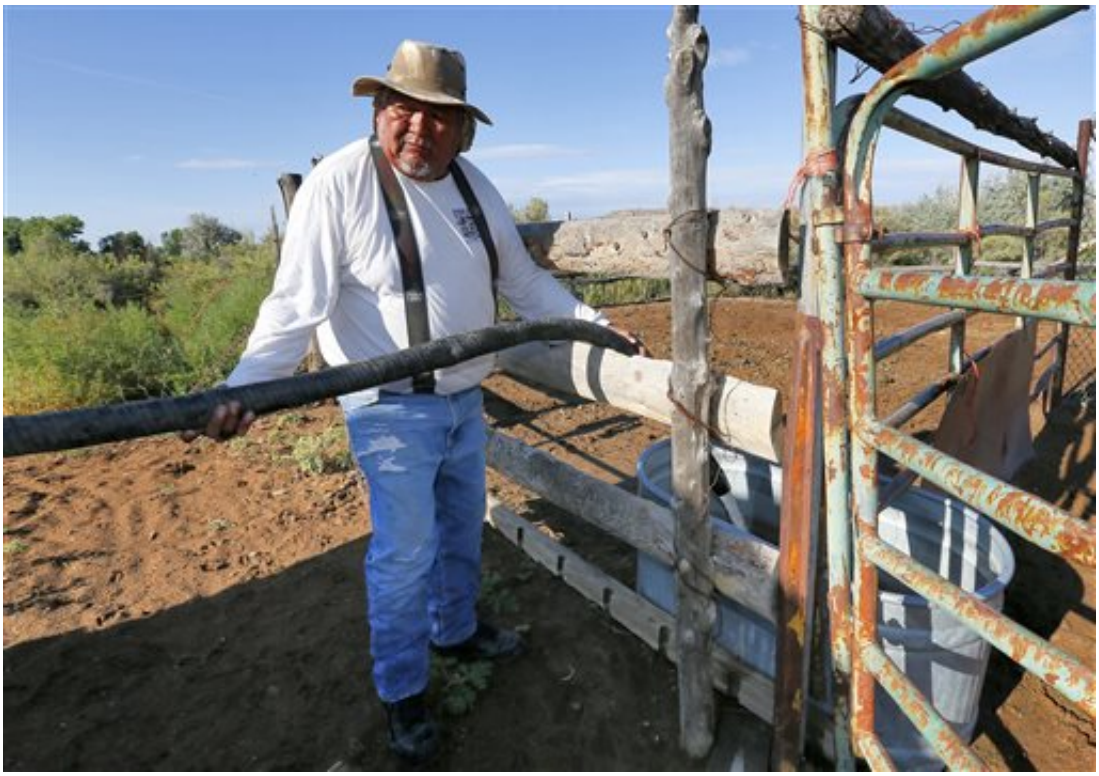
While active mines are regulated under existing law, inactive mines like Gold King are not, and viable parties are rarely available to conduct cleanup or provide the necessary resources. Non-profit groups and other so-called Good Samaritans that might try such work on their own are hobbled by federal laws that render them liable for whatever pollution comes out.



Richard Charley, right, and Melvin Jones deliver water to a ranch along the San Juan River on the Navajo Reservation, Wednesday, Aug. 12, 2015, in Shiprock, NM. Toxic wastewater from the Gold King Mine in Silverton, Colo., has contaminated the San Juan River in Northern New Mexico from the runoff of the Animas River due to an accidental breach by a mining a safety team working for the Environmental Protection Agency last week. A 100-mile-long plume has since traveled for hundreds of miles, through parts of Colorado, New Mexico and Utah on the way to Lake Powell, a key source of water for the Southwest. (AP Photo/Matt York)

Costs also are a major hurdle: Robinson, the former BLM official, said a treatment plant capable of cleaning up the stream of toxins spewing from Gold King and other nearby mines into the Animas River basin would take up to $5 million to build, and much more to operate.

"We're now 25 years down the road of trying to get the Animas cleaned up," he said. "It's time to stop dinking around with the problem and get on with it."

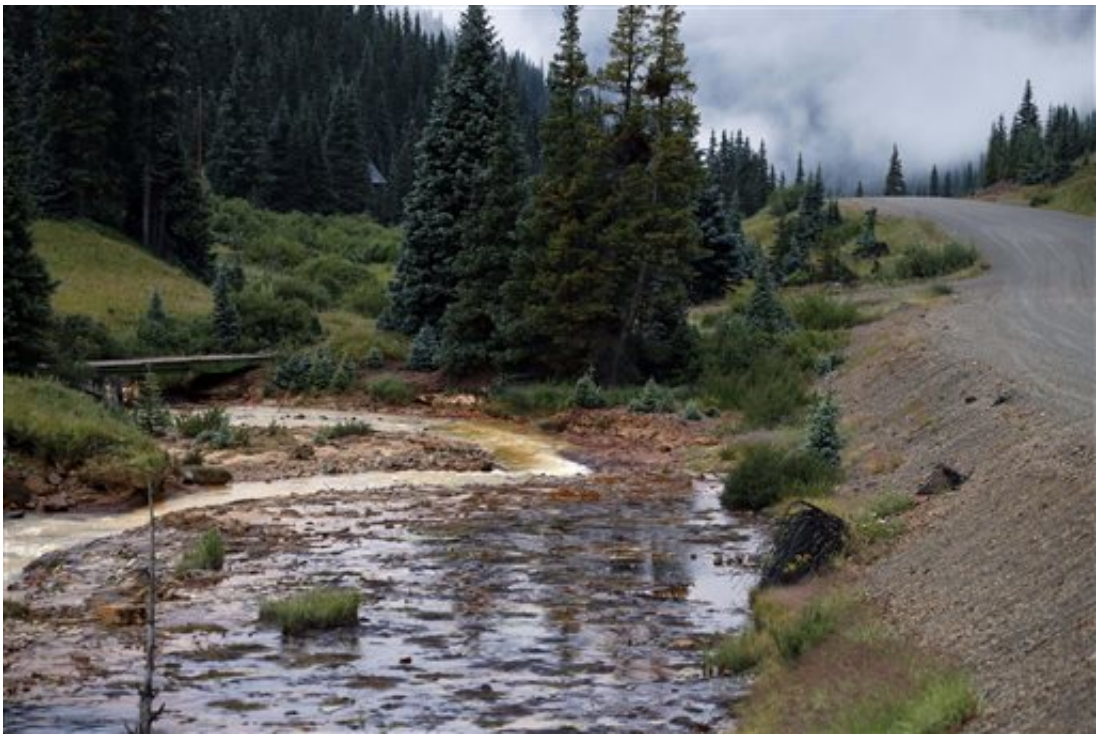


Richard Charley delivers water to a ranch along the San Juan River on the Navajo Reservation, Wednesday, Aug. 12, 2015, in Shiprock, NM. Toxic wastewater from the Gold King Mine in Silverton, Colo., has contaminated the San Juan River in Northern New Mexico from the runoff of the Animas River due to an accidental breach by a mining a safety team working for the Environmental Protection Agency last week. A 100-mile-long plume has since traveled for hundreds of miles, through parts of Colorado, New Mexico and Utah on the way to Lake Powell, a key source of water for the Southwest. (AP Photo/Matt York)

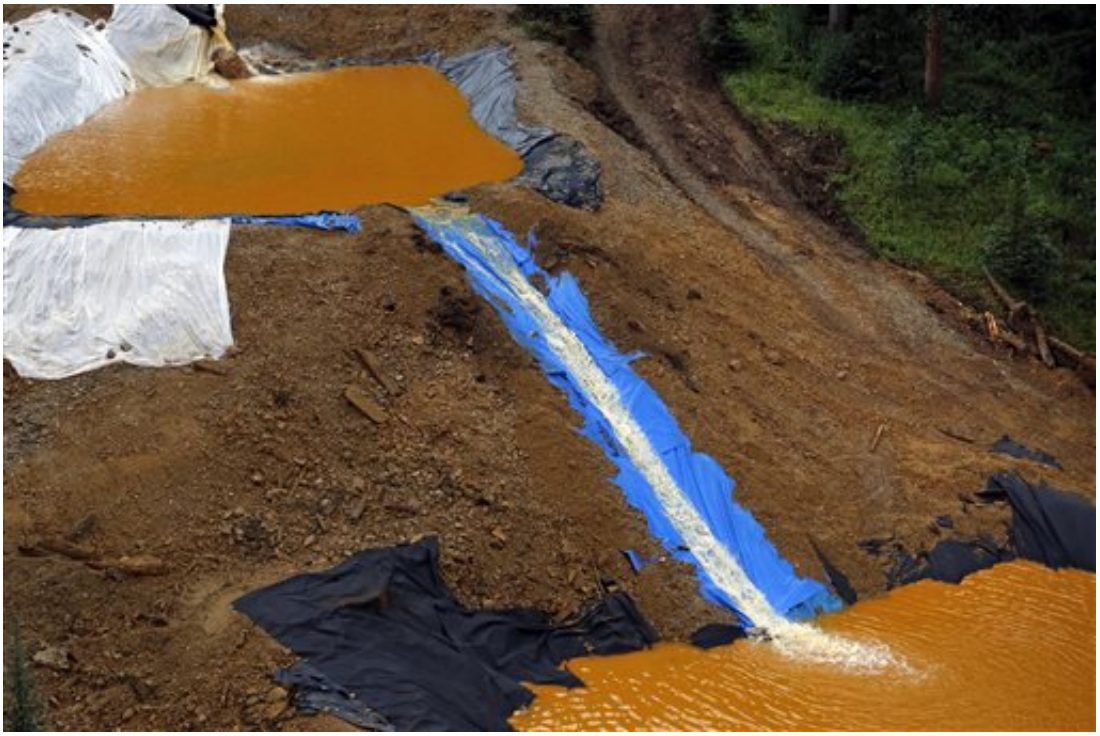
The EPA tested for 24 metals in the spill; One of the most dangerous, lead, was found below Silverton's 14th Street bridge at more than 200 times higher than the acute exposure limit for aquatic life, and 3,580 times higher than federal standards for human drinking water. Levels of arsenic were more than 24 times the exposure limit for fish and 823 times the level for human ingestion. Cadmium was found at more than

six times the aquatic limit, 33 times that for humans.

The plume has since dissipated, its heavy metals settling into riverbeds, during the waste's 300-mile journey toward Lake Powell, where the flow joins the Colorado River that supplies water to the Southwest. McCarthy promised a long-term plan to address riverbed contamination, but offered no specifics. The EPA also promised free water testing for homeowners with wells close to the river, but it's unclear how long that offer stands.



The Cement Creek flows down a valley a few miles downstream from the Gold King mine, where a wastewater accident several days earlier has raised alarm, outside Silverton, Colo., Wednesday, Aug. 12, 2015. The Environmental Protection Agency has taken full responsibility for the mine waste spoiling rivers downstream from Silverton, but people who live near the idled and leaking Gold King mine say local authorities and mining companies spent decades spurning federal cleanup help. (AP Photo/Brennan Linsley)



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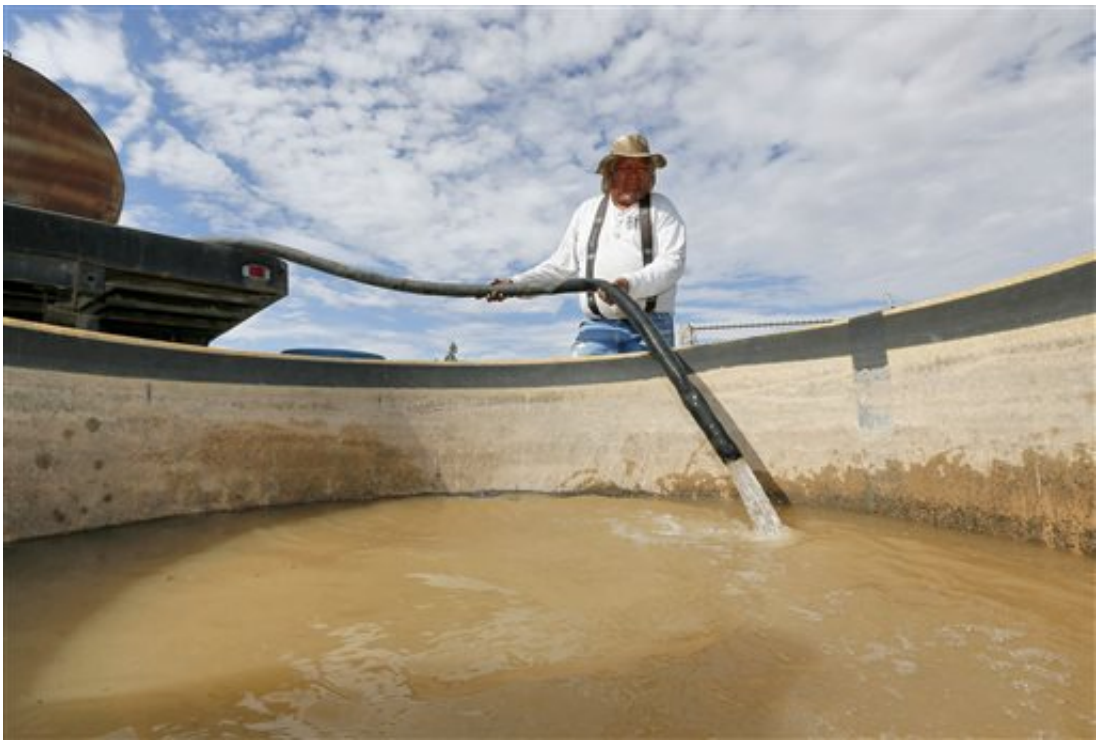
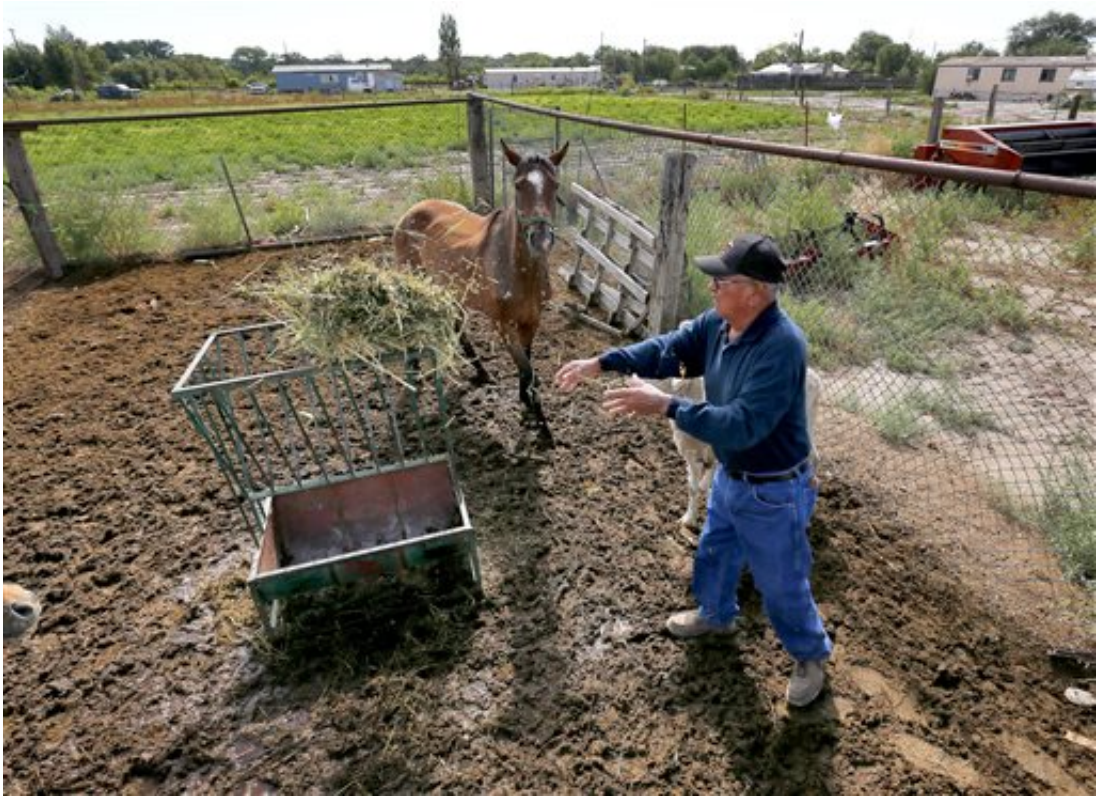
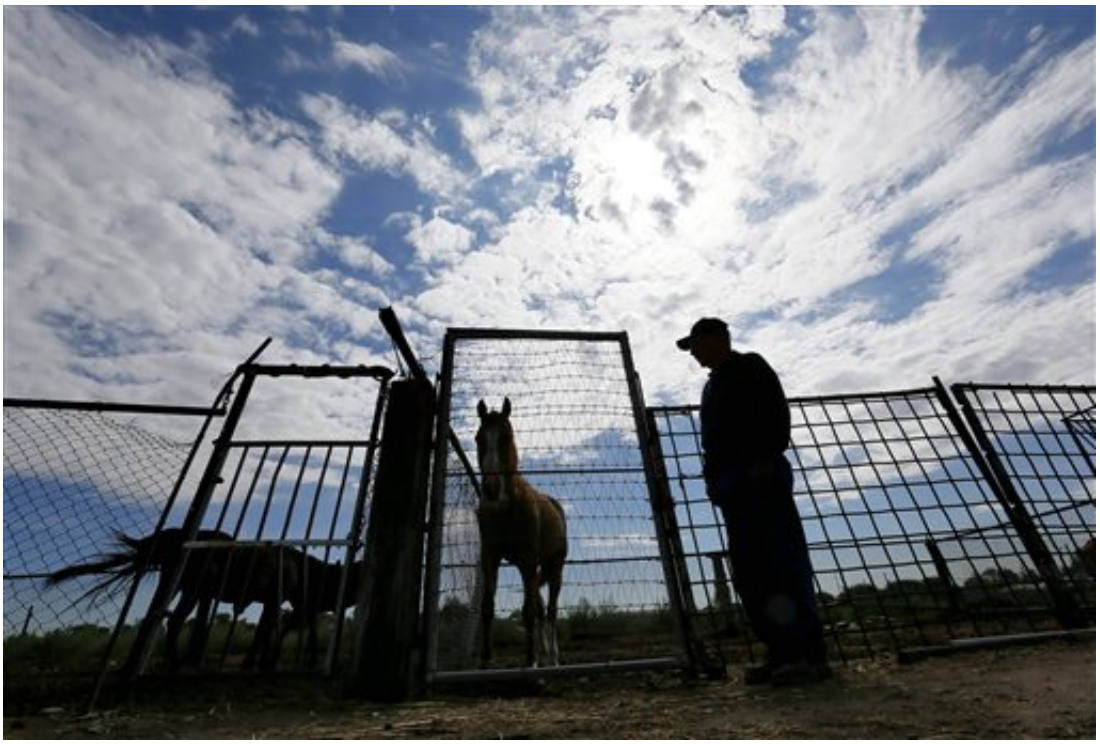
Water flows down from the Gold King mine, where several days earlier an accident led to the release of heavy metals and chemical-laden wastewater, outside Silverton, Colo., Wednesday, Aug. 12, 2015. The Environmental Protection Agency has taken full responsibility for the mine waste spoiling rivers downstream from Silverton, but people who live near the idled and leaking Gold King mine say local authorities and mining companies spent decades spurning federal cleanup help. (AP Photo/Brennan Linsley)



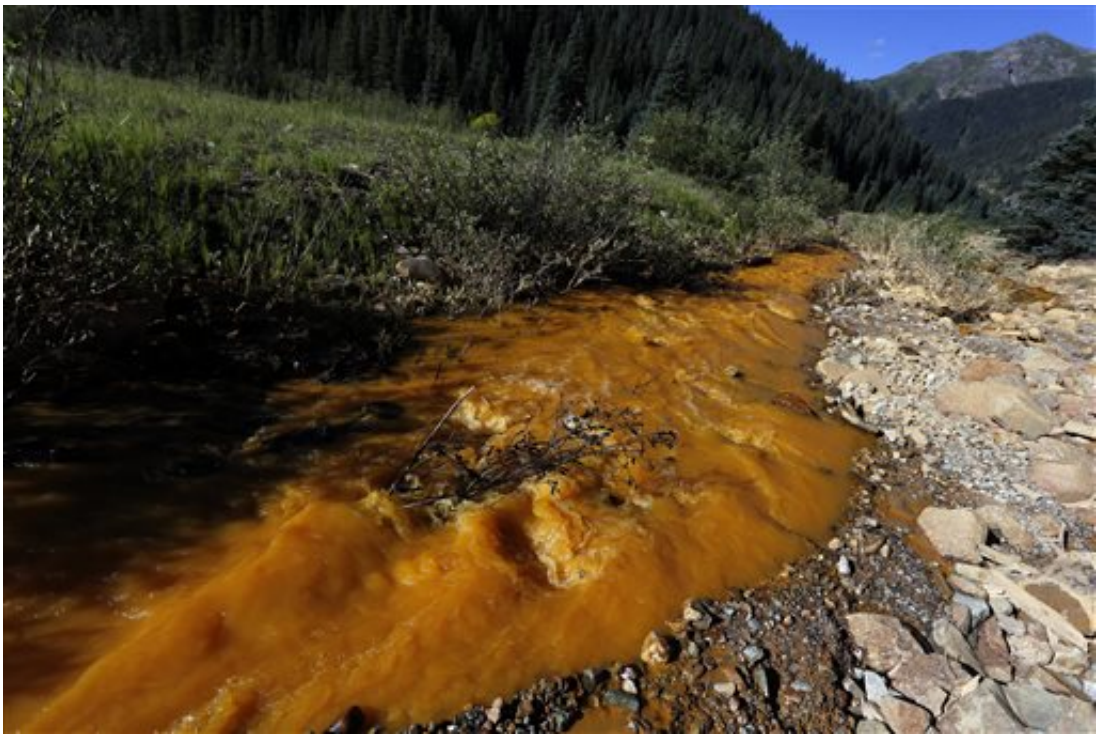
Richard Charley delivers water to a ranch along the San Juan River on the Navajo Reservation, Wednesday, Aug. 12, 2015, in Shiprock, NM. Toxic wastewater from the Gold King Mine in Silverton, Colo., has contaminated the San Juan River in Northern New Mexico from the runoff of the Animas River due to an accidental breach by a mining a safety team working for the Environmental Protection Agency last week. A 100-mile-long plume has since traveled for hundreds of miles, through parts of Colorado, New Mexico and Utah on the way to Lake Powell, a key source of water for the Southwest. (AP Photo/Matt York)



Norman Jim Sr. feeds his horses at his ranch along the San Juan River on the Navajo Reservation, Wednesday, Aug. 12, 2015, in Shiprock, NM. Toxic wastewater from the Gold King Mine in Silverton, Colo., has contaminated the San Juan River in Northern New Mexico from the runoff of the Animas River due to an accidental breach by a mining a safety team working for the Environmental Protection Agency last week. A 100-mile-long plume has since traveled for hundreds of miles, through parts of Colorado, New Mexico and Utah on the way to Lake Powell, a key source of water for the Southwest. (AP Photo/Matt York)

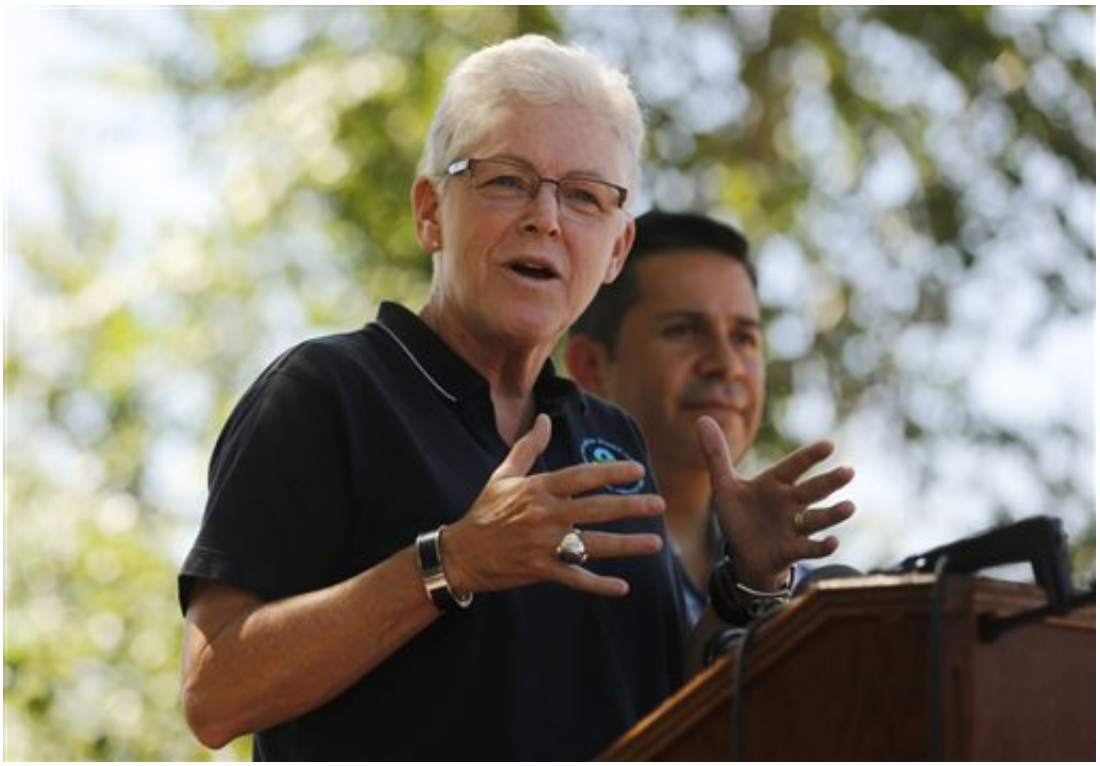


Norman Jim Sr. checks on his horses at his ranch along the San Juan River on the Navajo Reservation, Wednesday, Aug. 12, 2015, in Shiprock, NM. Toxic wastewater from the Gold King Mine in Silverton, Colo., has contaminated the San Juan River in Northern New Mexico from the runoff of the Animas River due to an accidental breach by a mining a safety team working for the Environmental Protection Agency last week. A 100-mile-long plume has since traveled for hundreds of miles, through parts of Colorado, New Mexico and Utah on the way to Lake Powell, a key source of water for the Southwest. (AP Photo/Matt York)

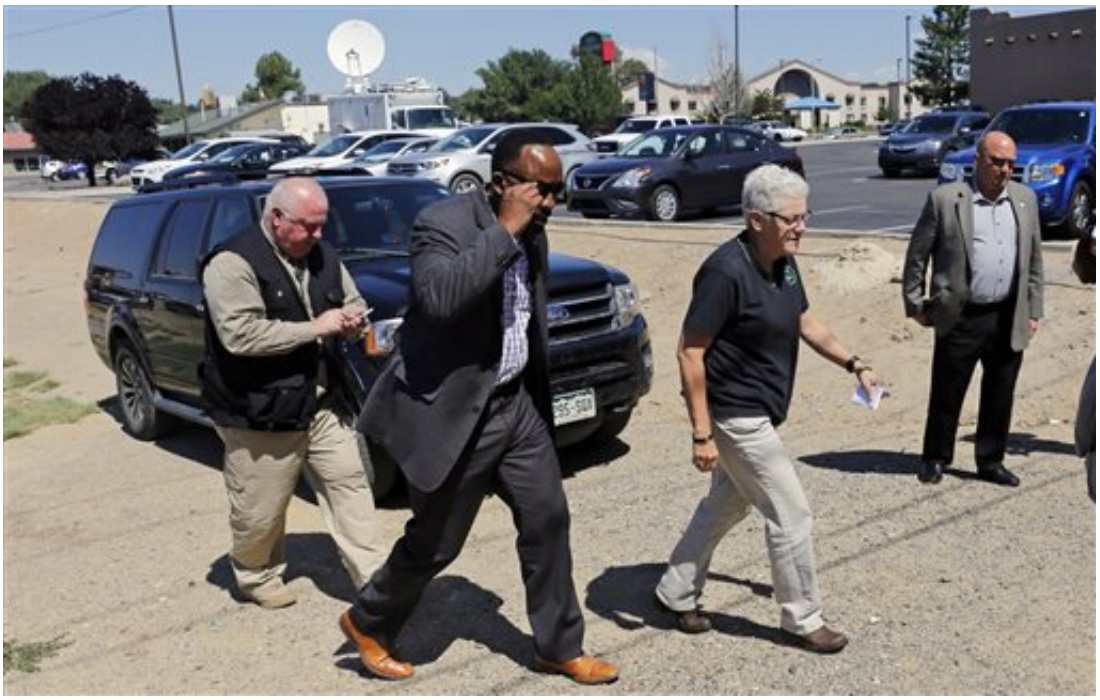


Water flows down Cement Creek just below the site of the blowout at the Gold King mine which triggered a major spill of toxic wastewater, outside Silverton, Colo., Thursday, Aug. 13, 2015. It will take years, if not decades, and many millions of dollars to clean up and manage the toxic wastewater from a this Colorado mine that unleashed a 100-mile-long torrent of heavy metals, affecting the livelihoods of residents in three states, according to some experts. (AP Photo/Brennan Linsley)

This Thursday, Aug. 13, 2015 photo shows the site of the blowout at the Gold King mine which triggered a major spill of toxic wastewater, outside Silverton, Colo. It will take years, if not decades, and many millions of dollars to clean up and manage the toxic wastewater from a this Colorado mine that unleashed a 100-mile-long torrent of heavy metals, affecting the livelihoods of residents in three states, according to some experts. (AP Photo/Brennan Linsley)



U.S. Environmental Protection Agency Administrator Gina McCarthy speaks during a news conference with U.S. Rep. Ben Ray Lujan at right, Thursday, Aug. 13, 2015, along the Animas River Trail in Berg Park in Farmington, N.M. It will take many years and many millions of dollars simply to manage and not even remove the toxic wastewater from an abandoned mine that unleashed a torrent of heavy metals into Western rivers and has likely reached Lake Powell, experts said Thursday. (Jon Austria/The Daily Times via AP)



U.S. Environmental Protection Agency Administrator Gina McCarthy arrives for a news conference, Thursday, Aug. 13, 2015, along the Animas River Trail in Berg Park in Farmington, N.M. It will take many years and many millions of dollars simply to manage and not even remove the toxic wastewater from an abandoned mine that unleashed a torrent of heavy metals into Western rivers and has likely reached Lake Powell, experts said Thursday. (Jon Austria/The Daily Times via AP)