AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

S. HRG. 110–426

HARDROCK MINING: ISSUES RELATING TO ABANDONED MINE LANDS AND URANIUM MINING

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

TO

RECEIVE TESTIMONY ON HARDROCK MINING: ISSUES RELATING TO ABANDONED MINE LANDS AND URANIUM MINING

MARCH 12, 2008

Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

43–266 PDF WASHINGTON : 2008

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON ENERGY AND NATURAL RESOURCES

JEFF BINGAMAN, New Mexico, *Chairman*

DANIEL K. AKAKA, Hawaii
BYRON L. DORGAN, North Dakota
RON WYDEN, Oregon
TIM JOHNSON, South Dakota
MARY L. LANDRIEU, Louisiana
MARIA CANTWELL, Washington
KEN SALAZAR, Colorado
ROBERT MENENDEZ, New Jersey
BLANCHE L. LINCOLN, Arkansas
BERNARD SANDERS, Vermont
JON TESTER, Montana

PETE V. DOMENICI, New Mexico
LARRY E. CRAIG, Idaho
LISA MURKOWSKI, Alaska
RICHARD BURR, North Carolina
JIM DEMINT, South Carolina
BOB CORKER, Tennessee
JOHN BARRASSO, Wyoming
JEFF SESSIONS, Alabama
GORDON H. SMITH, Oregon
JIM BUNNING, Kentucky
MEL MARTINEZ, Florida

ROBERT M. SIMON, *Staff Director*
SAM E. FOWLER, *Chief Counsel*
FRANK MACCHIAROLA, *Republican Staff Director*
JUDITH K. PENSABENE, *Republican Chief Counsel*

CONTENTS

STATEMENTS

	Page
Bingaman, Hon. Jeff, U.S. Senator From New Mexico	1
Bisson, Henri, Deputy Director, Bureau of Land Management, Department of the Interior	27
Brancard, Bill, Director, Mining and Minerals Division, New Mexico Energy, Minerals and Natural Resources Department, Santa Fe, NM	35
Cantwell, Hon. Maria, U.S. Senator From Washington	69
Domenici, Hon. Pete V., U.S. Senator From New Mexico	2
Ferguson, Tony L., Director of Minerals & Geology Management, National Forest System, Forest Service	31
Geiser, David W., Deputy Director for Legacy Management, Department of Energy	95
Grumbles, Benjamin H., Assistant Administrator for Water, Environmental Protection Agency	90
Miller, Charles L., Director, Office of Federal and State Materials and Environmental Management Programs, Nuclear Regulatory Commission	100
Nazzaro, Robin M., Director, Natural Resources and Environment, Government Accountability Office	9
Newton, Fletcher T., Executive Vice President, Corporate & Strategic Affairs, Uranium One, Inc., Denver, CO	110
Salazar, Hon. Ken, U.S. Senator From Colorado	80
Shirley, Joe, Jr., President, The Navajo Nation, Window Rock, AZ	85
Struhsacker, Debra, Northwest Mining Association, Reno, NV	40
Ulibarri, David, State Senator and Cibola County Manager, Grants, NM	104
Williams, Pat, Former Montana Congressman and Regional Director, Western Progress, Missoula, MT	5

APPENDIXES

APPENDIX I

Responses to additional questions 127

APPENDIX II

Additional material submitted for the record 169

HARDROCK MINING: ISSUES RELATING TO ABANDONED MINE LANDS AND URANIUM MINING

WEDNESDAY, MARCH 12, 2008

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 2:15 p.m., in room SD–366, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Why don't we go ahead and get started? Thank you all for being here.

Today's hearing is an oversight hearing on two of the subjects that relate to reform of the Mining Law of 1872. The first subject would be abandoned mine lands and the second, more specifically, uranium mining. Both of these are topics that are important in our consideration of how to reform the 1872 Mining Law.

First, abandoned hardrock mines are clearly a problem throughout the West. While estimates vary, I understand the General Accountability Office—I gather they now call themselves—estimates there are 161,000 abandoned hardrock mine sites in the West. These abandoned mines pose public health safety risks. They also degrade the environment and pose threats to the water resources in many areas.

As we discuss the size and shape of legislation to reform the 1872 law, there appears to be a consensus that we should enact a robust hardrock abandoned mine land program. In 1977, Congress enacted an abandoned mine land program to address the serious problems related to coal mines. We are overdue to enact a similar program to deal with abandoned hardrock mines.

Last Congress, we reauthorized the AML program for coal and made other reforms, including dedicated funding for that program through mandatory appropriations. I understand that approximately $300 million per year is dedicated to the coal AML program. My own view is that a hardrock AML program should be of a similar scope, and certainly the problem to be addressed is of a similar, if not a greater magnitude.

We will also hear today about uranium mining and the programs for regulation of uranium processing and waste disposal. Currently uranium is subject to the Mining Law of 1872. Claims for uranium

have boomed in recent years with the increase in interest in nuclear power. Under existing law, claims for uranium can be located on public domain lands. Uranium can be mined with no royalty due to the Federal Government. However, I understand there is also a limited uranium leasing program administered by the Department of Energy under the Atomic Energy Act.

I hope we can hear today from the witnesses as to why we have this dual system for uranium production. I also would like to hear what fiscal terms and environmental requirements currently apply to uranium mining and what changes, if any, are needed.

Finally, as we fashion a hardrock AML program, I think it is important that we understand what authorities currently exist for the cleanup of abandoned uranium mines and processing facilities.

I know the Navajo Nation has had longstanding concerns about uranium mining. I am pleased that President Shirley is here as a witness today. I also want to particularly welcome our Senator, Dave Ulibarri, from Grants, as well as the Director of the Mining and Minerals Division of the New Mexico Minerals and Natural Resources Department, Bill Brancard. I thank all of you for being here.

Let me defer to Senator Domenici for his statement, and then I will just introduce all the witnesses and we will proceed with the testimony.

STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. Mr. Chairman, where is State Senator Ulibarri?

The CHAIRMAN. He is right back there. He is on the second panel.

Senator DOMENICI. Are you a Senator in New Mexico?

Mr. ULIBARRI. Yes, sir.

Senator DOMENICI. Thank you for coming.

Then I saw Shirley. President Shirley is right in the second row there.

The CHAIRMAN. Yes. President Shirley is on the second panel as well.

Senator DOMENICI. Mr. Chairman, thank you for holding this hearing. To our witnesses, thank you for being here to share your views and your expertise.

Minerals are incredibly important to the United States: integral to the homes we live in, the buildings we work in, and the cars we drive. They are critical for everything from technological advances and medical breakthroughs, to our national security programs.

In the years ahead, minerals will become even more important, particularly with regard to the energy mix. Solar cells are built with up to six different minerals. As much as 75 pounds of copper will be needed for every hybrid vehicle put on the road. Even gold, which is often associated with jewelry, is increasingly essential to many of the products made by our electronics and aerospace industries.

One of the matters we are here to discuss is uranium mining. Clearly, people have plenty of views on the subject, but uranium represents one of the best examples of the growing importance of a mineral. Uranium fuels our nuclear reactors, which already play

a pivotal role in reducing our Nation's greenhouse gas emissions by producing huge amounts of emission-free electricity for our homes, and businesses—over 20 percent of our Nation's requirement at this point.

Anyone who is serious about climate change must appreciate the benefits of nuclear power. Almost every week, someone who has been significant in the green or environmental movement recognizes publicly the fact that nuclear is vital to our efforts to control climate change and its negative effects. Nuclear power is an essential tool for addressing global climate change, but we will not realize its potential without a stable supply of fuel for our reactors.

In my view, the opponents of uranium mining are not applying facts about a modern industry. They ignore the significant advances that have been made in recent decades and our scientific understanding of the issues associated with nuclear power. Uranium mining is well beyond where it was just a few decades ago. As a result of our regulatory approach, it has been consistently and thoroughly updated to protect the environment and health of our people.

We have a dozen witnesses here today, Mr. Chairman. That is a lot. The first panel, as you have indicated, will affirm the need to clean up the past problems and explain changes that have been made to prevent the creation of new abandoned mine sites. In the context of Mining Law reform, abandoned mine land reclamation is our most significant opportunity to improve the environment.

The second panel, by discussing the environmental and human health protections that exist for uranium mining, will leave us with a higher level of comfort related to these activities. In short, much has changed since the cold war. Uranium mining in the future will be very different from uranium mining in the past.

Both you and I worked on mining in the past because we had some of the residuals from that mining which were left in the lives of some Navajo Indian people. That does not mean that that has to occur again, and it is our job as responsible leaders to get the real facts before the Navajo people and not facts that come from the Cold War.

Opponents of mining also overlook new concerns about the price and source of uranium. In the past 5 years, the price of uranium has increased from about $10 per pound to about $75, and risen as high as $135 a pound. I know it is, in fact, down from that level. But that is a rather prominent and significant increase in a short amount of time. We depend on foreign nations for about 80 percent of our uranium supply, higher even than the amount of oil that we import from abroad.

Mr. Chairman, my office has received a great deal of correspondence from industry groups, including the Citizens' Alliance for Responsible Energy and the New Mexico Association of Commerce and Industry, that support renewed uranium mining. Resolutions have been passed by two counties in New Mexico, McKinley and Cibola, and one city, Grants, to highlight the wide range of benefits that uranium mining would bring. These include clean and affordable energy, increased tax revenues, and the creation of many local job opportunities.

One of our witnesses, New Mexico State Senator Ulibarri, is from Cibola County. I expect that he will tell us more about these benefits. I ask that copies of each of these letters and resolutions* that I have just mentioned and the resolution be included in the record, Mr. Chairman.

The CHAIRMAN. We will, obviously, include any of that in the record.

Senator DOMENICI. My last two pages that I have not used of my statement, if you would make them a part of the record, as if read.

The CHAIRMAN. We certainly will do that.

[The prepared statement of Senator Domenici follows:]

PREPARED STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Mr. Chairman, thank you for holding this hearing. To our witnesses, thank you for being here to share your views and expertise.

Minerals are incredibly important to the United States—integral to the homes we live in, the buildings we work in, and the cars we drive. They are critical for everything from technological advances and medical breakthroughs to our national security apparatus.

In the years ahead, minerals will become even more important, particularly with regard to our energy mix. Solar cells are built with up to 6 different minerals. As much as 75 pounds of copper will be needed for every hybrid vehicle put on the road. Even gold, which is often associated with jewelry, is increasingly essential to many of the products made by our electronics and aerospace industries.

One of the matters we are here to discuss—uranium mining—represents one of the best examples of the growing importance of minerals. Uranium fuels our nuclear reactors, which already play a pivotal role in reducing our nation's greenhouse gas emissions by producing huge amounts of emission-free electricity for our homes and businesses—over 20% of our nation's requirements.

Anyone who is serious about climate change must appreciate the benefits of nuclear power. In turn, nuclear power will require us to be serious about uranium mining. Nuclear power is an essential tool for addressing global climate change. But we will not realize its potential without a stable supply of fuel for our reactors.

In my view, the opponents of uranium mining are misguided. They ignore the significant advances that have been made in recent decades. Our scientific understanding of the issues associated with nuclear power and uranium mining is well beyond where it was a few decades ago. As a result, our regulatory approach has been consistently and thoroughly updated to protect the environment, human health, and safety.

We have a dozen witnesses here today. The first panel will affirm the need to clean up past problems and explain changes that have been made to prevent the creation of new abandoned mine sites. In the context of mining law reform, abandoned mine land reclamation is our most significant opportunity to improve the environment.

I believe the second panel, by discussing the environmental and human health protections that exist for uranium mining, will leave us with a higher level of comfort related to these activities. In short, much has changed since the Cold War. Uranium mining in the future will be very different from uranium mining in the past.

Opponents of uranium mining also overlook new concerns about the price and source of uranium. In the past five years, the price of uranium has increased from about $10 per pound to about $75, and risen as high as $135 per pound. We depend on foreign nations for some 80 percent of our uranium supply—higher even than the amount of oil that we import from abroad.

Mr. Chairman, my office has received a great deal of correspondence from industry groups—including the Citizens' Alliance for Responsible Energy and the New Mexico Association of Commerce and Industry—that support renewed uranium mining. Resolutions have been passed by two counties in New Mexico, McKinley and Cibola, and one city, Grants, to highlight the wide range of benefits that uranium mining brings. These include clean and affordable energy, increased state tax revenues, and the creation of local job opportunities. One of our witnesses, New Mexico State Senator Ulibarri, is from Cibola County. I expect he will tell us more about

* See Appendix II for letters; resolutions have been retained in committee files.

these benefits, and I ask that copies of each of these letters and Resolutions be included in the Record of this hearing.

While mining law reform presents an opportunity to focus on the future of mining in America, we cannot deny or overlook the problems that have arisen from it in the past. When it comes to abandoned mine lands, we know we have a considerable amount of work ahead of us. We know that work will not be finished overnight, but there is also evidence that these efforts are on the right track.

Mining law reform offers a chance to create an efficient clean-up program for abandoned mines. But we will not find success unless we, as a Committee, face the realities of what can be passed by the full Senate. And we should remember that our ability to clean up abandoned mines—to have the funds available for reclamation—is contingent upon the existence of a healthy mining industry here at home.

Mining law reform is important for our nation, but time is running out to achieve it in this Congress. This is our third oversight hearing this year. I thank you for holding it, Mr. Chairman, but I hope that our next hearing will be on a bipartisan piece of legislation capable of moving this effort closer to resolution.

Senator DOMENICI. I yield at this point.

The CHAIRMAN. Thank you very much.

Let me just introduce this first panel Robin Nazzaro who is the Director of the Natural Resources and Environment part of the Government Accountability Office; Henri Bisson, who is Deputy Director of the BLM in the Department of the Interior; Tony Ferguson, who is the Director of Minerals and Geology in the Forest Service. Thank you very much for being here. Bill Brancard, who I introduced earlier, is the Director of Mining and Minerals in our New Mexico Energy, Minerals and Natural Resources Department. Pat Williams, a former Congressman, thank you for coming here. We greatly appreciate having you here. He is now Director of Western Progress in Missoula, Montana. Debra Struhsacker is with Northwest Mining Association in Reno, Nevada. Thank you for being here.

I was told, Pat, that you have a plane you need to get on, so why don't you go first. Then we will go back and pick up the rest of the witnesses. If you need to leave at any certain time, we obviously understand and appreciate you coming. It is very nice to see you again.

Mr. WILLIAMS. It is nice to see you again.

The CHAIRMAN. I appreciate your being here.

STATEMENT OF PAT WILLIAMS, FORMER MONTANA CONGRESSMAN AND REGIONAL DIRECTOR, WESTERN PROGRESS, MISSOULA, MT

Mr. WILLIAMS. Thank you very much, Mr. Chairman, and Senator Domenici, Senator Craig, Senator Tester.

For 18 years, I was a member of the House and of your counterpart committee over there, Natural Resources, and during the latter half of my nine terms, I engaged in two efforts, to pass Mine Law reform legislation through our committee and through the full House and on to this honorable body. We had our successes over there, but as you know, neither the House nor Senate bills ever made it to the President's desk. We are hopeful this time, the third time, will be a charm.

Most of us from the Rocky Mountain West who support reform in the Nation's critical mining industry do so primarily for two simple but important reasons: economic opportunity and landscape restoration, which are in fact the same thing.

We understand, of course, that there are those who believe that support for mining reform is simply an old grudge against the industrial sins of the past two centuries. Others, it has been said, want to financially gouge an industry which, for the moment, has good income. For others still, reform is a matter of complying with the gains that technology has brought to mining during the past century and a quarter.

Too much debate about Mine Law reform does focus on the past. I know that I need not urge you to focus on tomorrow instead. Many of us out West regard with genuine anticipation the potential for the restoration and renewal of our region's abused land and water, as well as needed stability for our too often boom and bust economy. I grew up in the copper mining city of Butte, Montana and worked in the mines. I came of age seeing both the good and the bad in the mining industry and the mining economy. I know, as do so many thousands of other westerners, both the high times, as well as the ruins.

Senators, 7 members of your committee represent 6 of the States of the Rocky Mountain West. Within those 6 States, as the chairman noted, there are between 100,000 and 200,000 abandoned mine sites. If one counts adits, both open and closed, or dumps, scablands, abandoned equipment, crumbling shacks, rusted metal, and far too much acid discharge into 40 percent of the headwaters of the Rocky Mountains, one comes up with a figure of about 367,000 pieces of mining ruin, almost 200,000 of it just abandoned holes in the ground.

You remember that old adage, "There never has been a mine without a good view?" Miners follow the ore and those riches were and are in our most beautiful places. Too many of those landscapes are spoiled, too many of the streams polluted, still polluted, still spoiled a century after mining's western heyday.

But those of us in the West are starting to understand that all of that ruin is pay dirt. Those abandoned mine sites offer more than just spoilage or danger, though dangerous they are. Properly considered, those sites present the West, your West, with a brand new economy, jobs, profits, revenues, salaries, benefits for your constituents, our citizens out in the Rockies.

As you know, it is not often that in the history of any region, a wholly new economy awaits recognition and support. But we face just such an opportunity out West. Envision it: a new economy in restoring the waterways and the landscapes. Your Congressional Budget Office estimates that for each $1 million spent on mine cleanup, 14 to 33 new jobs are created. As with many first-rate private or public investments, the down payment is not inexpensive. In part, that is because restoration is labor-intensive. Men and women with shovels and heavy equipment, rakes, as well as road building and road removal equipment, tree planting, as well as trucks and loaders and low boy trailers. The economy will have a place for the laborer, but also for the engineer, hydrologist, biologist, and other scientists, fine paying jobs all. It sounds a lot like the "good old days," does it not?

Important as they are, the hands-on restoration work itself and jobs funded through new mining royalties are just the beginning. Investment in restoration promises far greater economic rewards

over the long term. Healing the scars of past mining will restore the usefulness and productivity of impaired land and waterways. It will turn degraded landscapes into areas of new opportunity and help more rural communities plug into the quality-of-life-driven economy of today's West.

We are seeing a dramatic example of this near the city where I live now, Missoula, Montana. As we meet here today, there are scores of heavy equipment operators hard at work removing millions of cubic yards of mining waste from a place called Milltown Reservoir, restoring the natural confluence between the Clark Fork River and the Big Blackfoot, which is the river that runs through it in literature. Their work is far from over, but it has already triggered new investment and a wave of revitalization in the surrounding communities.

Senators, we westerners believe there is an imperative here, both environmental as well as economic. So let us do it, and let us get today's mining companies to both help us while they help themselves. Forward-looking companies with wise management recognize the opportunity to become partners in the new West. Mining is wise. It too will recognize the opportunity to become a partner in cleaning up those old scabs and making pay dirt out of them.

Surely the companies themselves will bid on and get contracts in the restoration economy, and that will mean profit for them, the use of skills of their workers, and income for rural communities is sorely needed. Undoubtedly, this same mining industry can contribute a relatively small portion of the Nation's restoration costs through the application of an appropriate royalty fee on the minerals extracted from the public's land.

Mr. Chairman and Senators, there is a genuine opportunity here, and this committee can help lead us to it. Old abandoned, dangerous property needs restoration and reclamation. So do many old and unnecessary timber sale roads and dense stands of forest underbrush, as well as overgrown, fire-prone forests. We can get on with that restoration and we can start, many of us believe, in this committee with Mine Law reform.

Thanks for having me.

[The prepared statement of Mr. Williams follows:]

PREPARED STATEMENT OF PAT WILLIAMS, FORMER MONTANA CONGRESSMAN AND REGIONAL DIRECTOR OF WESTERN PROGRESS, MISSOULA, MO

Chairman Bingaman, Senator Domenici, Committee members, I am Pat Williams from Montana. For 18 years I was a member of the U.S. House and your counterpart committee, Natural Resources. During the latter half of my nine-term congressional career, I engaged in two efforts to pass Mine Law Reform legislation through our committees and the full House and on to this honorable body. Both times we were successful. As many of you remember, however, neither the House nor the Senate bills made it to the President's desk.

Most of us from the Rocky Mountain West who support reform in the nation's critical mining industry do so primarily for two simple but important reasons: economic opportunity and landscape restoration. Actually, those two reasons are one and the same.

We understand there are those who believe that support for mining reform is simply an old grudge against the industrial sins of the past two centuries; others, it has been said, want to financially gouge an industry, which, for the moment, is making record profits. For others still, reform is a matter of complying with the gains that technology has brought to mining during the past 126 years.

Too much debate about Mine Law Reform focuses on the past. I urge you to focus on the future. Many of us out West regard with genuine anticipation the potential for the restoration and renewal of our region's abused land and water as well as needed stability for our often boom-and-bust economy. I grew up in the copper mining city of Butte, Montana, and came of age seeing both the good and bad of the mining economy. I know, as do so many thousands of other westerners, both the high times and the ruins.

Senators, seven members of your committee represent six of the states of the Rocky Mountain West. Within those six states are tens of thousands of abandoned mine sites: adits, both open and sealed; ore dumps; scablands; abandoned equipment; crumbling shacks, rusted metal; and far too much acid discharge and heavy metal pollution threatening our streams and ground water.

Do you remember that old adage, "There has never been a mine without a good view"? Miners follow the ore, and those riches were and are in our most beautiful places. Too many of those landscapes are spoiled, too many of the streams polluted—still spoiled and polluted a century after mining's western heydays.

But, those of us in the West are starting to understand that it's all pay dirt. Those abandoned mine sites offer more than just danger. Although dangerous they are; properly considered, those sites present the West—our West—with a brand new economy: jobs, profits, revenue, salaries and benefits—for your constituents.

As you know, it isn't often in the history of any region that a wholly new economy awaits recognition and support. But we face just such an opportunity. Envision it: a new economy in restoring the waterways and landscapes. Your Congressional Budget Office estimates that for each $1 million spent on a mine cleanup we will create between 14 and 33 new jobs. As with many first-rate private or public investments, the down payment is not inexpensive. In part that's because restoration is labor intensive: men and women with shovels and heavy equipment: rakes as well as road building and road removal equipment, tree planting as well as trucks and loaders and low boy trailers. This economy will have a place for the laborer but also the engineers, hydrologists, biologist and other scientists—fine paying jobs all. It sounds like those "good old days" we enjoy reminiscing about out our way.

Important as they are, the hands-on restoration work itself and jobs funded through new mining royalties are just the beginning. Investment in restoration promises far greater economic rewards over the long-term. Healing the scars of past mining will restore the usefulness and productivity of impaired land and watersheds. It will turn degraded landscapes into areas of new opportunity and help more rural communities plug into the quality-of-life-driven new economy of today's West. We're seeing a dramatic example of this near Missoula, Montana. Right now, scores of heavy equipment operators are hard at work removing millions of cubic yards of mining waste from Milltown Reservoir, restoring the natural confluence of the Blackfoot and Clark Fork rivers. Their work is far from over, but it's already triggered new investment and a wave of revitalization in the surrounding communities.

Senators, we westerners believe there is an imperative here, both environmental and economic. Let's do it. And let's get today's mining companies to help both us and themselves. Forward-looking companies with wise management recognize the opportunity to become a partner in the new West. Certainly mining can and will recognize this moment.

Surely the companies will bid on and get contracts in the restoration economy and that will mean profit for them, the use of the skills of their workers, and income for our rural communities. Undoubtedly this same mining industry can contribute a relatively small portion of the nation's restoration costs through the application of an appropriate royalty fee on the minerals extracted from the public's land.

Mr. Chairman and Senators, there is a genuine opportunity here and this committee can lead us to it. Old abandoned, dangerous mining property needs restoration and reclamation; so do many old and unnecessary timber-sale roads and dense stands of forest underbrush, as well as overgrown, fire prone forests.

Let's get on with it. Starting with Mine Law Reform.

Thank you for having me.

The CHAIRMAN. Thank you very much for your excellent testimony. Before we get to any questions, let me call on each of the other witnesses.

Ms. Nazzaro, why do you not go right ahead and give us your testimony?

STATEMENT OF ROBIN M. NAZZARO, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, GOVERNMENT ACCOUNTABILITY OFFICE

Ms. NAZZARO. Thank you, Mr. Chairman and members of the committee. I am pleased to be here today to discuss several aspects of the hardrock mining industry.

Between fiscal years 1998 and 2007, the Bureau of Land Management, the Forest Service, the Environmental Protection Agency, and the Office of Surface Mining Reclamation and Enforcement spent at least $2.6 billion to reclaim abandoned hardrock mines. Of the 4 agencies, EPA has spent the most, about $2.2 billion primarily on non-Federal lands through its Superfund program. The Forest Service and BLM have reclaimed abandoned hardrock mine sites on lands they manage, spending about $200 million and $50 million, respectively. OSM provided grants, totaling about $200 million, to States and Indian tribes.

Over the last 10 years, estimates of the number of abandoned hardrock mine sites have varied widely, in part, because there is generally no accepted definition for a hardrock mine site. Some States define an abandoned mine site as a mine opening or features, while others define a site as all associated mine openings, features, or structures at a particular location. BLM and the Forest Service have also had difficulty determining the number of abandoned hardrock mines on their lands and have no definitive estimates.

Using a consistent definition that we provided, 12 western States and Alaska provided GAO estimates of abandoned hardrock mine sites in their States. From this data, we estimated a total of at least 161,000 abandoned hardrock mine sites on State, private, and Federal lands with at least 332,000 features, such as open shafts or unstable or decayed mine structures that may pose physical safety hazards. There are also at least 33,000 sites that have degraded the environment by, for example, contaminating surface water or groundwater.

As of November——

Senator DOMENICI. How many was that?

Ms. NAZZARO. It is 33,000.

Senator DOMENICI. Over what area again?

Ms. NAZZARO. Again, this was in the 12 western States and Alaska.

As of November 2007, mine operators had provided financial assurances valued at approximately $982 million to guarantee reclamation costs for 1,463 hardrock operations on BLM lands. BLM also estimated that 52 mining operations have inadequate financial assurances that amount to about $28 million less than needed to fully recover the estimated reclamation costs. However, we determined that the financial assurances for these 52 operations are actually $61 million less than needed to fully cover the estimated reclamation costs.

The $33 million difference occurs because BLM calculated its shortfall by comparing the total value of financial assurances in place with the total estimated reclamation costs, offsetting the shortfalls in some operations with other operations. However, financial assurances do not work that way, and those that are great-

er than the amount required for an operation cannot be transferred to another operation that has a shortfall. BLM officials have taken steps to correct its calculations.

Mr. Chairman, this concludes my prepared statement. I would be happy to answer any questions that you or members of the committee may have.

[The prepared statement of Ms. Nazzaro follows:]

PREPARED STATEMENT OF ROBIN M. NAZZARO, DIRECTOR NATURAL RESOURCES & ENVIRONMENT GOVERNMENT ACCOUNTABILITY OFFICE

WHY GAO DID THIS STUDY

The Mining Act of 1872 helped foster the development of the West by giving individuals exclusive rights to mine gold, silver, copper, and other hardrock minerals on federal lands. However, miners often abandoned mines, leaving behind structures, safety hazards, and contaminated land and water. Four federal agencies—the Department of the Interior's Bureau of Land Management (BLM) and Office of Surface Mining Reclamation and Enforcement (OSM), the Forest Service, and the Environmental Protection Agency (EPA)—fund the cleanup of some of these sites.

To curb further growth in the number of abandoned hardrock mines on federal lands, in 1981 BLM began requiring mining operators to reclaim lands when their operations ceased. In 2001, BLM began requiring all operators to provide financial assurances to guarantee funding for reclamation costs if the operator did not complete the task as required.

This testimony provides information on the (1) federal funds spent to clean up abandoned hardrock mine sites since 1998, (2) number of abandoned hardrock mine sites and hazards, and (3) value and coverage of financial assurances operators use to guarantee reclamation costs on BLM land. To address these issues, GAO, among other steps, asked 12 western states and Alaska to provide information on the number of abandoned mine sites and associated features in their states using a consistent definition.

WHAT GAO FOUND

Between fiscal years 1998 and 2007, BLM, the Forest Service, EPA, and OSM spent at least $2.6 billion (in 2008 constant dollars) to reclaim abandoned hardrock mines. BLM and the Forest Service have reclaimed abandoned hardrock mine sites on the lands they manage; EPA funds the cleanup of these sites, primarily on nonfederal lands through its Superfund program; and OSM provides some grants to states and Indian tribes to clean up these sites on their lands. Of the four agencies, EPA has spent the most—about $2.2 billion (in 2008 constant dollars) for mine cleanups. BLM and the Forest Service spent about $259 million (in 2008 constant dollars), and OSM awarded grants totaling about $198 million (in 2008 constant dollars) to support the cleanup of abandoned hardrock mines.

Over the last 10 years, estimates of the number of abandoned hardrock mining sites in the 12 western states and Alaska have varied widely, in part because there is no generally accepted definition for a hardrock mine site. Using a consistent definition that GAO provided, 12 western states and Alaska provided estimates of abandoned hardrock mine sites. On the basis of these data, GAO estimated a total of at least 161,000 such sites in these states with at least 332,000 features that may pose physical safety hazards and at least 33,000 sites that have degraded the environment.

According to BLM's information on financial assurances as reported in its November 2007 Bond Review Report, mine operators had provided financial assurances valued at approximately $982 million to guarantee reclamation costs for 1,463 hardrock operations on BLM land. The report also estimates that 52 mining operations have financial assurances that amount to about $28 million less than needed to fully cover estimated reclamation costs. However, GAO found that the financial assurances for these 52 operations are in fact about $61 million less than needed to fully cover estimated reclamation costs. The $33 million difference between GAO's estimated shortfall and BLM's occurs because BLM calculated its shortfall by comparing the total value of financial assurances in place with the total estimated reclamation costs. This calculation approach has the effect of offsetting the shortfalls in some operations with the financial assurances of other operations. However, financial assurances that are greater than the amount required for an operation cannot be transferred to another operation that has inadequate financial assurances.

BLM officials agreed that it would be valuable for the Bond Review Report to report the dollar value of the difference between financial assurances in place and required for those operations where financial assurances are inadequate, and BLM has taken steps to correct this.

GAO discussed the information in this testimony with officials from the four federal agencies, and they provided GAO with technical comments, which were incorporated as appropriate.

Mr. Chairman and Members of the Committee: I am pleased to be here today to discuss several aspects of hardrock mining, including abandoned hardrock mining sites and financial assurances. We developed this information during the course of our ongoing review, which is being conducted at the request of this Committee, Senator Reid, and the Chairman of the House Committee on Natural Resources.

As you know, the General Mining Act of 1872 encouraged the development of the West by allowing individuals to stake claims and obtain exclusive rights to the gold, silver, copper, and other valuable hardrock mineral deposits on land belonging to the United States. Since then, thousands of operators have extracted billions of dollars worth of hardrock minerals from land managed by the Department of the Interior's Bureau of Land Management (BLM) and the U.S. Department of Agriculture's Forest Service—the two principal agencies responsible for federal lands open for hardrock mining. However, some operators did not reclaim thousands of acres of federal land disturbed for exploration, mining, and mineral processing when their operations ceased. Some of these disturbed lands pose serious environmental and physical safety hazards. These hazards include environmental hazards such as toxic or acidic water that contaminates soil and groundwater or physical safety hazards such as open or concealed shafts, unstable or decayed mine structures, or explosives. Cleanup costs for these abandoned mines vary by type and size of the operation.[1] For example, the cost of plugging holes is usually minimal, but reclamation costs for large mining operations can be in the tens of millions of dollars.

Four federal agencies—BLM, the Forest Service, the Environmental Protection Agency (EPA), and the Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSM)—fund the cleanup and reclamation of some of these abandoned hardrock mine sites. BLM's and the Forest Service's Abandoned Mine Lands programs focus on the safety of their land by addressing physical and environmental hazards. EPA's funding of abandoned hardrock mine sites, under its Superfund Program, focuses on the cleanup and long-term health effects of air, ground, or water pollution by abandoned hardrock mine sites, and is generally for mines on nonfederal lands. Finally, OSM, under amendments to the Surface Mining Control and Reclamation Act (SMCRA) of 1977,[2] can provide grants to fund the cleanup and reclamation of certain hardrock mining sites after a state certifies that it has cleaned up its abandoned coal mine sites and the Secretary of the Interior approves the certification or at the request of a state or an Indian tribe.

Federal agencies, states, mining, and environmental organizations, and others have attempted to determine the total number of abandoned hardrock mines and the safety and environment hazards these mines pose. These estimates vary widely, and many of these abandoned hardrock mines present safety, health, and environmental hazards.

To curb further growth in the number of abandoned hardrock mines, BLM issued regulations, effective in 1981, that required all mining operators to reclaim BLM land disturbed by hardrock mining.[3] In 2001, BLM regulations began requiring all mining operators to provide financial assurances before beginning exploration or mining operations on BLM land.[4] These financial assurances must cover all of the estimated reclamation costs for a given hardrock operation.[5] Having adequate financial assurances to pay reclamation costs for BLM land disturbed by hardrock operations is critical to ensuring that the land is reclaimed if the mining operators fail to do so. In June 2005, we reported that some current hardrock operations on BLM land do not have financial assurances, and some have no or outdated reclamation

[1] For purposes of this testimony, cleanup refers to the mitigation of environmental impacts at mine sites, such as contaminated water, and the reclamation of land disturbed by hardrock operations.

[2] Pub. L. No. 95-87, as amended by Pub L. No. 101-5-8, Title VI, § 6010(2), Nov. 5, 1990.

[3] An operator is a person who conducts operations in connection with exploration, mining, and processing hardrock minerals on federal lands.

[4] 43 C.F.R. §3809.

[5] BLM manages about 258 million acres, most of which are located in 12 western states, and Alaska. For simplicity in this testimony, we refer to BLM-managed land as BLM land.

plans and/or cost estimates on which the financial assurances should be based.[6] In that report we—

- concluded that BLM did not have an effective process and critical management information needed for ensuring that adequate financial assurances are actually in place, as required by federal regulations and BLM guidance; and
- made recommendations to strengthen BLM's management of financial assurances for hardrock operations on its lands.

In response to those recommendations, BLM modified its computer system—LR2000—to generate the Bond Review Fiscal Report (the Bond Review Report). BLM uses this report to determine if adequate financial assurances are in place for mining operations on its lands. BLM also requires its state directors to annually review the Bond Review Report to determine if all reclamation cost estimates are adequate, take action to address inadequacies, and certify that the financial assurances are adequate.

In contrast to BLM, the Forest Service—the other federal agency principally responsible for hardrock mining operations on federal land—does not have readily available information on the financial assurances in place for hardrock operations on its lands. Although the Forest Service's regulations do not require financial assurances for all operations, the Forest Service's policy is to require them.

In this context, my testimony today, as requested, discusses the (1) federal funds spent to clean up abandoned hardrock mine sites since 1998, (2) number of abandoned hardrock mine sites and the number of associated hazards, and (3) value and coverage of the financial assurances operators use to guarantee reclamation costs on BLM land.

To address these objectives, we interviewed staff at BLM, the Forest Service, EPA, and OSM; examined agency documents and data; and reviewed relevant legislation and regulations. In addition, for the first objective, we obtained federal expenditure data from these four agencies for cleaning up and reclaiming abandoned hardrock mine sites from fiscal years 1998 through 2007. We adjusted the expenditure data to 2008 constant dollars. For the second objective, we asked 12 western states and Alaska—which have significant numbers of abandoned hardrock mining operations—to determine the number of these mine sites in their states.[7] We asked the states to use a consistent definition, which we provided, in estimating the number of abandoned mine sites and associated features that pose a significant hazard to public health and safety and the number of sites that cause environmental degradation. We defined an abandoned hardrock mine site as all associated facilities, structures, improvements, and disturbances at a distinct location associated with activities to support a past operation of minerals locatable under the general mining laws. We specified that states should only include hardrock (also known as locatable), non-coal sites in this estimate. From these data, we estimated the number of abandoned hardrock mine sites, the number of features that pose physical safety hazards, and the number of sites with environmental hazards in the 12 western states and Alaska. We also summarized selected prior survey efforts by federal agencies and organizations to document differences in estimates, definitions, and methodologies. For the third objective, we reviewed BLM's Bond Review Report to determine the value and coverage of financial assurances in place to guarantee coverage of reclamation costs. This report provides information on financial assurances for 11 western states.[8] This Bond Review Report is generated from BLM's automated information system—LR 2000. Although the LR2000 data are of undetermined reliability, our limited assessment of these data indicates that they are appropriate as used and presented in this testimony, and we do not base any conclusions or recommendations on them.

We conducted this performance audit from November 2007 through March 2008, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. See appendix I for more detailed information on our scope and methodology.

In summary:

---

[6] GAO, Hardrock Mining: BLM Needs to Better Manage Financial Assurances to Guarantee Coverage of Reclamation Costs, GAO-05-377 (Washington, D.C.: June 20, 2005).

[7] These states were Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming.

[8] These states were Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming.

- The four federal agencies we examined—BLM, the Forest Service, EPA, and OSM—spent at least $2.6 billion (in 2008 constant dollars) between fiscal years 1998 and 2007 to clean up abandoned hardrock mines. BLM and the Forest Service spent a total of about $259 million (in 2008 constant dollars) to fund the cleanup of abandoned sites on the lands they manage. EPA spent the most of the four agencies—about $2.2 billion (in 2008 constant dollars) to fund the cleanup of abandoned mine sites, primarily on nonfederal land through its Superfund program, and OSM provided grants to states and Indian tribes totaling about $198 million (in 2008 constant dollars) to support cleanups of abandoned hardrock mines.
- According to several studies we reviewed that were conducted over the last 10 years, estimates of the number of abandoned hardrock mine sites in the 12 western states and Alaska vary widely, in part because there is no generally accepted definition for a hardrock mine site and the studies rely on the different definitions the states used. Furthermore, BLM's and the Forest Service's estimate of 100,000 abandoned hardrock mines on their lands is problematic because they included non-hardrock mines and mines that may not be on their lands. Using a consistent definition that we provided, the 12 western states and Alaska estimated the number of hardrock mine sites in their states and from this information we estimated a total of at least 161,000 abandoned hardrock mine sites in these states on state, private, or federal lands. These sites have at least 332,000 features that may pose physical safety hazards, such as open shafts or unstable or decayed mine structures. The states also estimated that at least 33,000 sites have degraded the environment by, for example, contaminating surface water and groundwater.
- As of November 2007, mine operators had provided financial assurances valued at approximately $982 million to guarantee reclamation costs for 1,463 hardrock operations on BLM land in 11 western states, according to BLM's Bond Review Report. The report also estimates that 52 mining operations have inadequate financial assurances amounting to about $28 million less than needed to fully cover estimated reclamation costs. However, we determined that the financial assurances for the 52 operations are actually about $61 million less than needed to fully cover estimated reclamation costs. The $33 million difference between our estimated shortfall and BLM's occurs because BLM calculated its shortfall by comparing the total value of financial assurances in place with the total estimated reclamation costs. This calculation approach has the effect of offsetting the shortfalls in some operations with the financial assurances of other operations. However, financial assurances that are greater than the amount required for an operation cannot be transferred to another operation that has inadequate financial assurances. BLM officials agreed that it would be valuable for the Bond Review Report to report the dollar value of the difference between financial assurances in place and required for those operations where financial assurances are inadequate, and BLM has taken steps to modify LR2000. We discussed the information in this testimony with officials from the four federal agencies, and they provided us with technical comments, which we incorporated as appropriate.

BACKGROUND

Historically, the mining of hardrock minerals, such as gold, lead, copper, silver, and uranium, was an economic incentive for exploring and settling the American West. However, when the ore was depleted, miners often left behind a legacy of abandoned mines, structures, safety hazards, and contaminated land and water. Even in more recent times, after cleanup became mandatory, many parties responsible for hardrock mining sites have been liquidated through bankruptcy or otherwise dissolved.[9] Under these circumstances, some hardrock mining companies have left it to the taxpayer to clean up the mining site. BLM, the Forest Service, EPA, and OSM play a role in cleaning up these abandoned mining sites and ensuring that currently operating sites are reclaimed after operations have ceased.

BLM and the Forest Service are responsible for managing more than 450 million acres of public lands in their care, including land disturbed and abandoned by past hardrock mining activities. BLM manages about 258 million acres in 12 western states, including Alaska. The Forest Service manages about 193 million acres across the nation. In 1997, BLM and the Forest Service each launched a national Abandoned Mine Lands Program to remedy the physical and environmental hazards at

[9] GAO, Environmental Liabilities. Hardrock Mining Cleanup Obligations, GAO-06-884T (Washington, D.C.: June 14, 2006); GAO-05-377.

thousands of abandoned hardrock mines on the federal lands they manage. According to a September 2007 report by these two agencies, they had inventoried thousands of abandoned sites and, at many of them, had taken actions to clean up hazardous substances and mitigate safety hazards.[10]

BLM and the Forest Service are also responsible for managing and overseeing current hardrock operations on their lands, including the mining operators' reclamation of the land disturbed by hardrock mining. Although reclamation can vary by location, it generally involves such activities as regrading and reshaping the disturbed land to conform with adjacent land forms and to minimize erosion; removing or stabilizing buildings and other structures to reduce safety risks; removing mining roads to prevent damage from future traffic; and establishing self-sustaining vegetation. One of the agencies' key responsibilities is to ensure that adequate financial assurances, based on sound reclamation plans and cost estimates, are in place to guarantee reclamation costs.[11] If a mining operator fails to complete required reclamation,

BLM or the Forest Service can take steps to obtain funds from the financial assurance provider to complete the reclamation. BLM requires financial assurances for both notice-level hardrock mining operations—those disturbing 5 acres of land or less—and plan-level hardrock mining operations—those disturbing over 5 acres of land and those in certain designated areas, such as the national wild and scenic rivers system. For hardrock operations on Forest Service lands, agency regulations require reclamation of sites after operations cease, but do not require financial assurances for the reclamation. However, according to a Forest Service official, if the proposed hardrock operation is likely to cause a significant disturbance, the Forest Service requires financial assurances.

Both agencies allow several types of financial assurances to guarantee estimated reclamation costs for hardrock operations on their lands. According to regulations and agency officials, BLM and the Forest Service allow cash, letters of credit, certificates of deposit or savings accounts, and negotiable U.S. securities and bonds in a trust account. BLM also allows surety bonds, state bond pools, trust funds, and property.

Neither agency centrally tracks all the types of financial assurances in place for hardrock operations on its lands. BLM's LR2000 tracks most of the types, and BLM is updating the database to include more types of financial assurances, but data are incomplete for the types of assurances currently in the system. The Forest Service does not have readily available information on the types of financial assurances in use, but it is developing a database to collect this and other information on hardrock operations by late summer 2008, according to Forest Service officials.

EPA administers the Superfund program, which was established under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 to address the threats that contaminated waste sites, including those on nonfederal lands, pose to human health and the environment.[12] The act also requires that the parties statutorily responsible for pollution bear the cost of cleaning up contaminated sites, including abandoned hardrock mining operations. Some contaminated hardrock mine sites have been listed on Superfund's National Priorities List—a list of seriously contaminated sites. Typically, these sites are expensive to clean up and the cleanup can take many years. According to EPA's Office of Inspector General in 2004, 63 hardrock mining sites were on the National Priorities List and another 93 sites had the potential to be added to the list.[13] Regarding financial assurances, EPA has statutory authority under the Superfund program to require businesses handling hazardous substances on nonfederal lands to provide financial assurances,[14] and according to agency officials, is currently exploring options for implementing this authority.

OSM's Abandoned Mine Land Program primarily focuses on cleaning up abandoned coal mine sites. However, OSM, under amendments to the Surface Mining Control and Reclamation Act (SMCRA) of 1977, can provide grants to fund the cleanup and reclamation of certain hardrock mining sites either (1) after a state certifies that it has cleaned up its abandoned coal mine sites and the Secretary of the Interior approves the certification, or (2) at the request of a state or Indian tribe to address problems that could endanger life and property, constitute a hazard to

---

[10] BLM and Forest Service, Abandoned Mine Lands. A Decade of Progress Reclaiming Hardrock Mines (September 2007).

[11] 43 C.F.R. 3809 and 36 C.F.R. §228, Subpart A.

[12] 42 USC §§ 9601-9675.

[13] EPA, Office of Inspector General, Nationwide Identification of Hardrock Mining Sites, 2004-P-00005 (Washington, D.C: Mar. 31, 2004).

[14] GAO-06-884T.

the public and safety, or degrade the environment, and the Secretary of the Interior grants the request. OSM has provided more than $3 billion to clean up dangerous abandoned mine sites. Its Abandoned Mine Land Program has eliminated safety and environmental hazards on 314,108 acres since 1977, including all high-priority coal problems and non-coal problems in 27 states and on the lands of three Indian tribes.[15]

FEDERAL AGENCIES HAVE SPENT AT LEAST $2.6 BILLION TO CLEAN UP ABANDONED HARDROCK MINE SITES SINCE 1998

Between fiscal years 1998 and 2007, the four federal agencies we examined—BLM, the Forest Service, EPA, and OSM—spent at least $2.6 billion to reclaim abandoned hardrock mines on federal, state, private, and Indian lands. EPA has spent the most—$2.2 billion.[16] Although the amount each agency spent annually varied considerably, the median amount spent for the public lands by BLM and the Forest Service was about $5 million and about $21 million, respectively. EPA spent substantially more—a median of about $221 million annually—to clean up mines that are generally on nonfederal lands. Finally, OSM provided grants with an annual median value of about $18 million to states and Indian tribes through its SMCRA program for hardrock mine cleanups. Table 1 summarizes information on expenditures and hardrock mine cleanup activities at BLM, the Forest Service, EPA, and OSM. See appendix II for more detailed information on agency expenditures by fiscal year.

Table 1: Summary of Expenditures for Cleaning Up Abandoned Hardrock Mines at BLM, the Forest Service, EPA, and OSM, Fiscal Years 1998 through 2007

Dollars in thousands (2008 constant dollars)

	BLM[a]	Forest Service	EPA[b]	OSM
Total expenditures between fiscal years 1998 and 2007	**$50,462**	**$208,709**	**$2,155,916**	**$198,099**
Median expenditures, fiscal years 1998 through 2007	$5,141	$21,476	$221,029	$17,626
Percent of total	1.9	7.8	82.6	7.6

Source: GAO analysis of BLM, Forest Service, EPA, and OSM data.

[a]These data include funding for large cleanup projects from the Soil Water and Air and the Hazard Management and Resource Restoration subactivities from BLM appropriations. These data do not include funding for smaller projects under those two subactivities, funding from Central Hazardous Materials Fund or the Natural Resource Damage Assessment and Restoration subactivities from the Department of the Interior's appropriations, or funding under the Southern Nevada Public Land Management Act.

[b]According to EPA officials, about 90 percent of these expenditures are EPA's; the other 10 percent are funds from responsible parties and states.

According to available data, as of September 30, 2007, BLM had spent the largest share of its funds in Montana—about $18 million; EPA had spent the largest share of its funds in Idaho—about $352 million; and Wyoming was the largest recipient of OSM grants for cleaning up hardrock mine sites—receiving about $99 million. Wyoming was eligible for OSM grants after OSM's acceptance of the state's certification that it had completed its cleanup of coal mine sites. The Forest Service was unable to provide this information by state. See appendix II for BLM, EPA, and OSM total funding by state.

PRIOR STATE ESTIMATES OF THE NUMBER OF ABANDONED HARDROCK MINE SITES VARY WIDELY, BUT OUR DATA SHOW AT LEAST 161,000 SITES, WITH MANY POSING HAZARDS

Previous state estimates of the number of abandoned hardrock mine sites vary widely in the six studies that we reviewed because, in part, there is no generally accepted definition for a hardrock mine site and the studies rely on the states' different definitions of hardrock mine sites. In addition, we found problems with BLM's

[15] U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, 2006 Report to the President and Congress (Washington, D.C.: Oct. 1, 2006).

[16] Unless otherwise stated all dollars in this section are in 2008 constant dollars.

and the Forest Service's estimate of 100,000 abandoned hardrock mines on their lands because the agencies included non-hardrock mines and mines that may not be on their lands. Using our consistent definition, 12 western states and Alaska estimated a total of at least 161,000 abandoned hardrock mine sites in their states on state, private, or federal lands.

SIX STUDIES IDENTIFIED A RANGE OF ESTIMATED ABANDONED HARDROCK MINING SITES

We identified six studies conducted in the past 10 years that estimated the number of abandoned hardrock mine sites in the 12 western states and Alaska.[17] The estimates in each of these studies were developed by asking states to provide data on the number of abandoned hardrock mine sites in their states, generally without regard to whether the mine was on federal, state, Indian, or private lands. The estimates for a particular state do, in some cases, vary widely from study to study. For example, for Nevada, the Western Governors' Association/National Mining Association estimated that the state had 50,000 abandoned hardrock mine sites in 1998, while in 2004 EPA estimated that the state had between 200,000 to 500,000 abandoned sites. The estimates also reflect the different definitions that states used for abandoned hardrock mining sites for a given study. For example, we found that, within the same study, some states define an abandoned mine site as a mine opening or feature, while others define a site as all associated mine openings, features, or structures at a distinct location. As a result, an abandoned hardrock operation with two mine openings, a pit, and a tailings pile could be listed as one site or four sites, depending on the definitions and methodologies used. See appendix III for more information on estimates from these studies.

In addition, some regional or state estimates included coal and other nonhardrock mineral sites because it was (1) not important to distinguish between the type of minerals mined or (2) difficult to determine what mineral had been mined. In 2004, EPA commented on this problem, noting, "it is important to keep in mind that a universally applied definition of an [abandoned mine land] does not exist at present . . . therefore, the various agencies and state-developed . . . inventories presented may possess inconsistencies and are not intended for exact quantitative comparisons."

BLM AND FOREST SERVICE ESTIMATES OF ABANDONED HARDROCK MINES INCLUDE NON-HARDROCK MINES AND MINES THAT MAY NOT BE ON THEIR LANDS

BLM and the Forest Service have also had difficulty determining the number of abandoned hardrock mines on their lands and have no definitive estimates. In September 2007, the agencies reported that there were an estimated 100,000 abandoned hardrock mine sites,[18] but we found problems with this estimate. For example, the Forest Service had reported that it had approximately 39,000 abandoned hardrock mine sites on its lands. However, we found that this estimate includes a substantial number of non-hardrock mines, such as coal mines, and sites that are not on Forest Service land. At our request, in November 2007, the Forest Service provided a revised estimate of the number of abandoned hardrock mine sites on its lands, excluding coal or other non-hardrock sites. According to this estimate, the Forest Service may have about 29,000 abandoned hardrock mine sites on its lands. That said, we still have concerns about the accuracy of the Forest Service's recent estimate because it includes a large number of sites on lands with "undetermined" ownership, and therefore these sites may not all be on Forest Service lands.

BLM has also acknowledged that its estimate of abandoned hardrock mine sites on its lands may not be accurate because it includes sites on lands that are of unknown or mixed ownership (state, private, and federal) and a few coal sites. In addition, BLM officials said that the agency's field offices used a variety of methods to identify sites in the early 1980s, and the extent and quality of these efforts varied greatly. For example, they estimated that only about 20 percent of BLM land has been surveyed in Arizona. Furthermore, BLM officials said that the agency focuses more on identifying sites closer to human habitation and recreational areas than on identifying more remote sites, such as in the desert. Table 2 shows the Forest Serv-

[17] The six studies are (1) Western Governors' Association and National Mining Association, Cleaning up Abandoned Mines: A Western Partnership, 1998; (2) Interstate Mining Compact Commission, State NonCoal AML Inventory, 2001; (3) Interstate Mining Compact Commission; NonCoal Minerals Survey and Report (expected issuance Spring 2008); (4) Mineral Policy Center, Cleaning Up Western Watersheds, 2003; (5) Earthworks fact sheets on hardrock mining from Earthworks Web site last visited on March 4, 2008 (www.earthworksaction.org/resources.cfm.); and (6) EPA, Reference Notebook, September 2004.

[18] BLM and Forest Service, Abandoned Mine Lands: A Decade of Progress Reclaiming Hardrock Mines (September 2007).

ice's and BLM's most recent available estimates of abandoned mine sites on their lands.

Table 2: BLM's and the Forest Service's Most Currently Available Estimated Number of Abandoned Mines on Their Lands, by State

State	Estimated number of abandoned mine sites on BLM land[a]	Estimated number of abandoned mine sites on Forest Service land[b]	Total
Alaska	6,000	830	6,830
Arizona	22,000	2,183	24,183
California	11,500	6,248	17,748
Colorado	2,500	2,605	5,105
Idaho	400	4,635	5,035
Montana	1,016	3,899	4,915
Nevada	9,000	1,613	10,613
New Mexico	3,000	989	3,989
Oregon	3,400	2,427	5,827
South Dakota	Not reported	503	503
Utah	10,000	697	10,697
Washington	Not reported	1,956	1,956
Wyoming	2,000	336	2,336
Total	**70,816**	**28,921**	**99,737**

Source: GAO analysis of BLM and Forest Service data.

[a]These data are from BLM's report on Abandoned Mine Land Inventory and Remediation, BLM/NV/GI-97/004, November 1996.

[b]These data are from the U.S. Geological Survey's analysis of data in the Mineral Resources Data System (of which MAS/MILS is now a part).

USING A CONSISTENT DEFINITION, GAO ESTIMATED AT LEAST 161,000 ABANDONED SITES

To estimate abandoned hardrock mining sites in the 12 western states and Alaska, we developed a standard definition for these mine sites. In developing this definition, we consulted with mining experts at the National Association of Abandoned Mine Land Programs; the Interstate Mining Compact Commission; and the Colorado Department of Natural Abandoned Sites Resources, Division of Reclamation, Mining and Safety, Office of Active and Inactive Mines. We defined an abandoned hardrock mine site as a site that includes all associated facilities, structures, improvements, and disturbances at a distinct location associated with activities to support a past operation, including prospecting, exploration, uncovering, drilling, discovery, mine development, excavation, extraction, or processing of mineral deposits locatable under the general mining laws. We also asked the states to estimate the number of features at these sites that pose physical safety hazards and the number of sites with environmental degradation. See appendix I for the complete definition we used when asking states for their estimates.

Using this definition, states reported to us the number of abandoned sites in their states, and we estimated that there are at least 161,000 abandoned hardrock mine sites in their states. At these sites, on the basis of state data, we estimated that at least 332,000 features may pose physical safety hazards, such as open shafts or unstable or decayed mine structures; and at least 33,000 sites have degraded the environment, by, for example, contaminating surface water and groundwater or leaving arsenic-contaminated tailings piles. Table 3 shows our estimate of the number of abandoned hardrock mine sites in the 12 western states and Alaska, the number of features that pose significant public health and safety hazards, and the number of sites with environmental degradation.

Table 3: GAO's Estimate of the Number of Abandoned Hardrock Mine Sites, Features That Pose Significant Public and Safety Hazards, and Sites With Environmental Degradation, in 12 Western States and Alaska, as of October 1, 2007

State	Estimated number of abandoned hardrock (non-coal, locatable) mine sites	Estimated number of features that pose a significant hazard to public health and safety	Estimated number of sites with environmental degradation
Alaska	469	235	99
Arizona	50,000	59,400	9,900
California	47,064	164,795	5,200
Colorado	7,300	17,000	150
Idaho	7,100	Not reported	Not reported
Montana	6,000	6,000-22,000	331
Nevada	16,000	51,000	150
New Mexico	800	15,000	200–300
Oregon	3,823	Not reported	140
South Dakota	950	Not reported	Not reported
Utah	17,000	17,000	17,000
Washington	3,629	1,608	50
Wyoming	956	519	437
Total	**161,111**	**332,557–348,557**	**33,657–33,757**

Source: GAO analysis of state-reported data.

While states used our definition to provide data on the estimated number of mine sites and features, these data have two key limitations. First, the methods and sources used to identify and confirm abandoned sites and hazardous features vary substantially by state. For example, some states, such as Colorado and Wyoming, indicated they had done extensive and rigorous fieldwork to identify sites and were reasonably confident that their estimates were accurate. Other states, however, relied less on rigorous fieldwork, and more on unverified, readily available records or data sources, such as published or unpublished geological reports, mining claim maps, and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS),[19] which states indicated were typically incomplete. Several of those states that relied primarily on literature used the literature only as a starting point, and then estimated the number of features on the basis of experience. For example, while one state estimated that there were about three times the number of public safety hazards as identified by the literature, another state estimated that there were four times as many, and a third state estimated that there were up to six times as many.

Second, because states have markedly different data systems and requirements for recording data on abandoned mines, some states were less readily able to provide the data directly from their systems without manipulation or estimation. For example, New Mexico estimated the number of abandoned mine sites from the data it maintains on hazardous features, and Nevada estimated the number of abandoned hardrock mine sites from the data it maintains on the number of mining districts in the state.

BLM ESTIMATES THAT OPERATORS HAVE PROVIDED ABOUT $982 MILLION IN FINANCIAL ASSURANCES—ABOUT $61 MILLION LESS THAN NEEDED TO COVER ESTIMATED RECLAMATION COSTS

As of November 2007, hardrock mining operators had provided financial assurances valued at approximately $982 million to guarantee the reclamation costs for 1,463 hardrock mining operations on BLM lands in 11 western states, according to BLM's Bond Review Report. The report also indicates that 52 of the 1,463 hardrock mining operations had inadequate financial assurances—about $28 million less than needed to fully cover estimated reclamation costs. We determined, however, that the financial assurances for these 52 operations should be more accurately reported as about $61 million less than needed to fully cover estimated reclamation costs. Table 4 shows total hardrock mining operations by state, the number of operations with inadequate financial assurances, the financial assurances required, BLM's calculation of the shortfall in assurances, and our estimate of the shortfall, as of November 2007.

[19] The MAS/MILS database was established to provide comprehensive information for known mining operations, mineral deposits/occurrences, and processing plants. The original data were collected on a state-by-state basis from the mid-1970s to 1982. The nonconfidential portions of the MAS/MILS database were compiled by the U.S. Department of the Interior, Bureau of Mines, but the accuracy of the database varies by location and mineral.

Table 4: Total Hardrock Mining Operations, Operations with Inadequate Financial Assurances, Financial Assurances Required, and Difference Between Requirements and Actual Value, by State, as of November 2007

State	Total operations	Operations with inadequate financial assurances	Financial assurances required	BLM's difference between current and required value of financial assurances	GAO's difference between current and required value of financial assurances
Arizona	107	2	$7,689,394	($49,583)	($101,870)
California	95	4	24,530,439	1,593,013	(439,669)
Colorado	250	4	1,605,574	(170,291)	(167,730)
Idaho	46	1	1,556,705	(13,000)	(13,000)
Montana	41	0	67,478,064	1,200	0
New Mexico	28	0	1,066,735	0	0
Nevada	579	28	844,953,161	(33,667,684)	(47,739,814)
Oregon	60	4	366,773	47,327	(1,227)
Utah	150	5	12,247,645	(2,682,539)	(2,769, 802)
Washington	4	0	49,975	0	0
Wyoming	103	4	47,934,110	7,103,396	(9,518,877)
Total	**1,463**	**52**	**$1,009,478,575**	**($27,838,161)**	**($60,751,989)**

Source: GAO analysis of BLM's Bond Review Report.

Note: Data for Alaska are not maintained in LR2000 and not reported in the Bond Review Report.

The $33 million difference between our estimated shortfall of nearly $61 million and BLM's estimated shortfall of nearly $28 million occurs because BLM calculated its shortfall by comparing the total value of financial assurances in place with the total estimated reclamation costs. This calculation approach has the effect of offsetting the shortfalls in some operations with the financial assurances of other operations. However, the financial assurances that are greater than the amount required for an operation cannot be transferred to an operation with inadequate financial assurances. In contrast, we totaled the difference between the financial assurance in place for an operation and the financial assurances needed for that operation to determine the actual shortfall for each of the 52 operations for which BLM had determined that financial assurances were inadequate.

BLM's approach to determining the adequacy of financial assurances is not useful because it does not clearly lay out the extent to which financial assurances are inadequate. For example, in California, BLM reports that, statewide, the financial assurances in place are $1.5 million greater than required, suggesting reclamation costs are being more than fully covered. However, according to our analysis of only those California operations with inadequate financial assurances, the financial assurances in place are nearly $440,000 less than needed to fully cover reclamations costs. BLM officials agreed that it would be valuable for the Bond Review Report to report the dollar value of the difference between financial assurances in place and required for those operations where financial assurances are inadequate and have taken steps to modify LR2000.

BLM officials said that financial assurances may appear inadequate in the Bond Review Report when—

- expansions or other changes in the operation have occurred, thus requiring an increase in the amount of the financial assurance;
- BLM's estimate of reclamation costs has increased and there is a delay between when BLM enters the new estimate into LR2000 and when the operator provides the additional bond amount; and
- BLM has delayed updating its case records in LR2000.

Conversely, hardrock mining operators may have financial assurances greater than required for a number of reasons; for example, they may increase their financial assurances because they anticipate expanding their hardrock operations.

In addition, according to the Bond Review Report, there are about 2.4 times as many notice-level operations—operations that cause surface disturbance on 5 acres or less—as there are plan-level operations on BLM land—operations that disturb more than 5 acres (1,033 notice-level operations and 430 plan-level operations). However, about 99 percent of the value of financial assurances is for plan-level operations, while 1 percent of the value is for notice-level operations. While financial assurances were inadequate for both notice-and plan-level operations, a greater percentage of plan-level operations had inadequate financial assurances than did notice-level operations—6.7 percent and 2.2 percent, respectively. Finally, over one-third of the number of all hardrock operations and about 84 percent of the value of all financial assurances are for hardrock mining operations located in Nevada. See appendix IV for further details on the number of plan-and notice-level operations in each state.

Mr. Chairman, this concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Committee may have.

APPENDIX I: OBJECTIVES, SCOPE, AND METHODOLOGY

To determine the (1) federal funds spent to clean up abandoned hardrock mine sites since 1998, (2) number of abandoned hardrock mine sites and the number of associated hazards, and (3) value and coverage of the financial assurances operators use to guarantee reclamation costs on the Department of the Interior's Bureau of Land Management (BLM) land, we interviewed officials at the BLM, the U.S. Department of Agriculture's Forest Service, the Environmental Protection Agency (EPA), and the Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSM); examined agency documents and data; and reviewed relevant legislation and regulations.

Specifically, to answer our first objective, we interviewed officials involved with the abandoned mine cleanup programs at BLM, the Forest Service, EPA, and OSM to request expenditure data, to understand how they tracked and monitored expenditures to clean up abandoned hardrock mines, and to request and ensure that we would receive the data we needed. We reviewed agency documents, budget justification reports and reports detailing agencies' cleanup efforts and programs. We obtained data on total expenditures for cleaning up and reclaiming abandoned hardrock mine sites that were compiled from BLM's Financial Accounting and Reporting System, EPA's Superfund eFacts Database, OSM's Abandoned Mine Land Inventory System, and Forest Service officials. BLM officials told us that in addition to the expenditure data they provided, the agency receives funding allocations from other sources, such as the Department of the Interior's Central Hazardous Materials fund. Since BLM does not track the expenditures from these other sources, we were unable to provide this information.

Because the four agencies' abandoned hardrock mine programs started in different years, start years for expenditure data vary. Specifically, BLM's data were for fiscal years 1997 through 2007; Forest Service's data, for fiscal years 1996 through 2007; EPA's data, for fiscal years 1988 through 2007; and OSM's data, for fiscal years 1993 to 2007. We performed a limited reliability assessment of the expenditure data and determined that we would limit our year-by-year presentation of expenditure data to the past 10 years (1998 through 2007) because of (1) variability in the program start year across the agencies, (2) inconsistencies across the agencies in their methods for tracking and reporting the data, and (3) some data recording errors in early years at some agencies. We presented these data in 2008 constant dollars.

Because of limited time in preparing this testimony, we were unable to fully assess the reliability of the agencies' expenditure data and the data are therefore of undetermined reliability. However, we concluded that the data are appropriate as used and presented to meet our objectives because we (1) attribute the data to what agencies report as their expenditures, (2) present rounded data to minimize the perception of precision, and (3) do not base any conclusions or recommendations on the data.

To answer our second objective, we summarized selected prior survey efforts by federal agencies and organizations to document differences in estimates, definitions, and methodologies.[1] We also consulted experts in mining and abandoned mine land programs at the National Association of Abandoned Mine Land Programs; the Interstate Mining Compact Commission; and the Colorado State Department of Natural Resources, Division of Reclamation, Mining and Safety, Office of Active and Inactive Mines to develop a standard definition for estimating the number of abandoned hardrock mine sites, features, and sites with environmental degradation. Other efforts to assess the magnitude of the abandoned mine situation have acknowledged limitations in their efforts to develop a nationwide estimate because of inconsistencies in states' definitions and methods for estimating abandoned sites. Consequently, through iterative consultation with state and other mining experts, the definition we ultimately chose was clear and incorporated enough flexibility for all major hardrock mining states—the 12 western states and Alaska—to reasonably comply with our request, despite differences in how the states might define and

[1] These studies were: (1) Western Governors' Association and National Mining Association, Cleaning up Abandoned Mines: A Western Partnership, 1998; (2) Interstate Mining Compact Commission, State NonCoal AML Inventory, 2001; (3) Interstate Mining Compact Commission; Noncoal Minerals Survey and Report, 2007; (4) Mineral Policy Center, Cleaning Up Western Watersheds, 2003; (5) Earthworks fact sheets on hardrock mining from Earthworks Web site last visited on March 4, 2008 (www.earthworksaction.org/resources.cfm.); and (6) EPA, Reference Notebook, September 2004.

maintain abandoned mine data.[2] We then provided states with an edit-controlled data collection instrument that requested data specifically tailored to our definitions and methods. Our definition of abandoned hardrock mine sites—

- includes all associated facilities, structures, improvements, and disturbances at a distinct location associated with activities to support a past operation, including prospecting, exploration, uncovering, drilling, discovery, mine development, excavation, extraction, or processing of mineral deposits locatable under the general mining laws;
- can range from an isolated prospect shaft and its associated waste rock pile and adjacent prospect pits, to a complex site with multiple entries, shafts, open pits, mill buildings, waste rock piles, a tailings pond, and associated environmental problems; and
- includes only hardrock (also known as locatable), non-coal sites.

Features that pose a significant hazard to public health and safety include—

- features, such as mine openings, structures, and highwalls; and
- impoundments that pose a threat to public health and safety and require actions to secure, remedy or reclaim.

Sites with environmental degradation include features that lead to environmental degradation, and, consequently, require remediation of air, water, or ground pollution.

Rather than reporting, as requested, the number of features leading to environmental degradation, most states reported only the number of sites with environmental degradation, if they reported data for this request at all. Because most states do not maintain environmental degradation data by feature, states could only speculate about this figure, or compute it by estimating an average number of features per site and multiplying that by the overall number of sites with environmental degradation. Because of these limitations with feature-level data, we report only the number of sites with data on environmental degradation in order to ensure more reliable and consistent reporting across the states.

As a secondary confirmation that states provided data consistent with the definition, our data collection instrument included a section for states to provide a brief description of how the various data points were calculated, and whether the data provided were actual or estimated values. Based on comments in these fields, and basic logic checks on the data, we followed up as needed through telephone interviews to clarify and confirm problematic responses. Our definitional and editing processes provided us with reasonable assurance that the data were as clean and consistent as possible, and using these final edited data, we calculated the estimated number of abandoned mine sites, the number of features that pose physical safety and environmental hazards, and the number of abandoned mine sites with environmental degradation in the 12 western states and Alaska.

To answer our third objective—to determine the value and coverage of financial assurances in place to guarantee coverage of reclamation costs—we requested the BLM Bond Review Report from BLM's Legacy Rehost System 2000 (LR2000) database. Because we had previously reported reliability problems with data on financial assurances in LR2000,[3] we conducted a limited reliability assessment of the bond report data. This limited assessment included (1) basic logic checks on the data we received, (2) interviews with BLM minerals management officials knowledgeable of the changes made to LR2000 to address GAO's 2005 recommendations, and (3) a review of BLM's June 14, 2006, Instruction Memorandum 2006-172 for processing and entering Bond Review Report data in LR2000. Although the data are of undetermined reliability, our limited assessment indicates that management controls were improved for the generation of bond review reports from LR2000. We concluded that the data are appropriate as used and presented, and we did not base any conclusions or recommendations on these data.

APPENDIX II: INFORMATION ON FEDERAL AGENCY EXPENDITURES TO CLEAN UP ABANDONED HARDROCK MINES

This appendix provides information on federal expenditures used to clean up abandoned hardrock mines by fiscal year (table 5) and by state (table 6).

[2] These states were Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming.

[3] GAO-05-377.

Table 5: BLM, Forest Service, EPA, and OSM Federal Expenditures to Clean Up Abandoned Hardrock Mine Sites, Fiscal Years 1998 to 2007

Dollars in thousands (2008 constant dollars)

Fiscal year	BLM[a]	Forest Service	EPA[b]	OSM	Total
1998	$1,263	$16,623	$176,620	$1,634	$194,175
1999	5,210	22,003	225,941	9,795	257,570
2000	5,071	23,150	228,460	30,492	286,026
2001	5,916	22,617	245,662	43,130	317,858
2002	5,600	22,192	191,903	18,620	238,740
2003	4,957	21,752	209,753	24,502	261,405
2004	8,696	21,200	225,680	16,631	272,760
2005	6,350	20,542	222,508	11,236	261,294
2006	4,587	19,779	219,549	15,450	260,128
2007	2,811	18,852	209,839	26,608	259,037
Total	**$50,462**	**$208,709**	**$2,155,916**	**$198,099**	**$2,613,186**
Percent of total	2 percent	8 percent	83 percent	8 percent	
Median	$5,141	$21,476	$221,029	$17,626	$260,711

Sources: BLM, the Forest Service, EPA, OSM.

Notes: Program inception totals are $50,462 since 1998 for BLM; $231,538 since fiscal year 1996 for Forest Service; $3,261,197 since 1988 for EPA; and $406,236 since 1977 for OSM.

[a]These data include funding for large cleanup projects from the Soil Water and Air and the Hazard Management and Resource Restoration subactivities from BLM appropriations. These data do not include funding for smaller projects under those two subactivities, funding from Central Hazardous Materials Fund or the Natural Resource Damage Assessment and Restoration subactivities from the Department of the Interior's appropriations, or funding under the Southern Nevada Public Land Management Act.

[b]According to EPA officials, about 90 percent of these expenditures are EPA's; the other 10 percent are funds from responsible parties and states.

Table 6: BLM, EPA, and OSM Expenditures to Cleanup Abandoned Hardrock Mines, by State, Fiscal Years 1988 to 2007

Dollars in thousands (2008 constant dollars)

State	BLM[a]	EPA[b]	OSM	Total	Rank	Percent of total
Montana	$18,158	$325,693	$27,499	**$371,350**	1	15.44
Idaho	6,310	351,848		**$358,158**	2	14.90
Colorado	6,762	277,622	19,362	**$303,746**	3	12.63
New Jersey		271,473		**$271,473**	4	11.29
Utah	4,970	132,135	5,029	**$142,133**	5	5.91
California	3,748	126,384		**$130,131**	6	5.41
Oklahoma		119,017		**$119,017**	7	4.95
Missouri		101,648	489	**$102,138**	8	4.25
Wyoming	1,054		99,893	**$100,947**	9	4.20
Nebraska		74,331		**$74,331**	10	3.09
South Dakota		64,246		**$64,246**	11	2.67
New York		52,567		**$52,567**	12	2.19
Texas		30,518	18,342	**$48,860**	13	2.03
Pennsylvania		41,079		**$41,079**	14	1.71
Washington		32,223		**$32,223**	15	1.34
Vermont		27,473		**$27,473**	16	1.14
South Carolina		22,913		**$22,913**	17	0.95
Indian Tribes			22,226	**$22,226**	18	0.92
Kansas		19,704	536	**$20,240**	19	0.84
New Mexico		15,845	3,349	**$19,194**	20	0.80
Nevada	2,289	13,229		**$15,517**	21	0.65
Tennessee		15,493		**$15,493**	22	0.64
Michigan		14,995		**$14,995**	23	0.62
Minnesota		8,804		**$8,804**	24	0.37
Illinois		7,201	724	**$7,925**	25	0.33
Oregon	4,205	2,611		**$6,816**	26	0.28
Alaska	2,786		602	**$3,388**	27	0.14
Maine		1,761		**$1,761**	28	0.07
Florida		1,611		**$1,611**	29	0.07
North Carolina		1,523		**$1,523**	30	0.06
Arizona	180	748		**$927**	31	0.04
Kentucky		452		**$452**	32	0.02
Ohio		248	49	**$297**	33	0.01
Indiana		230		**$230**	34	0.01
Virginia		154		**$154**	35	0.01
West Virginia		139		**$139**	36	0.01
Total	**$50,462**	**$2,155,916**	**$198,099**	**$2,404,477**		100.00

Sources: BLM, EPA, OSM.

Note: The Forest Service was unable to provide this information by state.

[a]These data include funding for large cleanup projects from the Soil Water and Air and the Hazard Management and Resource Restoration subactivities from BLM appropriations. These data do not include funding for smaller projects under those two subactivities, funding from Central Hazardous Materials Fund or the Natural Resource Damage Assessment and Restoration subactivities from the Department of the Interior's appropriations, or funding under the Southern Nevada Public Land Management Act.

[b]According to EPA officials, about 90 percent of these expenditures are EPA's; the other 10 percent are funds from responsible parties and states.

Appendix III: Estimated Number of Abandoned Mine Sites, According to Selected Studies, 1998 to 2007

State	Western Governors' Association/National Mining Association (1998)[a]	Interstate Mining Compact Commission (2001)[b]	Interstate Mining Compact Commission (2007)[c]	Mineral Policy Center (2003)[d]	Earthworks (formerly Mineral Policy Center) (2007)[e]	EPA (2004)[f]	Range of estimated abandoned mines previously reported
Alaska	432	No data provided	350	432	No data provided	432	350–432
Arizona	100,000	100,000	80,000	100,000 "openings"	100,000	8,000–10,000	8,000–100,000
California	20,000	15,000	47,000	39,000	39,000	40,000–47,000	15,000–47,000
Colorado	22,000	18,000 mine openings	No data provided	23,000 including coal	23,000 including coal	8,000–23,000	8,000–23,000
Idaho	9,000	No data provided	No data provided	8,000-9,000	8,000–9,000	8,000–16,000	8,000–16,000
Montana	6,000	No data provided	2,740	6,000	6,000	6,000–19,000	2,740–19,000
Nevada	50,000	50,000 could pose a physical threat to people	100 mine sites, 200,000mine openings	200,000–500,000 mine features	No data provided	200,000–500,000	100–500,000
New Mexico	20,000	25,000 mine openings	No data provided	10,000–20,000	10,000–20,000	10,000–20,000	10,000–25,000
Oregon	No data provided	No data provided	No data provided	126 plus ongoing inventory in specific watersheds	126 on the ground inventory	94–120	94–126
South Dakota	900 in Black Hills	No data provided	900 in Black Hills	900 in Black Hills area	900	900	900
Utah	20,000	No data provided	17,000–20,000	20,000 mine openings, including coal	20,000	20,000 mine openings	17,000–20,000
Washington	No data provided	800 mine sites that that produced minerals worth more than $2,000	3,800	3,800	3,800	3,800	800–3,800
Wyoming	2,649	No data provided	1,696	640	No data provided	3,371	640–3,371

Source: GAO's analysis of nationwide estimates.

Note: Although studies asked for the number of sites, states did not always report the number of hardrock mine sites; instead some states reported other data, such as the number of mine openings, number of sites including coal, and number of mine features.

[a]Western Governors' Association and National Mining Association, *Cleaning Up Abandoned Mines: A Western Partnership*, 1998.

[b]Interstate Mining Compact Commission, *State NonCoal AML Inventory*, 2001.

[c]Preliminary data were collected in 2007, and will be presented in Interstate Mining Compact Commission, *NonCoal Minerals Survey and Report* (expected issuance Spring 2008).

[d]Mineral Policy Center, *Cleaning Up Western Watersheds*, 2003.

[e]Earthworks fact sheets on hardrock mining from Earthworks Web site last visited on March 4, 2008 (www.earthworksaction.org/resources.cfm.).

[f]EPA, *Reference Notebook*, September 2004. EPA has been working to update this information and expects to issue a new report in Summer 2008.

Appendix IV: Information on BLM Financial Assurances and Their Adequacy to Cover Estimated Reclamation Costs

This appendix provides information from BLM's November 2007 Bond Review Report, which includes information on the number of financial assurances in place for hardrock operations on BLM lands in 11 western states (table 7); the value of these financial assurances by state (table 8); the number of inadequate financial assurances for notice- and plan-level operations, by state (table 9); and BLM's and our analyses of the differences between financial assurance requirements and actual value of financial assurances in place for notice- and plan-level operations by state (table 10).

Table 7: Number of Financial Assurances in Place for Hardrock Operations on BLM Land in 11 Western States

State	Total number of notices	Total number of plans of operation	Total number of notices and plans of operation
Arizona	72	35	107
California	46	49	95
Colorado	228	22	250
Idaho	19	27	46
Montana	27	14	41
New Mexico	20	8	28
Nevada	409	170	579
Oregon	57	3	60
Utah	103	47	150
Washington	3	1	4
Wyoming	49	54	103
Total	**1,033**	**430**	**1,463**

Source: BLM's Bond Review Report, November 2007.

Note: Data for Alaska are not maintained in LR2000 and are not reported in BLM's Bond Review Report.

Table 8: Value of Financial Assurances Guaranteeing Reclamation of Hardrock Operations on BLM Land, by State

State	Value of assurances required for notices	Value of assurances in place for notices	Value of assurances required for plans of operation	Value of assurances in place for plans of operation
Arizona	$538,847.00	$554,578.20	$7,150,547.46	$7,085,233.46
California	177,749.00	212,849.00	24,352,689.65	25,910,602.86
Colorado	235,859.39	225,673.39	1,369,715.00	1,209,610.00
Idaho	44,871.00	44,871.00	1,511,834.19	1,498,834.19
Montana	966,268.96	966,268.96	66,511,795.32	66,512,995.32
New Mexico	87,940.54	87,940.54	978,794.00	978,794.00
Nevada	4,764,983.00	4,779,329.00	840,188,178.00	806,506,148.00
Oregon	168,777.00	166,104.00	197,995.85	247,995.85
Utah	1,411,244.00	1,497,253.00	10,836,401.00	8,067,853.00
Washington	750.00	750.00	49,224.85	49,224.85
Wyoming	935,922.00	957,122.00	46,998,188.00	54,080,384.00
Total	**$9,333,211.89**	**$9,492,739.09**	**$1,000,145,363.32**	**$972,147,675.53**

Source: BLM's Bond Review Report, November 2007.

Note: Data for Alaska are not maintained in LR2000 and are not reported in BLM's Bond Review Report.

Table 9: Number of BLM's Notice- and Plan-Level Operations with Inadequate Financial Assurances on BLM Land, by State

State	Number of notices with inadequate financial assurances	Number of plans with inadequate financial assurances	Total number of notices and plans with inadequate financial assurances
Arizona	1	1	2
California	1	3	4
Colorado	2	2	4
Idaho	0	1	1
Montana	0	0	0
New Mexico	0	0	0
Nevada	14	14	28
Oregon	4	0	4
Utah	1	4	5
Washington	0	0	0
Wyoming	0	4	4
Total	**23**	**29**	**52**

Source: BLM's Bond Review Report, November 2007.

Note: Data for Alaska are not maintained in LR2000 and is not reported in BLM's Bond Review Report.

Table 10: BLM and GAO Difference Between Financial Assurance Requirements and Actual Value in Place for Notice and Plan Operations, by State, as of November 2007

State	BLM's difference for notice operations	GAO analysis of difference for notice operations	BLM's difference for plan operations	GAO analysis of difference for plan operations
Arizona	$15,731.20	($1,629.80)	($65,314.00)	($100,240.00)
California	35,100.00	(200.00)	1,557,913.21	(439,468.88)
Colorado	(10,186.00)	(7,518.00)	(160,105.00)	(160,212.00)
Idaho	0.00	0.00	(13,000.00)	(13,000.00)
Montana	0.00	0.00	$1,200.00	0.00
New Mexico	0.00	0.00	0.00	0.00
Nevada	14,346.00	(109,092.00)	(33,682,030.00)	(47,630,722.00)
Oregon	(2,673.00)	(1,227.00)	50,000.00	0.00
Utah	86,009.00	(1,254.00)	(2,768,548.00)	(2,768,548.00)
Washington	0.00	0.00	0.00	0.00
Wyoming	21,200.00	0.00	$7,082,196.00	(9,518,877.00)
Total	**$159,527.20**	**($120,920.80)**	**($27,997,687.79)**	**($60,631,067.88)**

Source: BLM's Bond Review Report, November 2007.

Note: Data for Alaska are not maintained in LR2000 and is not reported in BLM's Bond Review Report.

The CHAIRMAN. Thank you very much.

Mr. Bisson, why do you not go right ahead?

STATEMENT OF HENRI BISSON, DEPUTY DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR

Mr. BISSON. Thank you, Mr. Chairman and members of the committee, for this opportunity to participate in this oversight hearing today. I would like to briefly summarize my written remarks, if I could.

The BLM is committed to carrying out its responsibilities under its revised surface management regulations to ensure the legacy of historic mining practices is not repeated. Even so, we recognize the significant problems associated with abandoned mine lands that exist on public lands today. According to our inventory data, there are over 49,000 features associated with 12,035 sites, and while it is important to continue to add additional sites to the inventory, we feel the greatest need is on-the-ground work for those high priority sites already identified.

Of special concern to all of us are the recent AML-related accidents and fatalities. To address these hazards, the BLM has participated in the "Stay Out-Stay Alive" program since 1999. The BLM has also begun a new partnership initiative called "Fix a Shaft Today!", involving recreation, off-highway vehicle enthusiasts, the mining industry, the OHV manufacturers and retailers, and the State abandoned mine land agencies from Arizona, California, New Mexico, and Nevada.

Between 2000 and 2007, the BLM inventoried 5,500 sites and remediated physical safety hazards at more than 3,000 sites. We have also restored water quality at hundreds of sites on thousands of acres. One of the collaborative cleanup projects involved uranium and vanadium abandoned mine lands in Cottonwood Wash watershed in southeast Utah. We had a number of partners that worked with us to address the elevated levels of radiation affecting local water, and in that case, we found a reclamation approach that was used to mitigate both the physical and environmental hazards in one step. We issued a local contract for $800,000 that went to the community to actually help clean up the site.

A renewed interest in uranium exploration and eventual production from domestic sources began in fiscal year 2003. New uranium mining claim locations have dramatically increased over the past few years in Arizona, Colorado, New Mexico, Utah, and Wyoming due to the increase in the price of yellowcake. We estimate that roughly 40 to 50 percent of the 92,000 mining claims that were filed in 2007 were for uranium. The BLM is going to be conducting a workshop this summer with the NRC and State regulatory agencies to discuss agency roles, and we are also implementing new training on regulatory and safety aspects of uranium mining as we prepare to respond to this resurgence of interest.

Thank you for the opportunity to testify, and I will be happy to answer any questions the committee may have on this important issue.

[The prepared statement of Mr. Bisson follows:]

PREPARED STATEMENT OF HENRI BISSON, DEPUTY DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR

Thank you for the opportunity to participate in this oversight hearing on issues relating to abandoned mine lands (AML) and to uranium mining.

I recently had the opportunity to testify before you regarding mining operations on public lands, and the Bureau of Land Management's (BLM) surface management regulations that have been in force for the past seven years. With tighter mitigation measures and increased bonding requirements in the regulations, the BLM currently holds over $1.1 billion in financial guarantees to cover reclamation costs for ongoing mining operations and even has the ability to establish trust funds upon mine closure to mitigate longer-term environmental issues that may arise. These new stringent controls on mine operations today have helped eliminate the burden of future abandoned mine lands. However, we recognize the scope of the AML problem on public lands, particularly as urban areas encroach on once isolated areas and the increasing risk associated with more campers, hikers, hunters and off-road enthusiasts accessing the public lands. Water quality and supply for a number of communities have also diminished, due to the impacts of abandoned mines. Our current focus is to continue to make progress in addressing reclamation of the highest priority abandoned mine lands. The BLM is committed to carrying out its responsibilities under its revised surface management regulations to ensure this legacy of past practices is not repeated.

SIZING UP ABANDONED MINE LANDS

The BLM maintains an inventory of known abandoned mines located on the public lands. Most of the sites are abandoned hardrock mines. While there has never been a comprehensive field inventory conducted of all abandoned mines, the BLM is currently reviewing and updating available data. As of February 1, 2008, the BLM's inventory contains 12,035 sites, of which 10,103 will require further investigation or remediation. Much of the data comprises legacy records that are often incomplete. According to our inventory data, there are over 49,192 features (such as open physical hazards and piles of contaminated material) associated with 12,035 sites. We would like to emphasize that the sites with the highest potential for harm to public health and safety have already been identified by the various Federal, State, and Tribal partners. While it is important to continue to characterize all sites, and add additional sites to the inventory, we feel the greatest need is on-the-ground work for those high-priority sites already identified.

Coordination among the various Federal agencies, States and Tribes who manage lands with abandoned mines is critical to obtaining a complete picture of the Abandoned Mine Lands problem and working toward solutions that involve even more partners. While no single database currently exists that fully accounts for the scope of the problem, there is a tool that is available for public viewing that begins to consolidate this information. The Site Mapper tool on the BLM-Forest Service Geocommunicator website is an interactive map the public can access to graphically display abandoned mine lands and other information from databases managed by the BLM, the U.S. Forest Service, Mine Safety and Health Administration, Office of Surface Mining, United States Geological Survey, Environmental Protection Agency, and the State of California. The tool was launched in October, 2007, and

while there is still work being done to validate the individual databases that feed into the system (for example, some sites have been entered more than once from multiple sources), the tool is a great start. As we continue to improve the accuracy of our data, we are also encouraging states and other partners to participate in using this site to consolidate information.

The BLM and its Federal partners are in the process of developing a new web portal that will enable the public to obtain a more thorough overview and perspective on AML matters and what is being done to address them. This web portal will be activated in about four to six months.

PRIORITIES

BLM works to prioritize mitigation activities on the 12,035 sites. For example, some projects are prioritized on a watershed basis, to enable the BLM to reclaim public land portions of compromised watersheds. Sites located near populous and high use areas also receive high priority. Examples include recreation areas, trails and campgrounds. In establishing priorities for AML reclamation, the BLM and its partners developed and issued an AML strategic plan in March 2006. Overall, sites are divided into physical safety and water quality sites, although there can be overlap. Priority decisions are made site-by-site, based on physical safety factors, including the likelihood of death or injury, high public visitation, accessibility, and proximity to populated areas. Water quality is also considered within the context of threat to public health, safety, and the environment, whether or not the site is located within a State-designated priority watershed, and impacts to BLM-administered lands. Effective partnerships and other sources of funding also enter into the prioritization process.

Of special concern to all of us are the recent AML-related accidents and fatalities, such as incidents where off-highway vehicle enthusiasts and undocumented aliens have fallen into mine shafts. To address these hazards, the BLM has participated in the Mine Safety and Health Administration's "Stay Out—Stay Alive" program since 1999. We have developed a "Stay Out—Stay Alive" video that is available to the public. With MSHA, we are initiating an outreach program that educates people about the hazards of abandoned mines. The BLM also has begun a new partnership initiative called "Fix A Shaft Today!" or FAST. Under this initiative, the BLM hopes to involve recreation and off-highway vehicle enthusiasts, the mining industry, off-highway vehicle manufacturers and retailers, along with the state abandoned mine land agencies from Arizona, California, New Mexico and Nevada. The FAST initiative builds upon years of successful partnership with the Nevada Division of Minerals and the Nevada Mining Association. This effort, carried out in large part by volunteers and in-kind services, set a national BLM record of 118 abandoned mine closures in 2006.

ACCOMPLISHMENTS

Last year, the Forest Service and the BLM celebrated 10 years of success with the hardrock abandoned mine lands program. Between 2000 and 2007, the BLM inventoried 5,500 sites and remediated physical safety hazards at more than 3,000 sites. The BLM has also restored water quality at hundreds of sites on thousands of acres. This 10-year milestone was celebrated at a conference in Colorado, where a field trip highlighted one of our most successful collaborative projects in the Animas River Watershed.

The Animas River Watershed reaches across 186 square miles of Colorado's San Juan Mountains, and is one of two sites selected for remediation pilot projects in Fiscal Year 1997. Over time, the impacts of contaminants, including aluminum, cadmium, copper, iron, lead, and zinc emanating from historic mines and natural sources became environmentally and economically visible; acidity levels in the water rose to levels impairing many fisheries and leaving some streams devoid of fish. Project stakeholders faced the challenge of improving water quality not only for the benefit of local residents and aquatic life, but also to ensure the well-being of the town's tourist and recreational trades. Approximately 50 mining remediation projects were successfully completed within the Animas River watershed. Of the completed projects, including the 19 priority sites, mining companies addressed approximately one-half, Federal land management agencies addressed approximately one-quarter, and the Animas River Stakeholders Group addressed approximately one-quarter. The community is now reaping the benefits of these cleanup efforts, including overall increased water quality and the return of two reproducing species of trout in downstream areas. This, in turn, is beginning to attract more visitors seeking recreation to the area. As the community continues to work together to address the remaining sites, a collaborative initiative among six Federal agencies is

helping to revitalize a two-mile stretch of the Animas River corridor through Silverton, recognizing the community's value on tourism as it promotes aesthetic and quality-of-life improvements to the area.

I am pleased to inform you that next month Secretary Dirk Kempthorne will recognize these outstanding accomplishments through a Cooperative Conservation Award. This prestigious Secretarial award recognizes collaborative achievements among diverse parties including Federal, state, local, and Tribal governments; private for-profit and non-profit groups; and other non-governmental entities and individuals.

Aside from the safety hazards and environmental contamination that may exist, abandoned mines can also be significant cultural and historic resources and habitat for bats and other wildlife. The benefits of cleaning up abandoned mine lands make the effort worthwhile. Onsite soil and water quality is often returned to pre-mining conditions. Visitors to public lands are protected from health and safety hazards. Nearby communities enjoy cleaner water, a more diverse and healthy economy, and a better quality of life. Habitat for plants and wildlife is restored, and the aesthetics for both visitors and residents who live nearby are improved.

One of the collaborative clean-up projects involving uranium and vanadium abandoned mine lands is Cottonwood Wash Watershed in southeast Utah. After decades of vanadium and uranium mining, the waters and sediments in the watershed were left with elevated levels of radiation from mine drainage and waste dumps. Project partners faced the challenge of addressing this contamination, which affected the use of local water for drinking, recreation, aquatic life, wildlife, grazing, and agriculture. A Technical Committee, comprised of Federal and state partners, developed a reclamation approach that mitigated the area's physical and environmental hazards in one step: portions of uranium mine dumps located in stream channels were removed and used as backfill material for hazardous openings and face-up areas. Project construction work was spread into seven phases over five years, allowing small and local contractors to bid on projects, benefiting the local economy, increasing competition, and reducing overall project costs. Ultimately, three local companies were selected to conduct the construction work, which returned $800,000 to the local economy.

Working with the Navajo AML Bureau, the BLM has provided assistance in reclamation of uranium mines on Navajo lands in two states. In the late 1980's, the BLM conducted a two-year inventory of abandoned mines on Navajo lands in the mountains of Arizona. The BLM also worked with the New Mexico State AML Bureau in the 1980's remediating about a dozen uranium sites on BLM land in the checkerboard area east of the Reservation.

URANIUM MINING ON PUBLIC LANDS TODAY

A renewed interest in uranium exploration and eventual production from domestic sources began in Fiscal Year 2003, when Canada's formerly rich uranium deposits were reaching the end of their reserves and began closing down, causing a major increase in demand for new uranium sources for power generation worldwide. New uranium mining claim locations have dramatically increased over the past few years in the states of Arizona, Colorado, New Mexico, Utah, and Wyoming due to the increase in the price of "yellow cake" (i.e., partially-refined ores consisting largely of uranium oxide compounds, primarily U_3O_8). Although the specific minerals are not identified at the time of claim location, we estimate that approximately 40–50 percent of the 92,000 new mining claims in Fiscal Year 2007 were for uranium.

It has been two decades since the BLM has dealt with this level of interest in uranium mining; experts have retired, and new processing techniques have also emerged. In order to effectively and safely manage the processing of these Notices and Plans of Operations, the BLM will be conducting a workshop this summer with the Nuclear Regulatory Commission and state regulatory agencies. The purpose of the workshop will be to determine the role of each agency in processing applications submitted for uranium operations on public lands. The BLM will also be implementing new training on both regulatory and safety aspects of mining, milling and reclamations methods for uranium.

In addition to building knowledge and partnerships, the BLM is also positioning its workforce to budget the requisite time for processing these Plans of Operations. We anticipate that uranium Plans of Operation may draw increased public participation in the National Environmental Policy Act planning process, and we may have to re-allocate resources to respond to that interest.

CONCLUSION

Thank you for the opportunity to testify. I will be happy to answer any questions you may have on this important issue.

The CHAIRMAN. Thank you very much.

Mr. Ferguson, go right ahead.

STATEMENT OF TONY L. FERGUSON, DIRECTOR OF MINERALS & GEOLOGY MANAGEMENT, NATIONAL FOREST SYSTEM, FOREST SERVICE

Mr. FERGUSON. Thank you, Mr. Chairman and members of the committee. Thanks for this opportunity to testify on the hardrock abandoned mine land reclamation program. I am very pleased to be here today.

In 2007, the Forest Service and the Bureau of Land Management celebrated 10 years of successfully reclaiming Federal lands disturbed by abandoned mines.

The Forest Service abandoned mine land program operates to improve the quality of public lands placed in our care. Various estimates exist for the total number of abandoned mines on national forest and grasslands. Our data indicates that there are between 27,000 and 39,000 abandoned mines of all types on national forest system lands. Many of the sites will require cleanup of mine waste, contaminated soils and water, or mitigation of mine safety hazards.

Cleanup and safety mitigation projects are prioritized for funding by a team of Washington office and regional office representatives. All proposed projects are evaluated and assigned scores based on potential benefits to human health and safety, environmental factors, and socioeconomic factors, including partnerships, public interest, and overall cost.

To remediate a particular site, the Forest Service may work with Federal, State, and private partners who are able to apply funding from a variety of programs and authorities. An example of this kind of collaboration is the abandoned mine cleanup in American Fork Canyon, Utah. Heavy metals from the mining waste from historic sites prompted the State of Utah to issue a fish advisory in the American Fork River. Working with assistance from the State of Utah and the U.S. Geological Survey, the Forest Service completed a $793,000 cleanup of mine waste on national forest lands in 2003. However, the job was not done.

In 2005, Trout Unlimited, working with Snowbird Ski Resort and Tiffany and Company Foundation, spearheaded the cleanup of waste rock and tailings with elevated levels of heavy metals on private property. The American Fork River now supports rare native cutthroat trout in a 10-mile stretch downstream of the mines. This cleanup received national recognition by the Environmental Protection Agency in 2007.

Similar collaborative cleanup involving States, Federal, and private partners are occurring across the country. The Forest Service is committed to encouraging such collaborative cleanups and uses partnership potential as one of the criteria in its project selection process.

Finally, preventing future abandoned mine land sites is a crucial component of the Forest Service's abandoned mine land program. Sustainable mining practices, environmentally protective mine clo-

sure planning, optimal permitting requirements, and financial assurances are all tools that we are using to ensure mining companies operate under a sustainable business model that follows a mine's life from startup to clean closure.

Mr. Chairman, thank you for the opportunity to talk about the hardrock AML program. I would be happy to answer any questions.

[The prepared statement of Mr. Ferguson follows:]

PREPARED STATEMENT OF TONY L. FERGUSON, DIRECTOR OF MINERALS & GEOLOGY MANAGEMENT, NATIONAL FOREST SYSTEM, FOREST SERVICE

Mr. Chairman and members of the Committee, thank you for the opportunity to testify on the hardrock Abandoned Mine Land (AML) reclamation program. I am pleased to be here with you today.

In 2007, the Forest Service and the Bureau of Land Management (BLM) celebrated 10 years of successfully reclaiming federal lands disturbed by abandoned mines, including abandoned hardrock mines. Both agencies issued a report in September 2007, "Abandoned Mine Lands: A Decade of Progress Reclaiming Hardrock Mines" that highlights some of the accomplishments that have been achieved with the support and help of State and Federal Agencies, concerned citizens and organizations. I am pleased to be able to provide copies of that report for the members of the Committee, and will summarize the key points of the Forest Service AML Program in my testimony.

The BLM and Forest Service hardrock AML programs operate to improve the quality of public lands placed in our care through similar missions. Elements of these missions include protecting public health and safety by mitigating abandoned mine hazards; restoring land and water contaminated or disturbed by abandoned mines; and enhancing fish and wildlife habitat through reclamation of abandoned mines.

ABANDONED MINES ON NATIONAL FOREST SYSTEM LANDS

Various estimates exist for the total number of abandoned mines on National Forest System (NFS) lands. All estimates are based in large part on abandoned mine data collected by the former USDI Bureau of Mines, that is now part of the Mineral Resources Data System (MRDS) which is managed by the US Geological Survey. Analyses of that data by the Forest Service[1] in 1995 indicated there are approximately 27,000 to 39,000 abandoned mines of all types on NFS Lands, of which 18,000 to 26,000 of the total are abandoned hardrock mines. The data also indicated that 9,000 to 13,000 of the abandoned hard rock mines were past producers of mineral commodities, and therefore more likely to require cleanup of mine waste or contaminated soil and water, or mitigation of mine safety hazards such as vertical shafts and underground mine workings.

In the mid 1990's, the Forest Service directed each of its Regional Offices to use existing State and Federal data to compile regional abandoned mine databases in order to begin identifying those which posed the greatest threat to human health and the environment, and scheduling them for assessment and cleanup. The Forest Service is currently developing a national AML database which will be used to consolidate the regional abandoned mine data, track discovery of new AML sites, and provide information on the cleanup status of sites on NFS Lands. Once this national database is complete, the Forest Service will be able to share data regarding the presence, priority and cleanup status of AML sites with states, other federal agencies and the public.

PRIORITIZATION OF ABANDONED MINE SITES FOR CLEANUP AND MITIGATION

Beginning with historic information available on abandoned mines from the databases described above, Forest Service Regional Offices schedule field assessments of AML sites which appear to pose the greatest potential threat to human health and the environment. Based on these assessments, abandoned mine cleanup and safety mitigation cleanup projects, including the costs and benefits of each, are submitted to the Forest Service National Office to be considered for funding in outyear budgets.

[1] "Distribution of Abandoned and Inactive Mines on National Forest System Lands", Forest Service General Technical Report RM-GTR-260.

Cleanup projects are prioritized for funding by a team of Washington Office and Regional Office representatives using the Choosing by Advantages (CBA) methodology. In the CBA process all proposed projects are evaluated and assigned scores based on potential benefits to:

- Human health and safety;
- Environmental factors such as water quality, threatened and endangered species etc;
- Economic and social factors including partnerships, public interest and overall cost.

The projects are then ranked on the basis of their scores and funded as money becomes available through the budget process.

Safety Mitigation Projects are prioritized by the Regions, and submitted to the National Office for funding. Criteria used for prioritizing safety mitigation projects are based on the severity of the hazard and accessibility to the public including:

- Sites where a death, injury or close call has occurred;
- Sites where complaints or concerns have been expressed by the public or others;
- Sites nearby developed recreation sites or other concentrations of people;
- Sites accessed by, or near forest roads or trails;
- Other sites based on the severity of the hazard and accessibility to the public

Each region receives a certain percentage of the national budget. This percentage is mutually agreed upon by the Regions, and is based on the number of abandoned mines in the region and the degree of public exposure risk.

CURRENT SOURCES OF FUNDING

The Forest Service addresses AML reclamation primarily through two programs.

The Environmental Compliance and Protection (ECAP) program provides for cleanup of hazardous materials and restoration of natural resources damaged by hazardous materials at abandoned mines on NFS lands. ECAP cleanups are typically done to comply with CERCLA (Comprehensive Environmental Response, Compensation and Liability Act), RCRA (Resource Conservation and Recovery Act) and CWA (Clean Water Act) requirements.

The AML program provides for non-CERCLA related cleanup (uncontaminated sediment, erosion), and mitigation of safety hazards at abandoned and/or inactive mines on NFS lands. The AML program is also responsible for the basic inventory of abandoned mines on NFS Lands.

In addition, the Forest Service also receives funds from the USDA hazardous material management account (HMMA). The USDA has also received approximately $300 million in funding or work from potentially responsible parties (PRPs) since 1995. The majority of these funds were recovered from PRPs on NFS Lands.

Currently no single source of funding alone can completely reclaim all impacted sites to applicable standards. To remediate a particular site, the Forest Service may work with Federal, State, and private partners who are able to apply funding from a variety of programs and authorities, including SMCRA; CERCLA; and the Clean Water Act Grant Program.

An example of this kind of collaboration is the abandoned mine cleanup in American Fork Canyon Utah. Heavy metals from the mining wastes from historic sites prompted the State of Utah to issue a fish advisory in the American Fork River. Working with assistance from State of Utah and US Geological Survey, the Forest Service completed a $793,000 cleanup of mine waste on National Forest Lands in 2003. However addition work remained. In 2005, Trout Unlimited, working with Snowbird Ski Resort and Tiffany & Co. Foundation, spearheaded the cleanup of 33,000 cubic yards of waste rock and tailings with elevated levels of heavy metals on private property. The cleanup by the Forest Service, Trout Unlimited, Snowbird, Tiffany's and others, has improved water quality to the point that the American Fork River now can support rare, native cutthroat trout in a 10-mile stretch downstream of the mines. This cleanup received national recognition by the Environmental Protection Agency in 2007.

Similar collaborative cleanups involving states, federal and private partners like Trout Unlimited are occurring across the country, including the Monday Creek Watershed in Ohio, Eustache Creek in Montana, the Animas Watershed in Colorado, Boulder River Watershed in Montana, and the Middle Fork of the Boise River in Idaho to name just a few. The Forest Service is committed to encouraging such collaborative cleanups and uses partnership potential as one of the criteria in its project selection process.

FOREST SERVICE AML PROGRAM

From FY 1998 to FY 2008 the Forest Service has spent approximately $200 million of appropriated funds on abandoned mine environmental cleanup and safety mitigation. This is a net figure and does not include overhead and indirect costs. In addition, the Forest Service has competed for approximately $160 million of USDA Hazardous Materials Management Account funds, and $300 million of work or funding has been provided by potentially responsible parties (PRP).

Since 1998 the Forest Service has mitigated more than 2,000 safety hazards and cleaned up hazardous substances at more than 400 sites. Hard rock mine restoration work may involve closing mine adits and shafts; containing mine wastes in onsite capped and lined repositories; installing water source control and treatment systems; removing mine chemicals and trash; removing and stabilizing old mine buildings for historic interpretation; and reshaping and revegetating sites. These sites may range from one to over one hundred acres in size, cost $10,000 to $10 million or more and may, in a few cases, require decades to complete.

ABANDONED MINE CLEANUP

The following is just one of many examples of collaborative abandoned mine cleanup efforts that the Forest Service has participated in over the last 10 years.

The town of Red River, New Mexico and Red River Ski Resort are both located in the Red River Watershed. This area is visited by thousands of visitors and tourists year round, including fishermen, hunters, horseback riders, campers, hikers, skiers, bikers, and folks attending seasonal events such as running marathons, rafting competitions, & school events.

In 2007 the Forest Service completed the first phase of a nearly $4 million dollar project to clean up contamination and mitigate safety hazards at abandoned mines located in the Placer/Pioneer and Bitter Creek portions of the Red River Watershed. The work completed thus far includes:

- Removal of 14,000 cubic yards of mine waste contaminated with lead and arsenic from the banks of Placer Creek and Pioneer Creek;
- Restoration of 6 miles of perennial stream;
- Closure of 8 hazardous mine openings.

This work has eliminated the human health and safety hazards posed by the contaminated mine waste and safety hazards and increased the supply of clean water to the town of Red River and Red River Ski Area, reducing the cost of water treatment. These are expected to be long-term benefits that will enhance the quality of life, and enjoyment of the areas natural resources for both residents and visitors.

The next phase of the Red River project will remediate 44,000 cubic yards of mine waste located in the Bitter Creek portion of the Red River Watershed which is adjacent to, and directly northeast of the town of Red River. The total cost of this remediation is estimated at $2.8 million, and with $1.3 million currently available the Forest Service is planning to initiate the project in May of 2008. The project will compete through the national project selection process for funding needed to complete the next phase.

In other work completed in 2007, the Cibola National Forest finished filling mining shafts and deep cuts over a mile in length in the Bonita Canyon Watershed, approximately 20 miles southwest of the town of Grants, New Mexico and north of El Malpais National Monument. The mine cuts and shafts part of the Zuni Mine, an historic mine and mining camp which was very active from 1940 on through the 1960's. Because the mine area was well-roaded and visible from a State Highway, weekend campers, off-road vehicles and rock hounders are very active in the area. Because of the risk to visitors exploring the mine area, the Forest Service completed the work of filling in the shafts and cut in 2007, at a cost of approximately $250,000.

LOOKING TO THE FUTURE

Forest Service efforts to clean up abandoned mine lands have many worthwhile outcomes. Visitors to public lands are better protected from health and safety hazards, and neighboring communities enjoy cleaner water. Onsite soil and water quality is often returned to pre-mining conditions resulting in restored habitat for plants and wildlife. Significant cultural and historic resources are preserved.

Continued success of the Forest Service AML program depends on ensuring that cleanup costs are borne by potentially responsible parties, where possible, and partnering with other State and Federal Agencies, public interest groups, the mining industry and other interested third parties who do not otherwise have liability

for abandoned or inactive mine sites. Historically, the threat or potential threat of liability under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Clean Water Act (CWA) may have discouraged third party partners or "Good Samaritans" from assisting in cleaning up abandoned mines. The Forest Service recently used its delegated CERCLA authority to provide Good Samaritans protection from CERCLA, and will do so in the future, as appropriate. However, the threat of liability for water treatment under provisions of the CWA continues to be a concern for potential Good Samaritans.

Finally, preventing future AML sites is also a crucial goal of any land management agency's AML program. Responsible mining practices, environmentally protective mine closure planning, optimal permitting requirements and financial assurances are all tools that land management agencies are using to ensure mining companies operate under a sustainable business model that follows a mine's life from startup to clean closure.

Mr. Chairman, thank you for the opportunity to talk about the hardrock Abandoned Mine Lands program. I would be happy to answer any questions.

The CHAIRMAN. Thank you very much.

Mr. Brancard, go right ahead.

STATEMENT OF BILL BRANCARD, DIRECTOR, MINING AND MINERALS DIVISION, NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT, SANTA FE, NM

Mr. BRANCARD. Good afternoon, Mr. Chairman and members of the committee. Thank you for the invitation to testify today. I am representing today the State of New Mexico and the Interstate Mining Compact Commission, an organization of 24 coal and hardrock mining States.

Across the West, as we have heard from the testimony before, the number of abandoned hardrock mines is estimated at, at least 100,000 and perhaps several 100,000. In New Mexico, we estimate there are roughly 15,000 abandoned mine hazards that need to be addressed.

Today States and tribes often take the lead in addressing hardrock abandoned mine issues. While there is no national program for hardrock AML funding, for over a quarter century, coal mining States and tribes have received annual AML grants under the Surface Mining Control and Reclamation Act, or SMCRA. SMCRA allows States to use these AML funds at high-priority hardrock sites to address hazards to public safety. Various other Federal agencies have provided some funding for hardrock AML projects, but most of these grants are project-specific and nonrecurring.

For New Mexico, SMCRA was, until recently, a reliable source for funding hardrock AML projects. However, last December, the Interior Department issued a new interpretation of SMCRA to prohibit most AML grant funds from being used at hardrock projects. This is a significant blow to States such as New Mexico, Utah, and Colorado which use SMCRA funds to address hardrock AML problems.

Reform of the general Mining Law provides an opportunity to establish a consistent and robust funding source for addressing hardrock AML problems. I will address a few components of a hardrock program that could be established in new legislation.

First, any program to distribute funds for hardrock mine reclamation should provide an opportunity for States and tribes to assume primary responsibility for implementing the AML program. Today, there are abandoned mine land programs in most States.

These include the 28 programs established by States and tribes under SMCRA. A number of States that are not eligible for SMCRA funding also have strong hardrock AML programs.

In New Mexico, over the past 25 years, using primarily SMCRA funds, we have completed numerous AML projects, both coal and hardrock, on private, State, and Federal land. About 2,000 hardrock mine abandoned openings have been closed. New Mexico also now has agreements with the U.S. Forest Service and the BLM that allow those agencies to coordinate with us and to fund projects on their lands. It is simply more efficient at times for the Federal land managers to use our agency with our staff of experienced engineers, reclamation specialists, and project managers to design and implement an AML project.

Second, the legislation should recognize that most hardrock AML problems are on non-Federal lands, even in the West. In most States, Federal lands contain well less than half of all hardrock AML sites, and when there are abandoned mine problems on Federal lands, they often spill over into adjacent non-Federal lands or inholdings. To be effective, a hardrock AML program needs to address impacts on all classes of lands.

The experience of New Mexico and the Navajo Nation with abandoned uranium mines highlights the need for a strong hardrock AML program. Our region was a leading producer of uranium from the 1950s to the 1980s. Many uranium mines were largely unregulated and left a legacy of safety hazards and environmental contamination. Some large mines and mills were reclaimed under Federal and State laws, and some smaller sites have been addressed with SMCRA AML funds.

However, New Mexico has recently inventoried closed uranium mines across the State and determined that over 50 percent of them have no record of any reclamation. New Mexico and the Navajo Nation are currently investigating these sites to determine what reclamation work is necessary and what funding sources could be used to conduct these cleanups. The need for uranium mine cleanups go well beyond any current funding source.

Mr. Chairman and members of the committee, thank you for the opportunity to share our perspective on abandoned mine land reform. I will stand for any questions.

[The prepared statement of Mr. Brancard follows:]

PREPARED STATEMENT OF BILL BRANCARD, DIRECTOR, MINING AND MINERALS DIVISION, NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT, SANTA FE, NM

Good afternoon, Mr. Chairman and Members of the Committee. Thank you for inviting the State of New Mexico and the Interstate Mining Compact Commission to testify today. I am Bill Brancard, Director of the Mining and Minerals Division of the New Mexico Energy, Minerals and Natural Resources Department.

Today I will speak about the impacts of hardrock abandoned mines and the roles we do, and can, play in addressing these threats. I will focus on New Mexico's experience with abandoned mine issues and in particular highlight the issues surrounding abandoned uranium mines.

I am also representing the Interstate Mining Compact Commission (IMCC), an organization of 24 states located throughout the country that together produce some 95% of the Nation's coal, as well as important hardrock and other noncoal minerals. Each IMCC member state has active mining operations as well as numerous abandoned mine lands within its borders and is responsible for regulating those operations and addressing mining-related environmental issues, including the reclama-

tion of abandoned mines. Over the years, IMCC has worked with the states and others to identify the nature and scope of the abandoned mine land problem, along with potential remediation options.

New Mexico has a long and distinguished mining history. Native Americans mined coal, turquoise, lead, and copper hundreds of years before Europeans arrived in North America. Spanish exploration and mining began in the late 1500s and expanded across the state. The nineteenth and twentieth centuries witnessed a number of mining booms across the State driven by the search for coal, gold, silver, copper and uranium among others. Today, New Mexico is home to some of the largest active coal and hardrock mining facilities in the United States.

Centuries of mining have also left another legacy: thousands of mine openings and other mine hazards that pose serious threats to public health and safety. Since 1990, we are aware of at least five fatalities at abandoned mines in New Mexico. Numerous other serious injuries and costly rescues have occurred at these mines. In addition, abandoned mines across New Mexico pose significant threats to property and the environment through pollution, subsidence and underground fires.

Nationally, abandoned mine lands continue to have significant adverse effects on the environment. Some of the types of environmental impacts that occur at AML sites include subsidence, surface and ground water contamination, erosion, sedimentation, chemical release, and acid mine drainage. Safety hazards associated with abandoned mines account for deaths and/or injuries each year. Abandoned and inactive mines, resulting from mining activities that occurred over the past 150 years, are scattered throughout the United States. The sites are located on private, state and public lands.

Over the years, several studies have been undertaken in an attempt to quantify the hardrock AML cleanup effort. In 1991, IMCC and the Western Governors' Association completed a multi-volume study of inactive and abandoned mines that provided one of the first broad-based scoping efforts of the national problem. Neither this study, nor any subsequent nationwide study, provides a quality a quality, completely reliable, and fully accurate on-the-ground inventory of the hardrock AML problem. Both the 1991 study and a recent IMCC compilation of data on hardrock AML sites were based on available data and professional judgment. The data is seldom comparable between states due to the wide variation in inventory criteria, a topic I will address later in my testimony. Nevertheless, the data do demonstrate that nationally, there are large numbers of significant safety and environmental problems associated with inactive and abandoned hardrock mines and that remediation costs are very large.

In New Mexico, we estimate that there are roughly 15,000 abandoned mine hazards that need to be addressed. While New Mexico still has abandoned coal mines that need addressing, well over 90% of the 15,000 figure are abandoned hardrock mines. Across the West, the number of abandoned hardrock mines has been estimated at several hundred thousand. Many of the states report the extent of their respective AML problem using a variety of descriptions including mine sites, mine openings, mine features or structures, mine dumps, subsidence prone areas, miles of unreclaimed highwall, miles of polluted water, and acres of unreclaimed or disturbed land. Some of the types of numbers that IMCC has seen reported in our Noncoal Report and in response to information we have collected for GAO and others include the following: Number of abandoned mine sites: Alaska—7,000; Arizona—80,000; California—47,000; Colorado—7,300; Montana—6,000; Nevada—16,000; Utah—17,000—20,000; Washington—3,800; Wyoming—1,700. Nevada reports over 200,000 mine openings; Minnesota reports over 100,000 acres of abandoned mine lands.

What becomes obvious in any attempt to characterize the hardrock AML problem is that that it is pervasive and significant. And although inventory efforts are helpful in attempting to put numbers on the problem, in almost every case, the states are intimately familiar with the highest priority problems within their borders and where limited reclamation dollars must immediately be spent to protect public health and safety or protect the environment from significant harm.

Estimating the costs of reclaiming hardrock abandoned mines is even more difficult than characterizing the number of mines. If you accept the estimates of the number of AML sites, you can develop a very rough estimate for the costs of safeguarding mine hazards and reclaiming small surface disturbances. But the costs of remediating environmental problems such as ground water and surface water contamination, acid rock drainage or wind blown contaminants are extremely difficult to estimate. And many of these problems will not even be detected unless a thorough assessment and testing occurs at a site.

Today, state agencies are working on hardrock abandoned mine problems through a variety of limited state and federal funding sources. Various federal agencies, in-

cluding the Environmental Protection Agency, Bureau of Land Management, U.S. Forest Service, Army Corps of Engineers and others have provided some funding for hardrock mine remediation projects. These state/federal partnerships have been instrumental in assisting the states with our hardrock AML work and, as states take on a larger role for hardrock AML cleanups into the future, we will continue to coordinate with our federal partners. However, most of these existing federal grants are project specific and do not provide consistent funding. For states with coal mining, the most consistent source of AML funding has been the Title IV grants under the Surface Mining Control and Reclamation Act (SMCRA). Section 409 of SMCRA allows states to use these grants at high priority non-coal AML sites. The funding is generally limited to safeguarding hazards to public safety (e.g., closing mine openings) at hardrock sites.

A work about the AML program under SMCRA—a state-led program that has worked exceptionally well: During the past quarter of a century, significant and remarkable work has been accomplished pursuant to this program for addressing coal AML problems. The Office of Surface Mining Reclamation and Enforcement (OSM) and the states have documented much of this work. (See the 2006 Accomplishments Report published by the National Association of Abandoned Mine Land Programs and OSM's twentieth anniversary report.) OSM's Abandoned Mine Land Inventory System (AMLIS) provides a fairly accurate accounting of the work undertaken by most of the states and tribes over the life of the AML program and also provides an indication of what is left to be done.

Over the past 30 years, tens of thousands of acres of abandoned mine lands have been reclaimed, thousands of mine openings have been closed, and safeguards for people, property and the environment have been put in place. There are numerous success stories from around the country where the states' AML programs have saved lives and significantly improved the environment. Suffice it to say that the AML Trust Fund, and the work of the states pursuant to the distribution of monies from the Fund, have placed an important role in achieving the goals and objectives of set forth by Congress when SMCRA was first enacted—including protecting public health and safety, enhancing the environment, providing employment, and adding to the economies of communities impacted by past coal and noncoal mining.

As states work to address the remaining inventory of abandoned coal mine sites, the states are increasingly concerned about the escalating costs of addressing these problems as they continue to go unattended due to insufficient funding. Unaddressed sites tend to get worse over time, thus increasing reclamation costs. Inflation exacerbates these costs. The longer the reclamation is postponed, the less reclamation will be accomplished. In addition, the states are finding new, higher priority problems each year, especially as many of our urban areas grow closer to what were formerly rural abandoned mine sites. New sites also continually manifest themselves due to time and weather. This underscores the need for constant vigilance to protect our citizens. In addition, as states certify that their abandoned coal mine problems have been corrected under SMCRA, they are authorized to address the myriad health and safety problems that attend abandoned noncoal/hardrock mines, which are subject to all of the above concerns.

Until recently, the SMCRA AML program was the primary consistent source of funding for New Mexico's hardrock AML program. Over the past six years, New Mexico's average $1.5 million annual grant was roughly split between coal (55%) and hardrock (45%) projects. In December 2006, Congress amended the SMCRA AML program to distribute funds to states in an amount equal to that previously allocated under SMCRA but never appropriated. For New Mexico, this amounts to approximately $20 million in additional AML funds distributed over the next 7 years. However, while Section 409 was not changed or amended in any way, the Interior Department has now interpreted SMCRA to prohibit this enhanced funding from being used at noncoal projects. This is a significant blow to states such as New Mexico, Utah and Colorado which have previously used SMCRA AML funds to address many of our more serious hardrock AML problems.

The reform of the General Mining Law provides an opportunity to establish a consistent, and robust, funding source for addressing hardrock AML problems. We would like to address a few components of any hardrock program established in new legislation. First, any program to distribute funds for hardrock mine reclamation should allow for states and tribes to receive funding and conduct AML projects. Today, there are abandoned mine land programs in most states. These include the 28 programs established by states and tribes under SMCRA Title IV. A number of states that are not eligible for Title IV funding, including Nevada, California, Arizona, have robust hardrock AML programs as well. All of these states and tribes are experienced with administering federal grants and completing AML projects, including projects on federal land.

It is essential that the states be provided an opportunity to assume primary responsibility for implementing the AML program given the unique differences among the states in terms of geology, climate, terrain and other physical and environmental conditions. Each state should also be provided the discretion to determine which among the many AML sites in its respective inventory of sites deserves the most immediate attention. The states can also best decide the appropriate remediation required under the circumstances given available funding. This state lead approach will assure the most critical AML problems are addressed first, since the states are closer to the problems and can make a better determination about priorities and actual remediation work.

In New Mexico, we have used SMCRA Title IV funds to address a number of significant AML problems, both coal and hardrock, on BLM and Forest Service land. In addition, our AML Program has cooperative agreements with both the Forest Service and BLM that allow those agencies to fund AML projects on their lands when money is available. It is simply more efficient for the federal land managers to use our agency with its staff of experienced engineers, reclamation specialists and project managers to design and conduct an AML project. Given the importance of the states being able to access SMCRA Title IV funds for noncoal AML work, any new legislation should ensure that this practice can continue.

Second, the legislation should recognize that most hardrock AML problems are on non-federal lands, even in the West. In most states, federal lands contain less than a quarter of all hardrock AML sites. In part, this is due to the patenting of mining claims in the nineteenth and early twentieth century that led to mining occurring on private land. And when there are abandoned mine problems on federal lands, they often spill over into adjacent non-federal lands or in-holdings. To be effective, a hardrock AML program needs to be able to spend funds on all classes of land.

A critical component of any reclamation program is prioritization of sites and identification of remediation options. Abandoned mine lands range from sites that require no remediation because of their size or minimal risk impact and sites which require revegetation for erosion control, to shafts and adits that present public safety hazards and sites with significant toxic leachate contamination of ground and surface waters. Regardless of the inventory or listing of sites being used, there will be a large portion that require little if any reclamation or for which the per unit cost of reclamation is relatively small. These sites will also rank low in priority because of the reduced threat to public health or the environment. On the other end of the spectrum, there will be a small number of sites that require a significant amount of funding to remediate and that constitute a chronic risk to public health or the environment. Under current law, these are the sites that are being or might be remediated under Superfund (the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)). The AML priority sites should be those that constitute a physical threat to public safety, and sites with significant contamination, but that will never score high enough to be remediated under CERCLA.

Another aspect of any hardrock AML program is the process of quantifying the problem. A consistent and cost-effective inventory of AML problems may be needed. However, lessons need to be learned from the inventory of abandoned coal mines undertaken pursuant to the Surface Mining Control and Reclamation Act (SMCRA), which is estimated to have cost more than $25 million and is still fraught with controversy. Based on the SMCRA experience, any hardrock AML inventory needs to: have well thought out goals and instructions; maintain standardized inventory procedures; keep inventory crews small to minimize inconsistencies in reporting methods; minimize the influence on the inventory by those with vested interests in the results; require any federal agency inventory work to be coordinated with the states; utilize state-of-the-art GPS imagery; and be conducted with consideration for seasonal vegetation cover. In the end, there should also be a cap placed on the amount of money to be invested in any inventory effort so as not to divert money and energy from on-the-ground reclamation work.

There are many other components to an effective and efficient AML program. The states have significant experience in this area, based on our work under SMCRA and with AML programs in other non-SMCRA states such as Nevada, Arizona and California. Among the other areas that should likely be addressed in fashioning a hardrock AML program are: reclamation program elements; reclamation standards; priorities for cleanup; set-aside accounts for special circumstances such as acid rock drainage; emergency situations; and funding distribution mechanisms. We would welcome the opportunity to work with the Committee and others to address all aspects of a hardrock AML program that is led by the states and coordinated with our federal partners.

I have also been asked to address the problems that New Mexico, and other Western states and tribes, face with uranium mine cleanups. Our experience here will

highlight many of the issues I have previously mentioned. New Mexico was one of the leading producers of uranium in the world in the period of the 1950s through the early 1980s.

While this period is later than much of the hardrock production which populates the AML sites in many Western states, it predates many of the significant state and federal environmental and mine reclamation laws. As a result, many of these uranium mines were largely unregulated and left a legacy of safety hazards and environmental contamination which has a long way to go to be completely abated.

In the past year, the State of New Mexico has been inventorying closed uranium mines to determine how many sites remain to be remediated. Similar projects are being conducted by the Navajo Nation and the U.S. EPA on tribal land. We created a data base with all uranium mines that reported production and correlated that list with all records of reclamation work conducted under federal, state or tribal laws and reclamation projects conducted by federal, state or tribal agencies. These include cleanups under federal laws such as the Uranium Mine Tailings Radiation Control Act (UMTRCA) and CERCLA, or state laws such as the New Mexico Mining Act or Water Quality Act, or cleanups conducted with SMCRA Title IV funds by the Navajo Nation or New Mexico AML programs. We found that over 50 % of the uranium mines (137 of 259) have no record of any reclamation having occurred or currently required by a government agency.

These sites are generally older uranium sites (1950s and 1960s era) and have smaller production than sites where cleanups have been, and are being, conducted under other laws. Even so, at minimum, the cleanup cost is estimated to be at least $50 million. However, this number does not include any costs for environmental cleanups such as water quality remediation, residential remediation or waste removal. Additional environmental remediation would multiply the minimum estimate. The State of New Mexico and the Navajo Nation are currently investigating these sites to determine what reclamation work is necessary and what funding sources could be used to conduct these cleanups. The State and the Navajo Nation are also seeking ways to conduct cooperative projects in areas where jurisdiction is unclear.

Mr. Chairman and members of the Committee, I thank you for this opportunity to share New Mexico's and IMCC's perspective on abandoned mines and mining law reform. Again, welcome the opportunity to work with you in fashioning a meaningful hardrock AML program as part of mining law reform.

The CHAIRMAN. Thank you very much.

Ms. Struhsacker, go right ahead.

STATEMENT OF DEBRA STRUHSACKER, NORTHWEST MINING ASSOCIATION, RENO, NV

Ms. STRUHSACKER. Thank you, Mr. Chairman and members of the committee. My name is Debra Struhsacker and I am an environmental permitting and government relations consultant from Reno, Nevada.

I am testifying today on behalf of the Northwest Mining Association as a policy expert on abandoned mines and as a member of the association's board of trustees. Our testimony is going to emphasize the progress that is being made today in reclaiming hardrock mines and offer some——

[WITNESS OFF MIC.]

Ms. STRUHSACKER [continuing]. Very important to do so from the perspective that the AML reclamation glass is not empty. We are making progress in reclaiming AML sites. We have heard about some of that progress today. My written remarks have a table in there that outlines efforts that the western States are making in reclaiming AML sites. We are making good progress.

So the focus of our legislative dialog needs to be how do we fill the glass faster. How do we accelerate the pace of AML reclamation activities so we reclaim more sites sooner rather than later?

We think the key to expedited cleanups of AML sites is twofold. One, we need more money, and two, we need to enact Good Samar-

itan liability protection for those who want to engage in voluntary reclamation of AML sites.

When you look at the data that are available to us, the data that the Forest Service and the BLM have presented in that 2007 report or the case histories that we present in table 2 of my written remarks, there is a pattern emerging, and that pattern is that private/public sector partnerships are having tremendous success, tremendous on-the-ground success, in addressing abandoned mine land problems. We also see, when we look at those data, that a key to increasing the number of partnerships is that Good Samaritan reliability relief that I mentioned before.

I would like to turn your attention, if you would, to that chart. There is a copy in my written remarks. It is on page 10, if you want to look at it. I know you cannot read the writing per se on that, but I will walk you through what it is.

On your left side of that chart, I have listed decade by decade mining districts in the western United States, starting at the top at 1840 and ending in the bottom at the year 2000.

On the right-hand side of the chart, I have listed the dates of enactment of environmental laws and regulations in this country that pertain to mining.

Now, the top half of the chart in yellow—it is pretty obvious that there are no environmental laws during that early decade, several tens of decades of mining. Spanning the period from, roughly, 1840 to 1960, there simply were no environmental laws applied to mining or anything else.

On the green part of the chart, you start to see a number of environmental laws that have been enacted, all of which have a regulatory jurisdiction over mining, starting in 1966 and continuing all the way down to the bottom. The most recent one there was enacted in 2007.

So the point is that abandoned mines were created during that period of no regulations, in the yellow part of the chart.

There is one other point to, please, note from that chart. When you hear people say there are no environmental laws that apply to mining, please remember that chart. Please think of that green part of the chart. There are a lot of environmental laws that apply to mining.

So these mines here tell the history of the West. The metals that were mined from these sites helped build the country, but unfortunately, we are now left with the legacy of the problems and safety hazards that they created.

But I want to tell you that the environmental laws that you see in the green part of that chart guarantee that today's mines will not be abandoned mines of the future. Those environmental laws provide full, comprehensive protection at today's mine sites, and they also require comprehensive reclamation bonds. So today's mines are not going to be tomorrow's AML's.

Now, sometimes you will hear people point to mines that were permitted in that upper part of that green area in the 1960s, 1970s, and 1980s where there have been environmental problems, and those problems are due to the fact that those regulations were in their infancy. The regulations that we follow today have far more stringent requirements, and most importantly, the bonding

that we have today is far more comprehensive than what was required then.

We have heard a couple of the testifiers today talk about inventories of abandoned mines, and what we have heard is there is a large range of estimates of how many abandoned mines there are.

But, Laura, if I could have that next chart, please, and that chart is, I think, on page 19 of the written remarks, if you want to look at them.

There are several patterns that emerge from the inventories. Even if we may not know the exact numbers, we can say with fair confidence that there are three types of abandoned mine sites. There is landscape disturbance shown in green, safety hazards shown in yellow, and environmental problems shown in orange. All of the inventories pretty well agree that most of the problems are safety problems. About 20 percent of the known AML's create safety problems. About 10 percent create environmental problems.

The other thing that is on that chart on the left-hand column—I am sorry—the middle column are the techniques that we have to deal with abandoned mines. The message I want to leave about that is that we have techniques, we have the engineering tools, we have the environmental restoration tools to take care of these sites.

So as I mentioned earlier, we feel that the best way to accelerate the progress of reclamation activities is to provide funding and to enact Good Samaritan liability relief for voluntary reclamation. We are very supportive of Senator Salazar and very appreciative of the involvement he has had with that issue, and we supported the bill that you introduced last session and hope that we can advance that.

So in conclusion, I want to thank you very much for the opportunity to testify on behalf of the Northwest Mining Association. I hope I have helped to frame this issue, put it into a historical context, to tell you that AML's are a finite problem, that today's mines are not going to become tomorrow's AML sites, and to describe some of the excellent progress that we are making in reclaiming the abandoned mine problem, and to ask you for your help to come up with a funding mechanism, come up with a Good Sam program. As an association, we stand ready to help you in any way we can.

Thank you very much for this opportunity to testify.

[The prepared statement of Ms. Struhsacker follows:]

PREPARED STATEMENT OF DEBRA STRUHSACKER, NORTHWEST MINING ASSOCIATION, RENO, NV

INTRODUCTION

My name is Debra Struhsacker. I am an Environmental Permitting and Government Relations Consultant from Reno, Nevada. I am testifying today on behalf of the Northwest Mining Association (NWMA) as policy expert on abandoned mines and as a member of the Association's Board of Trustees. NWMA would like to thank you for the opportunity to testify today to describe the progress being made in reclaiming abandoned hardrock mines and to offer our suggestions for policies that will accelerate the pace of this progress.

NWMA is a 113 year old non-profit mining industry trade association headquartered in Spokane, Washington. Our 1,800 members reside in 35 states and 6 Canadian provinces and are actively involved in exploration, mining and reclamation operations on BLM-and USFS-administered public lands in every western state. Our broad-based membership includes many small miners and exploration geologists, as well as junior and large mining companies and suppliers of equipment and

services to the domestic and global mining industry. More than 90 percent of our members are small businesses or work for small businesses. Many of our members have extensive knowledge of the scope of the hardrock abandoned mine lands (AML) problem and first-hand experience in remediating AML environmental impacts and abating AML safety hazards.

NWMA asked me to testify because I have extensive experience with AML policy issues. This experience includes working with the Western Governors' Association and the National Mining Association on the Abandoned Mine Land Initiative and co-authoring the 1998 National Mining Association document "Reclaiming Inactive and Abandoned Mine Lands—What Really is Happening." NWMA is submitting that document as part of this hearing record. During the course of my career—working first as an exploration geologist and now as a mine permitting and regulatory expert—I have worked on numerous exploration and mining projects on public lands throughout the West and have seen first-hand the effects of historic mining and abandoned mines.

All stakeholders in the dialogue about mining and its impact on the environment agree that cleaning up historic Abandoned Mine Lands (AMLs) to eliminate safety hazards and to minimize environmental impacts is an important public policy goal. The NWMA, along with the rest of the hardrock mining industry, has long supported the development of policies to encourage AML cleanup. NWMA presented testimony to the House Subcommittee on Energy and Mineral Resources in 2006 and 2007; we are placing copies of these testimonies in the record for this Senate hearing. As we have stressed in previous testimony and as we will emphasize today, the key to expediting cleanup of AMLs is to provide more funding and to enact Good Samaritan liability relief for voluntary AML cleanup efforts.

120 YEARS OF MINING PRECEDE THE ENACTMENT OF ENVIRONMENTAL LAWS

Table 1 juxtaposes a partial history of mining in the western U.S. on the left side of the table against the evolution of the environmental laws and regulations that affect mining on the right side of the table. (All of the tables are included behind the text.) As you can see in the yellow top part of Table 1, mining in the western U.S. started almost 170 years ago in about 1840. The enactment of federal and state environmental laws, shown in green, did not start until the 1960s—roughly 120 years later. As is readily apparent from Table 1, there were no environmental regulations applicable to hardrock mines before the 1960s. It is this unregulated era of mining that created the abandoned mines that are the subject of this hearing.

The pre-regulation mining districts shown in the yellow part of Table 1 like the California Mother Lode Gold Rush, the Comstock Lode in Nevada, Central City, Colorado, Butte, Montana, the Black Hills of South Dakota, Socorro, NM, the Klondike in Alaska tell the story of the development of the West. These and countless other mining districts helped build America. Although we cherish the history and heritage they represent, we are now left to deal with a difficult legacy of the safety hazards and environmental problems this history has left behind.

The wastes produced by mining and ore processing-waste rock, mill tailings, and smelter slags—were usually deposited adjacent to the operating facilities or directly down—gradient in the nearest valley or low spot, much as domestic wastes of the time were sent to the nearest moving water body. Gravity was considered the great equalizer—the best friend of miners and other industrial waste generators of the time. Once the commercial ore was exhausted or market prices fell below the cost of extraction and processing, operators commonly abandoned sites with little, if any, thought to reclamation or reuse of the land.

While this lack of environmental protection and reclamation measures seems unacceptable when viewed through the prism of our modern-day commitment to protect the environment, it is important to understand that mines of this bygone era were no different than other industries of the time. Environmental protection simply was not on anyone's radar screen and no one considered the long-term consequences of these mining practices.

These mines provided the metals needed to build this country and to help win two world wars. In fact, the federal government operated a number of sites that are now some of the more challenging AML sites. The focus was on maximizing production and winning the wars—not on using mining methods designed to protect the environment. Because the American public benefited in the past from mining of these sites, we now have a public responsibility to develop policies and funding mechanisms to reclaim these sites.

Please note that the 1872 Mining Law is not shown on Table 1. The reason for this is simple—the Mining Law is not an environmental law. Rather, the Mining Law governs land tenure. It gives U.S. citizens the right to enter upon public lands

to explore for hardrock minerals, and to use and occupy public lands for mineral development and mining purposes.

Although mining critics are fond of saying that the Mining Law needs to be amended because it does not include any environmental provisions, this is a red herring. Today, the environmental laws shown in Table 1 produce highly regulated and environmentally responsible mines that use modern environmental protection technologies to safeguard the environment.

The environmental protection and bonding requirements for modern mines guarantee that today's mines will not become tomorrow's AMLs for two reasons. First, modern mines are designed, built, operated, and closed using state-of-the-art environmental safeguards that minimize the potential for environmental problems to develop after mining is completed. Second, federal and state regulators have adequate reclamation bond monies in the event a mine operator goes bankrupt or fails to perform the necessary reclamation. The amount of required financial assurance is based on what it would cost BLM, U.S. Forest Service, or a state agency to reclaim the site using third-party contractors to do the work. By law, the sufficiency of these reclamation bonds is reviewed and adjusted on a regular basis to make sure they keep pace with inflation and on-the-ground conditions.

BLM Director Henri Bisson's statement at the January 2008 hearing that BLM has roughly $1 billion in reclamation bond monies for hardrock mineral projects is compelling evidence of a robust bonding program for modern mining operations. Similarly, federal and state agencies in Nevada recently announced that they jointly hold $1.031 billion in reclamation bonds to guarantee reclamation of Nevada mines. Nevada's reclamation bond coffers have grown rapidly since 1990 when Nevada State law NRS 519A became effective and required all mining operations and exploration projects that disturb more than five acres to provide a reclamation bond. Nationwide, this combination of reclamation bonds and environmental laws and regulations ensures that the AML problem is a finite and historical problem and not one that will grow in the future.

MODERN BANKRUPT MINES SHOULD NOT BE CONFUSED WITH HISTORIC AMLS

There is no question that the reclamation bonds at some mines permitted and developed in the 1970s and 1980s were insufficient to reclaim these sites, resulting in a public liability. However, if permit applications for these mines were submitted today and evaluated and bonded under current federal and state environmental and bonding requirements, we are confident that a different outcome would result because today's requirements are much different than they were 20 to 30 years ago.

As Table 1 shows, mining regulatory programs were in their infancy in the 1970s and 1980s. The Forest Services' 36 C.F.R. Subpart 228A hardrock mining regulations became effective in 1974. BLM's surface management regulations governing hardrock mining (43 C.F.R. Subpart 3809) went into effect in 1981. In 2001, BLM updated the 3809 regulations (see Table 1) and added detailed requirements at 43 C.F.R. 3809.420(11) governing mine waste testing and management and new bonding requirements at 43 C.F.R.3809.500. Among other things, the updated 3809 rules require detailed waste characterization studies to identify materials that have the potential to generate acid or to leach metals, and specific mine waste management mandates that require operators to " . . . handle, place, or treat potentially acid-forming, toxic, or other deleterious materials in a manner that minimizes the likelihood of acid formation and toxic and other deleterious leachate generation." Had these requirements been in place many of the water quality problems that have developed at some 1970s- and 1980s-vintage mines would not have occurred because BLM and the Forest Service would have required dramatically different mine waste testing and management programs than were the norm 20 or 30 years ago.

Secondly, as discussed above, there has been a significant expansion in bonding requirements compared to the early years of state and federal mining regulatory programs. Examples of some of the new bonding requirements include the following:

- Bonds are now based on detailed reclamation cost calculations that use third-party contractor costs based on Davis-Bacon wage rates;
- Bonds now include up to a 40 percent surcharge for agency costs to manage the reclamation effort;
- Bonds for some mines now include long-term financial assurance if site-specific conditions suggest that long-term maintenance or monitoring may be needed;
- Bonds now include costs to manage the process fluid inventory (i.e., fluids in ponds and tailings impoundments) that must be dealt with before a site can be closed and reclaimed; and
- Bond amounts are reviewed on a regular basis and adjusted as necessary to reflect inflation and site conditions.

Additionally, the experience gained in reclaiming bankrupt sites has led to some recent refinements in how bonds are calculated and the scope of reclamation bonds. The U.S. Forest Service updated its bonding requirements in 2004. The BLM revised its bonding requirements in 2001. In Nevada, the Nevada Division of Environmental Protection worked with BLM, the Forest Service, and the Nevada mining industry to update Nevada's bonding requirements in response to lessons learned using bond monies to reclaim several bankrupt sites. Other states, such as Colorado and Montana have done likewise. NWMA recently developed a white paper that documents the evolution and refinement of Nevada's bonding requirements that we are submitting as part of the record for this hearing. This white paper demonstrates that existing federal and state laws and regulations already give regulators the necessary tools to protect the environment, to ensure proper reclamation, and to deal effectively with problems, gaps, or unforeseen situations should they develop in the future.

HOW DO WE ACCELERATE THE PROGRESS OF CURRENT AML RECLAMATION EFFORTS?

Although the scope of the AML problem is large, state and federal agencies—in cooperation with communities, mining companies, and other private-sector interests—are making steady progress in reclaiming AMLs. Thus, as we consider the best ways to tackle the AML problem, it is important to start from the perspective that the glass is not empty. Progress is being made. The focus of the AML legislative dialogue should be to create policies that accelerate the pace of AML reclamation so that more sites can be reclaimed sooner rather than later.

Last year, BLM and the Forest Service released a report entitled Abandoned Mined Lands—A Decade of Progress that showcases a number of successful AML reclamation efforts. In the time available to prepare this testimony, NWMA compiled the preliminary list of state-led AML reclamation projects shown in Table 2 to augment the information presented in the BLM/Forest Service report. Although far from a complete inventory, this snapshot suggests several interesting trends.

It is readily apparent from our research that some western states have undertaken a number of successful AML reclamation efforts. States with active mining typically have the largest and most productive AML reclamation programs. The correlation is simple—states like Nevada use mining fees to fund some of the AML reclamation program. Conversely, states with little or no mining have very poorly funded programs and in some cases no program at all. South Dakota is an interesting example. Back in the 1990s, South Dakota had a very progressive and effective AML advisory program. However, now that there is virtually no hardrock mining in the state, this program no longer exists despite the fact that the State has identified at least 900 AML sites that need to be reclaimed.

The Nevada Division of Minerals' AML program is representative of an effective, well-funded state AML program. This program receives funding from a $1.50 fee on county mining claim filings and a one-time fee of $20 per acre of new permitted mining disturbance. The program is supplemented by small grants from BLM's abandoned mines program and the US Army Corps of Engineers (USACE) Restoration of Abandoned Mine Sites (RAMS) program[1]. In 2006, Nevada's AML program secured 540 hazards with approximately $350,000 in funding. The bulk of the work includes fencing or closing mine openings on federal public land. Since the inception of the program in 1987, the Nevada Division of Minerals has secured over 9,000 dangerous abandoned mine openings.

Table 2 also demonstrates that collaborative partnerships involving state and federal agencies, communities, mining companies, other private-sector interests, and conservation groups have a proven track record of achieving spectacular on-the-ground success in remediating environmental problems and abating safety hazards at AML sites throughout the West. This suggests that future AML policies should recognize that private-public sector partnerships which capitalize upon the talent, financial resources, and expertise in both sectors will result in the most cost effective AML program.

[1] The RAMS program was created in the 1999 WRDA and has partnering agreements in place with several federal and state agencies, tribes and non-profits, including the BLM, USFS, NPS, EPA, Navajo Nation, Nevada Division of Minerals, Montana DEQ, Colorado Division of Minerals & Geology and the South Yuba River Citizens League. Through this process 64 planning, database, technical studies and design projects have been initiated with 23 different partners in 11 western states. This program was the primary source of additional funding needed to reclaim a number of the Nevada bankrupt mines with inadequate bonds in the early part of this decade.

WHAT DO AML INVENTORIES TELL US ABOUT THE SCOPE OF THE AML PROBLEM?

As discussed in the BLM/Forest Service report, there are a number of AML inventories, each with different estimates of the number of AML sites. Some of the divergence is due to different methodologies in how sites are catalogued. Some AML inventory efforts have considered a "site" to be any single opening, mining or exploration disturbance or mining related feature. Other state AML programs and the mining industry define "site" to include multiple features that can be addressed with coordinated and consolidated reclamation and remediation measures. Consequently, there is no complete count, but we know for certain that there are many AML sites that require our attention.

While the desire to have a complete inventory of hardrock AML sites in the western US was perhaps an appropriate focus ten or fifteen years ago, we believe that enough is now known about the scope of the problem. The current AML cleanup progress clearly demonstrates that a complete inventory is not necessary because on-the-ground AML cleanup can occur concurrently with ongoing AML inventory efforts. Therefore, a complete AML inventory is not a first or even a critical step. The inventory can be built at the same time that AML cleanup efforts are underway.

We have a good idea where most of the high-priority environmental sites are (although we may not understand the complexities of each site.) But in some settings, there probably are unmapped safety hazards that are obscured by vegetation or are in remote locations.

Although the AML inventory numbers vary, there is good consensus about the broad characteristics of the AML problem. As shown in Table 3, most AML sites create unsightly landscapes and public safety hazards, with roughly 10 percent causing environmental problems. Some sites may have a combination of landscape disturbance, safety hazards, and environmental problems

Table 3 also lists some typical challenges at AML landscape, safety, and environmental sites. The problems shown at safety hazard sites pose the most imminent threat to people. According to the BLM/Forest Service report, approximately 25 people per year die in accidents involving unsecured historic mine shafts, tunnels, buildings, etc. AML environmental problems typically arise from the interaction of streams and precipitation with old mine wastes. The resulting water quality impairment is especially harmful to fish and other aquatic species. Dust due to wind erosion of tailings piles can also create significant problems at some sites—especially sites in arid environments.

AML policy discussions often focus on the worst and most complex environmental problems at AML sites, which are a subset of the total AML problem. This mischaracterization of the global AML problem has probably contributed to the lack of progress in developing federal policies and programs to solve the AML problem. Although remediating AMLs with environmental problems is important, in many settings, safety hazards deserve our immediate attention. Therefore, we should focus first-priority AML funds on eliminating safety hazards at abandoned mine sites located near population centers and frequently used recreation areas.

As shown in Table 3, there are a number of AML safety hazard abatement and cleanup and restoration techniques using modern engineering designs and environmental protection methods that can reduce and even eliminate safety hazards and environmental problems at AML sites. These techniques have a proven track record of successfully reclaiming many AML sites.

Although many of the response measures shown in Table 3 are expensive—especially those used to remediate environmental problems—they are technically straightforward, well understood, and are generally quite effective in improving environmental conditions at AML sites. It is important to understand, however, that each AML site is different. The response measures shown in Table 3 must be custom-tailored to fit the site-specific conditions of a particular site. A cookie-cutter, one-size-fits all approach will not achieve optimal results and may even fail to address the problem. At many of the AML reclamation examples shown in Table 2, federal and state agencies, working in concert with community and private-sector partners, have successfully customized and fine-tuned these techniques to achieve optimal reclamation results at specific AML sites.

FEDERAL FUNDING IS NEEDED TO ACCELERATE AML CLEANUPS

NWMA and other industry interests have long supported creating a federal hardrock AML fund using revenue generated from a net royalty on new claims to support, augment and expand existing AML programs. In order to build the fund more rapidly, the fund should solicit donations from persons, corporations, associations, and foundations. Congress may also wish to infuse the fund with some initial

seed money in recognition that America benefited greatly from the metals produced from historic mines which justifies contributing some taxpayer monies to the fund.

NWMA recommends that the states that generate royalty revenues should be the first in line to receive at least a portion of the federal AML funds. We also believe that states should to take the lead in administering the AML program. As our research shows, many states already have effective AML programs. We see no need to re-invent the wheel by creating a new federal AML bureaucracy. This would be an inefficient use of the monies collected and would reduce the amount of money available for on-the-ground remediation and reclamation. Because each hardrock AML site has unique geology, geography, terrain and climate; a uniform, one-size-fits-all program will not achieve optimal results. The state AML programs are in the best position to prioritize where federal AML funds should be spent within the state and to perform hardrock AML hazard abatement, remediation and reclamation, in cooperation with federal land management agencies, industry, communities, conservation groups, and NGOs.

We also caution against creating a fund distribution formula or method that invites competition between states for AML funds. This occurred during the initial years of the SMCRA AML program and led to inaccurate, inconsistent, and even aggrandized AML inventories with inflated reclamation costs according to a 1988 GAO study.

GOOD SAMARITAN LEGISLATION IS CRITICAL TO FACILITATING VOLUNTARY AML RECLAMATION

Although more funding is a key component of solving the AML problem, funding alone is not the best way to accelerate the pace of AML reclamation activities. Enacting Good Samaritan liability relief is also essential. Concerns about liability exposure stemming from the Clean Water Act (CWA), CERCLA, and other laws are significantly chilling Good Samaritan AML clean ups.

Under these laws, a mining company, state or federal agency, NGOs, individuals or other entities that begin to voluntarily remediate an abandoned mine site could potentially incur "cradle-to-grave" liability under the CWA, CERCLA, and other environmental laws, even though they did not cause or contribute to the AML environmental problem. Furthermore, the CWA may require entities that undertake voluntary AML projects to prevent discharges to surface waters from the AML in perpetuity, unless those discharges meet strict effluent limitations and comply with stringent water quality standards, which may not be possible; and in any event, may be so expensive that no state, company, individual, or other entity would undertake a voluntary cleanup.

Virtually everyone who has looked at the AML issue in the west has recognized and documented the legal impediments to voluntary cleanup of AMLs. Policymakers and independent researchers including the National Research Council, the Western Governors' Association, and the Center for the American West have urged Congress to eliminate these impediments. For example, the National Academy of Science 1999 report to Congress entitled "Hardrock Mining on Federal Lands" makes the following specific Good Samaritan recommendation:

> Existing environmental laws and regulations should be modified to allow and promote the cleanup of abandoned mine sites in or adjacent to new mine areas without causing mine operators to incur additional environmental liabilities . . .
>
> To promote voluntary cleanup programs at abandoned sites, Congress needs to approve changes to the Clean Water Act and the CERCLA legislation to minimize company liabilities." (NRC report, pages 104 and 106.)

The state agencies listed in Table 2 emphasized the importance of Good Samaritan liability relief in enabling them to expand the scope of their AML reclamation programs. In the absence of such relief, most of the state agencies said they are avoiding sites with mine drainage due to concerns about CWA liability exposure.

Several Good Samaritan bills have been introduced in the past, but only the bill that Senators Salazar and Allard introduced in 2006 (S. 1848), passed out of committee. We strongly support the Salazar/Allard approach to Good Samaritan legislation which would accomplish many of the key Good Samaritan objectives shown in Table 4.

The combined effect of a federal AML reclamation fund and Good Samaritan liability relief is the best way to accelerate the pace of AML reclamation. It is also the best way to get the most bang for the buck because financial and in-kind contributions from the private sector, communities, foundations, and other sources will reduce the amount of funding that needs to come from royalty payments. Finally,

Good Samaritan liability relief will facilitate public—private sector partnerships which we know to be the best solution to the AML problem. As Congress deliberates changing the Mining Law to include an AML funding mechanism, we urge you to address the equally important issue of providing Good Samaritan liability relief for voluntary AML cleanups.

CONCLUSION

The NWMA very much appreciates this opportunity to testify today to put AMLs into the proper historical perspective, to explain why AMLs are a finite problem and how today's environmental regulations and bonding requirements prevent the creation of new AMLs, to describe some of the excellent progress that is being made in reclaiming AMLs, and to present our recommendations for moving forward. We believe the AML problem is manageable and solvable because we know where AML sites are located, we understand the problems they are creating, and we have the engineering, environmental protection, and reclamation techniques needed to solve these problems. But our AML tool kit is missing two essential tools—adequate funding and Good Samaritan liability relief for voluntary AML cleanup projects.

So we conclude by asking for your help. Please add a federal AML fund and Good Samaritan liability relief to the AML tool kit. These two policies offer the best opportunity to accelerate the progress that is being made in abating AML safety hazards and remediating AML environmental problems. The NWMA stands ready to work with you and to help in any way we can to achieve what we all agree is an important goal—expediting AML reclamation.

I thank you for this opportunity to testify on this important issue and will be happy to answer any questions.

TABLE 1
Partial Chronology of U.S. Mining versus
Enactment Dates for Environmental Laws and Regulations Affecting Hardrock Mining

Decade	Commencement of Selected Western Mining Activities	Enactment Dates for State & Federal Environmental Laws and Regulations
1840s	CA: Mother Lode–gold WY: Atlantic City – gold	
1850s	CO: Cherry Creek, Clear Creek, – gold NV: Comstock Lode - silver & gold WA: Okanogan District – gold	
1860s	CO: Front Range – gold & silver ID: Boise Basin – gold	
1870s	SD: Black Hills - gold CO: Leadville, San Juan Mountains – silver, gold & base metals AZ: - Superior, Morenci - copper NM: Silver City – silver UT: Park City – gold, silver, lead	
1880s	CO: Aspen – silver, lead, zinc MT: Butte – copper ID: Coeur d'Alene District – silver NM: Socorro– silver, copper	
1890s	CO: Cripple Creek – gold WA: Republic District – gold AK: Klondike, Nome - gold WY: Kirwin – copper, silver	
1900s	UT: Bingham Canyon – copper NV: Round Mtn., Tonopah, Goldfields, Ely: – gold, silver copper	
1910s	CO: Climax - molybdenum CO, UT - AZ vanadium, radium	
1930s	NM: Pecos – silver, zinc, lead ID: Stibnite – antimony, tungsten	
1940s	CO, UT, AZ, NM: CO Plateau - uranium	
1950s	NM: Grants – uranium WY Sandstones - uranium NV: Yerington – copper OR: Riddle - nickel	
1960s	NV: Carlin – gold	•National Historic Preservation Act •Air Quality Act •National Environmental Policy Act
1970s	CO: Henderson - molybdenum NV: Round Mountain – gold	•Occupational Safety and Health Act •Clean Air Act •CA Environmental Quality Act •MT Metal Mine Reclamation Act •MT Environmental Policy Act •Federal Water Pollution Control Act/Clean Water Act •Endangered Species Act •U.S. Forest Service 36 CFR 228A regs •CA Surface Mined Land Reclamation Act •Federal Land Policy and Management Act •Resource Conservation and Recovery Act •Clean

TABLE 1
Partial Chronology of U.S. Mining versus
Enactment Dates for Environmental Laws and Regulations Affecting Hardrock Mining

Decade	Commencement of Selected Western Mining Activities	Enactment Dates for State & Federal Environmental Laws and Regulations
1970s (cont.)		Water Act Amendments •CO Mined Land Reclamation Act •Mine Safety and Health Act •Surface Mining Control and Reclamation Act •WI Metallic Mining Reclamation Act •ID Surface Mining Act •Archaeological Resources Protection Act
1980s	NV: Jerritt Canyon, Sleeper, Gold Quarry, Goldstrike, Chimney Creek – gold ID: Thompson Creek – molybdenum CA: McLaughlin - gold MT: Stillwater – platinum/palladium	•Comprehensive Environmental Response, •Compensation, and Liability Act/Superfund •BLM 43 CFR 3809 Regulations •SD Mined Land Reclamation Act •Hazardous and Solid Waste Amendments •Superfund Amendments Reauthorization Act •UT Mined Land Reclamation Act •NV Water Pollution Control Law •NV Mined Land Reclamation Act
1990s	AK: Ft. Knox – gold NV: Pipeline, Lone Tree - gold	•Clean Air Act Amendments •NM Mining Act
2000s	NV: Marigold expansion, NV – gold NV: Phoenix Project – gold NM: Copper Mtn. South expansion – copper AZ: Carlota, Safford – copper	•BLM updates 43 C.F.R. 3809 regulations to include mandatory bonding requirements for all surface-disturbing activities •USFS updates bonding requirements •NV expands and updates bonding requirements •MT updates bonding requirements

Table 2. Examples of Progress Made by State Agencies in Addressing the AML Closure and Reclamation Issue.

State	Project Name	Project Description	Techniques Used or Considered	Principal Participating State Agencies	Partnership/Stakeholder Group
Alaska	Treadwell Mine	Safety closures of 17 shafts and adits, 5 hazardous facilities, and 70 dangerous highwalls	Backfilling; Slope reduction; Portal gates; Panel covers; Fencing; Signing; Revegetation.	Alaska Department of Natural Resources. Alaska Division of Mining, land and Water.	No information.
	Gold Standard Mine	Safety closure of 10 adits and 2 shafts.	Backfilling, Slope reduction; Portal gates; Panel covers; Fencing; Signing, Revegetation.	Alaska Department of Natural Resources. Alaska Division of Mining, land and Water.	No information.
Colorado	Bonanza Mining District	Polymetallic mine waste and tailing removal, remediation and reclamation. Water control within Rawley Mine	Adit bulkhead; In-situ grade, neutralize, revegetation; Covered repository; Erosion BMPs.	Colorado Hazardous Materials and Waste Management Division. Colorado Water Quality Control Division. Colorado Division of Reclamation, Mining and Safety; AML	The Bonanza Group (5 PRPs). Federal Partnership: USFS, BLM, USACoE, EPA
	Hensen Creek Watershed	Feasibility study and reclamation/remediation options for 25 mines in Hensen Creek Watershed.	In-situ grade, neutralize, revegetation; Covered repository; Erosion BMPs; Diversion ditches; stream diversion; Passive water treatment systems (anoxic limestone drains, settling ponds, wetland construction, aeration, lime injection, etc.); Grout curtains; In-mine diversion.	Colorado Division of Reclamation, Mining and Safety; AML.	Lakefork Watershed Stakeholders. BLM.
	Tenmile Mining District Closures	Safety closures using multiple techniques of 21 abandoned mine sites in the Tenmile Mining District; Restoration of historic headframe.	Precast panel PUF (Polyurethane foam) and cover; Backfill; Bat-friendly door/gate; Headframe restoration and stabilization.	Colorado Division of Reclamation, Mining and Safety; AML.	Climax Molybddenum Company partnership.
	St. Elmo Mining District - Mary Murphy Mine	Mine waste and tailing remediation and reclamation of the historic Mary Murphy Mine	In-situ grade, neutralize, revegetation; Covered repository; Wetland restoration; Erosion BMPs.	Colorado Division of Reclamation, Mining and Safety; AML. Colorado Water Quality Control Division.	Other participants: EPA, USACoE.
	Virginia Canyon Reclamation	Feasibility study and reclamation/remediation options for 37 mine sites in Virginia Canyon, a tributary to Clear Creek.	Diversion ditches; Stream diversion; In-situ grade, neutralize, revegetation; Erosion BMPs.	Colorado Division of Reclamation; Mining and Safety; AML.	Upper Clear Creek Watershed Association.
	Animas River Watershed	Polymetallic mine waste and tailing removal, remediation and reclamation of 50 sites. Water control measures, historic building restoration and fishery and wildlife habitat restoration.	Bulkhead seals; shaft closures; In-situ grade, neutralize, revegetation; Covered repository; Erosion BMPs; Diversion ditches; Settling ponds; Wetland restoration; Stream restoration; Historic structure restoration. Project is cutting edge for new technologies	Colorado Hazardous Materials and Waste Management Division. Colorado Water Quality Control Division. Colorado Division of Reclamation, Mining and Safety; AML. Colorado Division of Wildlife. Colorado River Watch.	Animas River Stakeholders Group, City of Durango, San Juan County, town of Silverton. Southwestern Water Conservation District, Five citizens groups, 10 private entities.

Table 2. Examples of Progress Made by State Agencies in Addressing the AML Closure and Reclamation Issue.

State	Project Name	Project Description	Techniques Used or Considered	Principal Participating State Agencies	Partnership/Stakeholder Group
Idaho	Copper Queen Mine	Safety closures and reclamation of 8 underground openings.	Backfilling, installation of steel grate bat openings; Revegetation.	Idaho Department of Lands.	Cooperation with: Idaho Geological Survey, Idaho Department of Environmental Quality, Idaho Department of Fish and Game, USFS, BLM.
	Hailey Area	Safety closures and reclamation of 9 underground openings.	Backfilling, installation of steel grate bat openings; Revegetation.	Idaho Department of Lands.	Cooperation with: Idaho Geological Survey, Idaho Department of Environmental Quality, Idaho Department of Fish and Game, USFS, BLM.
	Panhandle National Forest	Safety closures and reclamation of 18 underground openings.	Backfilling, installation of steel grate bat openings; Revegetation.	Idaho Department of Lands.	Cooperation with: Idaho Geological Survey, Idaho Department of Environmental Quality, Idaho Department of Fish and Game, USFS, BLM.
	Silver Butte/Iron Mask Mines.	Safety closures and reclamation of 5 underground openings.	Backfilling, installation of steel grate bat openings; Revegetation.	Idaho Department of Lands.	Cooperation with: Idaho Geological Survey, Idaho Department of Environmental Quality, Idaho Department of Fish and Game, USFS, BLM.
Montana	Boulder River Watershed - High Ore Creek; Comet Mine	Polymetallic mine waste and tailing removal, remediation and reclamation. Water control measures, and fishery and wildlife habitat restoration.	In-situ grade, neutralize, revegetation; Covered repository; Erosion BMPs; First multi-site shared covered repository; wetland and riparian restoration; Stream restoration.	Montana Department of Environmental Quality. Montana Department of Fish, Wildlife, and Parks. Montana Bureau of Mines and Geology.	Federal partnership: BLM, USFS, USACoE, USBR, EPA, USGS.
	Brooklyn Mine	Mine waste rock and tailings removal, in-place waste rock reclamation, and stream restoration.	Removal of waste rock and tailings to repository; In-situ grade, neutralize, revegetation; Erosion BMPs; Diversion ditches; Stream restoration; Fishery habitat restoration	Montana Department of Environmental Quality. Montana Abandoned Mine Reclamation Bureau (now Mine Waste Cleanup Bureau.	Cooperative agreement: USFS.
	Londonderry/Maxville Tailings Site	Mine waste rock and tailings removal, consolidation and reclamation.	Construction of stream protection structure; Waste rock removal from stream. Consolidation with tailings in covered repository; In-situ grade, neutralize, revegetation; Erosion BMPs; Stream and riparian restoration	Montana Department of Environmental Quality. Montana Mine Waste Cleanup Bureau.	Cooperative agreement: BLM, Granite County, Private landowners.

Table 2. Examples of Progress Made by State Agencies in Addressing the AML Closure and Reclamation Issue.

State	Project Name	Project Description	Techniques Used or Considered	Principal Participating State Agencies	Partnership/Stakeholder Group
Nevada	Valley of Fire State Park	Safety closure of hazardous open trenches	Fencing and signs.	Nevada Division of Minerals, AML Program. Nevada Division of State Parks. Nevada Division of Environmental Protection	Nevada Abandoned Mines Permanent Closure Program; partnerships with BLM, NDOM, Nevada Department of Wildlife, Nevada Mining Association, Eagle Scouts, Girl Scouts, prospector clubs and others.
	Ray Camp	Safety closures of 53 adits and shafts.	Backfilling with mine waste; PUF; Fencing; Signage. Bat gates where needed	Nevada Division of Minerals, AML Program.	Nevada Abandoned Mines Permanent Closure Program; partnerships with BLM, NDOM, Nevada Department of Wildlife, Nevada Mining Association, Round Mountain Gold Co., others.
	Beatty/Rhyolite	Safety closures of 37 shafts and adits.	Backfilling with mine waste; PUF; Fencing; Signage. Bat gates where needed.	Nevada Division of Minerals, AML Program.	Nevada Abandoned Mines Permanent Closure Program; partnerships with BLM, NDOM, Nevada Department of Wildlife, Nevada Mining Association, others.
	Perry Canyon	Safety closures of 18 shafts and adits.	Backfilling with mine waste; PUF; Fencing; Signage. Bat gates where needed.	Nevada Division of Minerals, AML Program.	Nevada Abandoned Mines Permanent Closure Program; partnerships with BLM, NDOM, Nevada Department of Wildlife, Nevada Mining Association, others.
	2005 Eagle Scout Project	Eagle Scouts secured 46 shafts and adits.	Fencing and signs.	Nevada Division of Minerals, AML Program.	Partnership with the Eagle Scouts for volunteer public service closings.
	2005 Girl Scout Project	Girl Scouts secured 4 AML hazards.	Fencing and signs.	Nevada Division of Minerals, AML Program.	Partnership with the Girl Scouts for volunteer public service closings.

Table 2. Examples of Progress Made by State Agencies in Addressing the AML Closure and Reclamation Issue.

State	Project Name	Project Description	Techniques Used or Considered	Principal Participating State Agencies	Partnership/Stakeholder Group
New Mexico	Pecos/Terero Mine and El Molino Mill Site	Remediation and reclamation of mine site associated, butgeographically, removed mill site.	Removal and consolidation of waste rock and tailingsto separate locations and repositories; In-situ grade, neutralize, revegetation; realignment and stabilization of stream channel; New channel construction; Underdrain construction; Discharge structures; Diversion ditches; wetland and riparian restoration; Stream restoration.	New Mexico Environmental Department. New Mexico Energy, Minerals and Natural Resources Dept. New Mexico Mining and Minerals Division.	Cooperative agreement: EPA, USFS, New Mexico Transportation Department, New Mexico Department of Game and Fish.
	Cerrillos South Mine Safeguard Project	Safety closures for 67 underground mine shafts and adits, 19 pits and trenches, and 2 dangerous highwalls. Protection of bat habitat. **Creation of Cerrillos Hills Historic Park.**	Safety closures included backfilling with mine waste, PUF, welded wire fencing, mesh and picket fencing, berms, steel netting, steer grates allowing bat ingress and egress; erosion BMPs; Revegetation; Construction of viewing platforms over and around shafts.	New Mexico Energy, Minerals and Natural Resources Dept. New Mexico Mining and Minerals Division. New Mexico Abandoned Mined land Bureau.	Partnerships with: Cerrillos Hills Park Coalition; Santa Fe County, New Mexico State Hisotric Preservation Office, BLM, National Park Service, others.
	Socorro West Project	Safety closures for 24 underground mine adits, shafts, and open stopes while protecting use of various sites by bats and owls.	Backfilling with nearby waste, concrete panels; Heavy steel cable netting; Reinforced grated closures; Reinforced steel fencing; Earthen berms; Thick cactus barriers to reduce vandalism; Revegetation.	New Mexico Energy, Minerals and Natural Resources Dept. New Mexico Mining and Minerals Division.	Partnerships with: University of New Mexico, Department of Biology, private owners.
	Gage Mine Safeguard Project	Safety closures for 164 underground mine adits, shafts, and open stopes including use of existing mine waste as backfill and protecting use of various sites by bats and owls.	Use of existing mine waste for backfill; Safety closures using backfill, PUF, locked doors, steel gates, steel netting, concrete slabs and panels, adit grates and batlowt grates to allow bird access.	New Mexico Energy, Minerals and Natural Resources Dept. New Mexico Mining and Minerals Division. New Mexico Abandoned Mined land Bureau. New Mexico Office of Archaeological Studies.	Partnerships with: University of New Mexico, Department of Biology. Museum of New Mexico, private owners.
North Dakota	**No State AML Program**	N/A	N/A	North Dakota Department of Minerals.	N/A
Oregon	**No State AML Program**	N/A	N/A	Oregon Department of Environmental Quality. Oregon Department of Geology and Mineral Industries.	N/A
South Dakota	**No State AML Program.**	South Dakota has identified 900 AML sites in the state. 65 **have been** reclaimed voluntarily by the USFS or private parties.	Unknown	South Dakota Department of Environment and Natural Resources. **The state has no organized AML program.**	South Dakota DENR serves in an advisory capacity to USFS and private parties, but has no funding internally.

Table 2. Examples of Progress Made by State Agencies in Addressing the AML Closure and Reclamation Issue.

State	Project Name	Project Description	Techniques Used or Considered	Principal Participating State Agencies	Partnership/Stakeholder Group
Washington	Cleveland Mine and Mill	Tailings removal, stabilization and reclamation.	Removal of tailings from creek; Consolidation of tailings in repositories; Stream restoration and stabilization; Water diversion; Revegetation.	Washington Department of Ecology, Abandoned Mine Land Initiative. Washington Department of Natural Resources.	Partnership with: BLM
Wyoming	Carissa Gold Mine	Remediation and restoration of AML mine and mill site for future tourism.	Removal and consolidation of waste rock and tailings; In-situ grade, neutralize, revegetation; Erosion BMPs; Shaft and adit safety closures (grated doors, PUF, panels, etc.); Historic structure restoration for future tourist use.	State of Wyoming (purchased the site in 2003). Wyoming Department of Environmental Quality. Wyoming Abandoned Mine Land Division.	Cooperative agreement: Multiple Wyoming state agencies; BLM.
	Copper Mountain Reclamation Project	Safety closures and reclamation of 13 underground mines and features in the Birdseye Pass Mining Area.	In-situ grade, neutralize, revegetation; Waste consolidation; Covered repository; Erosion BMPs; Backfilling; Safety closures (PUF, portal doors); Bat grates.	Wyoming Department of Environmental Quality. Wyoming Abandoned Mine Land Division.	Cooperative project: BLM, Fremont County, private landowners.
	Sun/Snowball/Heald Uranium Site Reclamation	Safety closures and reclamation of AML uranium sites.	Highwall reduction and partial backfill; Adit closure using PUF, bulkheads, and backfilled concrete walls; Diversion ditches; Erosion BMPs; Revegetation.	Wyoming Department of Environmental Quality. Wyoming Abandoned Mine Land Division.	No information.

GLOSSARY OF TERMS USED IN TABLE 2

Abandoned—A site with no private owner of record typically on land managed (and often owned) by a federal, state, or local government agency. These sites also have been referred to as "orphaned".

Adit—Horizontal opening from the surface to an underground mine. Also known as a tunnel.

AML Improvement Project—A collective and inclusive term meaning any combination of abatement, reclamation, or remediation measures that address one or more safety or environmental problems at an AML site.

Backfilling—Process of placing fill material (including mine waste) into a mine opening.

Bulkhead (Bulkhead seals)—Plugs in horizontal mine openings (adits or internal tunnels) used to obstruct entrance and to curtail or divert water flows. May be made of various materials and may have man-gates or doors included.

Covered Repository/Repository—Site, usually lined, in which mine waste is consolidated. Usually covered with topsoil or a combination of impermeable covers and topsoil. Domestic waste sites are examples of covered repositories.

Diversion Ditches—Constructed ditches placed around mine waste and repositories to divert clean water around the sites.

Erosion BMPs—"Best Management Practices" using various techniques to minimize and control wind and water erosion of soils and waste at reclaimed mine and mill sites.

Grade—Construction process that reduces high-angle slopes and produces engineered angles to reclaimed sites prior to topsoil placement and revegetation.

Grates—Covers over mine openings to prevent human access but allow air-flow and ingress and egress of various wildlife species such as bats and owls. May be called "bat grates" or "owl grates", and may be made of various materials.

Inactive—A site on patented/private land that, in contrast to an abandoned site, has an owner or owners of record. However, inactive mine owners are not typically the entity involved in the past mining activities that created the safety hazards or environmental problems. Moreover, some owners of inactive mines do not have the financial resources necessary to correct the safety and environmental problems.

In Situ—The process of regrading, covering, capping, or other measures to stabilize previously mined materials in place.

Neutralize—The process of adding amendments such as lime, limestone, or other alkaline agent to reduce acidity in acid-generating mine wastes.

Open Stope—A portion of an underground ore area that is mined out, or removed, to the surface producing an opening at the surface that is neither a shaft nor an adit. Open stopes are particularly dangerous.

Panels—Pre-constructed or constructed on-site, panels are slabs used to cover shafts or open stopes. They may be constructed of concrete, wood, polyurethane foam, or other materials.

Portal—The surface mouth of a tunnel or an adit allowing horizontal access to an underground mine.

PUF—"Polyurethane Foam". An inexpensive, expanding foam material widely utilized to close shafts and adits. Once the PUF plug hardens or "sets", it usually is covered with backfill and/or topsoil material.

Reclamation—The process of returning a site to a beneficial post-mining land use.

Remediation—The process of improving environmental conditions and reducing environmental risks. The terms "remediation" and "cleanup" are used synonymously.

Removal Actions—The process of removing and relocating previously mined materials to a mine waste disposal facility.

Revegetation—The process of seeding a reclaimed area. This definition includes the application of fertilizers and mulches as each site may, or may not, require.

Riparian Restoration—The process of returning the banks of a water-body (streams, rivers, ponds, lakes) to its previous undisturbed configurations.

Settling Ponds—Engineered and constructed small ponds used in some reclamation projects to hold waters for treatment or until suspended sediments drop out, allowing clean water to exit the ponds.

Steel Netting—Constructed steel cable nets used to close larger diameter shafts and open stopes while allowing ingress and egress of wildlife species.

Site—A specific "project". A project can be a district, area, property, or ownership block and can have multiple "features" such as adits, shafts, tailings facilities, and smelters, singly or collectively. However, a project also can entail, for example, closure of a single feature. The important point is that a "one-size-fits-all" definition for an AML site is not appropriate.

Shaft—Vertical entrance to an underground mine or ventilation or safety access to an underground mine.

Stream Diversion—Engineered process of re-routing a stream, creek, or flowing water body away from or around contact with mining wastes.

Stream Restoration—The process of returning a stream, creek, or flowing water body to its pre-disturbance configurations.

Wetland Restoration—The process of re-establishing a wetland where it once existed or returning a wetland system to its pre-disturbance configurations.

Table 3
The Scope and Nature of the AML Problem

Types of AML Problems	Examples of Typical Response Measures	Approximate Percentage of AML Sites[1]
Landscape Disturbances • Surface Disturbance that detracts from the aesthetic or natural appearance of the site • Discarded equipment, abandoned buildings in disrepair	• Regrading and recontouring disturbed areas to blend in with the surrounding topography • Revegetating regraded areas with native species • Removing and properly disposing of discarded materials • Dismantling and disposal of buildings	70%
Safety Hazards • Unrestricted and hazardous openings (shafts, adits, portals, stopes) • subsidence features and exploration excavations • Dangerous highwalls and open pits • Unsafe structures and dilapidated buildings	• Partial or complete backfilling of mine openings • Installation of gates, grates, and doors to impede access into mine openings, • Fencing around mine openings and hazardous highwalls and open pits • Signage to warn the public to avoid dangerous mine openings and highwalls • Removal of unsafe buildings.	20%
Environmental Problems • Erodible waste rock dumps, tailings deposits, and smelter wastes • Acid rock drainage form mine openings, waste rock dumps, and tailings deposits • Blowing dust from tailings piles • Contaminated soils • Chemical contamination from processing reagents	• Removing mine wastes and contaminated soils and placing in an authorized engineered structure • Stabilizing the wastes in-situ with engineered covers to prevent wind erosion and to minimize infiltration of precipitation • Treating (reprocessing) mine wastes to remove contaminants • Treating contaminated mine drainage with active and passive water treatment technologies • Rerouting drainages to avoid contact with mine wastes • Installing plugs in portals with drainage	10%

[1] Modified after: *Burden of Guilt*, 1993, Mineral Policy Center, *Cleanup of Abandoned Hardrock Mines in the West*, 2005, Center for the American West/ University of Colorado, *Abandoned Mined Lands – A Decade of Progress*, 2007, U.S. Department of the Interior Bureau of Land Management and U.S. Forest Service

TABLE 4.—KEY COMPONENTS OF GOOD SAMARITAN LEGISLATION

- Provide both Clean Water Act and CERCLA liability protection.
- Create Good Samaritan permits that provide unambiguous and complete legal liability protection against specified federal, state, and local environmental laws for AML cleanup activities that are performed according to the work plan authorized in the permit.
- Stimulate greater private-sector involvement in direct cleanup efforts and in making financial and in-kind contributions towards agency-led cleanup projects.
- Allow Good Samaritans to maximize the amount of money spent on the ground by streamlining the permitting process and eliminating the requirement to conduct a Potentially Responsible Party (PRP) search at sites that will be reclaimed using private funding. It should not matter whether there might be a

PRP. The goal should be environmental improvement, not finding someone to blame.

- Allow entities—including mining companies—that have no previous connection to a site and that did not create environmental problems at an AML to qualify as Good Samaritans.
- Eliminate liability exposure associated with performing the site work necessary to determine the scope of the AML environmental problems and to develop appropriate remediation plans.
- Make federal land management agencies and State AML Programs the lead agency(s) in reviewing and approving Good Samaritan permit applications, with assistance from State environmental permitting authorities for those states where EPA has delegated Clean Water Act authority.
- Encourage meaningful public input and collaboration in the permitting process and discourage the misuse of the public involvement process as a vehicle for delaying project cleanups.
- The environmental requirements for a Good Samaritan project should be wrapped into a single permit. The permit should be approved only if the project is technically sound and promises overall improvement to the environment and/or securing of safety hazards.
- Allow incremental cleanups using technically sound remediation measures that will result in an improvement to the environment—even if they will not result in the complete cleanup of all contaminants at an abandoned mine land site or the attainment of all otherwise applicable environmental standards, such as stringent water quality standards.
- Give the permitting authority(ies) discretion to make site-specific adjustments to environmental requirements and standards under state and federal environmental laws that could otherwise thwart Good Samaritan remedial actions.
- Recognize that reprocessing is a viable site environmental remediation technique that removes metal contaminants from historic mine wastes and produces a more chemically stable and benign waste product that can then be stored in a properly engineered facility.

ADDENDUM

I. INTRODUCTION AND EXECUTIVE SUMMARY

The Northwest Mining Association (NWMA) is submitting this addendum to supplement the testimony we provided at the March 12, 2008 Senate Energy and Natural Resources Committee hearing on Abandoned Mine Lands and Uranium. The focus of this addendum is to provide the Committee with a brief discussion of some concerns we have about the report entitled "HARDROCK MINING Information on Abandoned Mines and Value and Coverage of Financial Assurances on BLM Land" that Ms. Robin Nazzaro, the witness from the U.S. General Accountability Office (GAO), presented at the hearing.

Our review of the GAO report revealed two issues of concern:

- First, the report contains inaccurate and therefore misleading statements about the expenditures federal agencies (EPA, BLM, and OSM) have made during the period 1998—2007 to reclaim abandoned mines because roughly 30 percent of the $2.6 billion expenditure discussed in the report is for sites that either are not abandoned mines and/or are not on public lands open to operation of the U.S. Mining Law.
- Secondly, GAO's report raises concerns about the adequacy of the financial assurances BLM is holding to reclaim hardrock mineral projects but presents no useful information about the nature of the under-bonded projects that BLM, the Committee, and the public can use to evaluate whether there is a gap that needs to be filled in BLM's bonding policies.

Given the inaccurate and therefore misleading characterization of AML cleanup expenditures and the lack of adequate information about BLM's apparent bonding shortfall, the Committee may wish to ask the GAO to revise its report. The following is a more detailed discussion of our concerns.

II. THE GAO REPORT MISCHARACTERIZES FEDERAL AML CLEANUP EXPENDITURES

According to the GAO report, the Environmental Protection Agency (EPA), the U.S. Bureau of Land Management (BLM), the Forest Service, and the Office of Surface Mining Reclamation and Enforcement (OSM) spent $2.6 billion during fiscal years 1997 through 2007 cleaning up abandoned mines. Table 6 on page 23 of the GAO report, "BLM, EPA, and OSM Expenditures to Cleanup Abandoned Hardrock

Mines, by State, Fiscal Years 1988 to 2007," lists the expenditures made in each state and the percentage of the total $2.4 billion spent in each state.[1]

In the context of the policy question of how to amend the U.S. Mining Law to develop an AML reclamation fund to reclaim abandoned hardrock (i.e., Mining Law) mines, this expenditure figure is misleading for two reasons:

1) It includes a number of sites in mid-western, southern, and eastern states that do not have public lands that are open to location under the Mining Law; and

2) For the most part, the expenditures in the non-Mining Law states appear to be EPA expenditures at Superfund sites that are smelters and refineries that processed minerals produced by mining activities that occurred elsewhere, and/or are for mining activities on lands that are not governed by the Mining Law.

Table 1 shown on page 3 of this addendum modifies GAO's Table 6 to highlight the expenditures in states that do not have public lands open to location under the Mining Law or germane to the AML reclamation funding and policy questions that were the topic of the March 12th hearing.

As shown in Table 1, nearly 35 percent of the funds shown in GAO's Table 6 are for sites that do not belong in an analysis of the scope of the AML problem on lands governed by the Mining Law. Therefore, the GAO report is inaccurate and misleading. It obscures the actual federal expenditures to reclaim AMLs in western states with public lands that are open to mineral entry under the U.S. Mining Law and thus adds confusion rather than clarification. In order to make a more accurate and meaningful contribution to the Committee's database and analysis of the hardrock AML problem in the context of the Mining Law legislative debate, the Committee may wish to ask GAO to revise its report to focus solely on the AML issue in states with public lands open to the operation of the U.S. Mining Law.

Table 1
Modified GAO Table 6 Showing Expenditures Made in Non-Mining Law States and/or at Sites that are Not Mines (Dollars in Thousands)

State	BLM ($)	EPA ($)	OSM ($)	Total ($)	Rank	% of GAO Table 6 Total of $2.4 billion
New Jersey		271,473	0	271,473	4	11.29
Oklahoma		119,017	0	119,017	7	4.95
Missouri		101,648	489	102,138	8	4.25
Nebraska		74,331	0	74,331	10	3.09
New York		52,567	0	52,567	12	2.19
Texas		30,518	18,342	48,860	13	2.03
Pennsylvania		41,079	0	41,079	14	1.71
Vermont		27,473	0	27,473	16	1.14
S. Carolina		22,913	0	22,913	17	0.95
Kansas		19,704	536	20,240	19	0.84
Tennessee		15,493	0	15,493	22	0.64
Michigan		14,995	0	14,995	23	0.62
Minnesota		8,804	0	8,804	24	0.37
Illinois		7,201	724	7,925	25	0.33
Maine		1,761	0	1,761	28	0.07
Florida		1,611	0	1,611	29	0.07
N. Carolina		1.523	0	1,523	30	0.06
Kentucky		452	0	452	32	0.02
Ohio		248	49	297	33	0.01
Indiana		230	0	230	34	0.01
Virginia		154	0	154	35	0.01
West Virginia		139	0	139	36	0.01
Totals		**813,334**	**20,140**	**833,475**		**34.66**

[1] The text of the GAO report states that the expenditure analysis covers fiscal years 1997 through 2007. The 1988 date listed in the title of Table 6 appears to be an error. The $2.6 billion of expenditure discussed in the GAO report includes Forest Service expenditures for AML clean-up on National Forest System lands. Table 6 of the GAO report does not include the National Forest System lands expenditures and thus totals $2.4 billion rather than $2.6 billion.

II. GAO'S ANALYSIS OF THE ADEQUACY OF BLM'S RECLAMATION BOND HOLDINGS LACKS SUFFICIENT INFORMATION TO BE USEFUL

GAO's report describes an apparent shortfall in BLM's hardrock reclamation bond holdings for 52 projects nationwide based on an examination of BLM's LR 2000 database. As shown in Table 9 on page 28 of the GAO Report, Nevada had the greatest number (28) of inadequately bonded projects; Utah had five; California, Colorado, Oregon, and Wyoming each had four; Arizona had two; and Idaho had one.

It is unfortunate that the GAO Report does not provide more detail on the nature of the under-bonded sites because this detail is necessary to determine the reason(s) for these inadequate bonds. Without more detailed information, there is no way to make a useful analysis of why the bonds are inadequate—and more importantly—to determine what needs to be done to address this shortfall.

Perhaps the lack of analysis in the GAO report reflects GAO's concerns that the data examined and described in its report may not be reliable:

> This Bond Review Report is generated from BLM's automated information system—LR 2000. Although the LR 2000 data are of undetermined reliability, our limited assessment of these data indicates that they are appropriate as used and presented in this testimony, and we do not base any conclusions or recommendations on them. (GAO) Report, page 4)

NWMA urges the Committee to use similar caution in assessing the importance of GAO's analysis and meaning (if any) of GAO's findings regarding the adequacy of BLM's bonding program. There simply is not enough verifiable or detailed information in the GAO report on which to base any conclusions on the adequacy of BLM's bonding program or to make any recommendations regarding the bonding program.

Because the number of under-bonded sites identified in the LR 2000 database is fairly limited (only 52 sites nationwide) the Committee may wish to ask GAO and BLM to provide additional information about these sites. The LR 2000 database includes sites that are inactive but have case files that have not yet been closed. It is quite possible that site-specific information could reveal that some of the sites identified as having inadequate bonds based on the LR 2000 database are old projects that are no longer active and were bonded years ago when BLM's bonding requirements were considerably less comprehensive and stringent. At other sites there may be specific reasons that should be evaluated in the context of whether they represent discrete gaps in the current bonding program that need to be filled.

NWMA recently prepared a white paper describing the evolution of federal and state reclamation bonding requirements for hardrock exploration and mining projects (see Exhibit A). Based on the findings in this white paper, NWMA is confident that if an analysis of the 52 under-bonded projects in the GAO report reveals gaps in BLM's current bonding requirements, the agency already has sufficient authorities to correct any identified shortcomings.

The white paper describes how the Nevada mining industry and state and federal regulators recently worked together to update and refine bonding requirements. The resulting modifications to the Nevada bonding program reflect a collaborative effort to develop comprehensive and conservative bonds that consider all likely contingencies based on agency costs to implement, manage, and complete reclamation of sites requiring governmental intervention. These changes were made using existing authorities which give state and federal regulators the necessary tools to protect the environment, to ensure proper reclamation, and to deal effectively with problems, gaps, or unforeseen situations should they develop in the future.

GAO should revise its analysis of the scope and adequacy of reclamation bonds in Nevada using current and agency-verified data. In a recent news release (see Exhibit B), the Nevada Division of Environmental Protection, the Nevada Division of Minerals, the BLM, and the U.S. Forest Service announced that they cumulatively hold $1.031 billion in reclamation bonds for hardrock mineral exploration and mining projects in Nevada. This news release states that these agencies will use this bond reserve to reclaim sites in the event an operator goes bankrupt of fails to properly reclaim a site.

Although there may be a few active projects in Nevada or in other states at which the reclamation bonds need to be increased, current bonding regulations already give state and federal regulators the necessary authority to require operators to provide additional financial assurance. At a minimum, the 43 CFR 3809 regulations give BLM the authority to require operators to update or modify Plans of Operation to reflect on-the-ground developments. These Plan updates and modifications typi-

cally include increases in the amount of required financial assurances. The State of Nevada's NAC 519A bonding regulations require that bonds be reviewed and updated at least every three years and sooner if the project is modified.

The bonding shortfall described in the GAO report needs to be reevaluated in light of current information and existing regulatory authorities. If a site-specific analysis of the under-bonded projects reveals that some of the projects in question are still active, BLM should be encouraged to demand additional financial assurance as authorized and mandated in the 43 CFR 3809 regulations.

EXHIBIT A—THE EVOLUTION OF FEDERAL AND NEVADA STATE RECLAMATION BONDING REQUIREMENTS FOR HARDROCK EXPLORATION AND MINING PROJECTS

A CASE HISTORY DOCUMENTING HOW FEDERAL AND STATE REGULATORS USED EXISTING REGULATORY AUTHORITIES TO RESPOND TO SHORTCOMINGS IN THE RECLAMATION BONDING PROGRAM

INTRODUCTION AND EXECUTIVE SUMMARY

This Northwest Mining Association (NWMA) white paper documents the evolution of the federal and the Nevada state bonding requirements for hardrock exploration and mining projects. Although this white paper focuses primarily on Nevada—the state with the most exploration and mining activity on federal land and the hub of the U.S. gold mining industry—other western states have similar regulatory programs and reclamation bonding requirements for hardrock mineral activities.

Key findings in this white paper include:

- The Nevada mining industry and state and federal regulators recently worked together to update and refine bonding requirements.
  - —The resulting modifications to the Nevada bonding program reflect a collaborative effort to develop comprehensive and conservative bonds that consider all likely contingencies based on agency costs to implement, manage, and complete reclamation of sites requiring governmental intervention.
- Existing federal and Nevada state laws and regulations governing hardrock exploration and mining clearly provided the necessary authority and flexibility for regulators to make changes in response to the problems encountered during agency reclamation of several bankruptcy sites.
  - —Federal and Nevada regulators—with the mining industry's full participation and concurrence—have significantly improved and expanded reclamation bonding requirements in the last few years based on the lessons learned at the bankruptcy sites.
- Existing federal and Nevada state laws and regulations include comprehensive environmental protection and reclamation bonding requirements for hardrock mines.
  - —These laws and regulations already give regulators the necessary tools to protect the environment, to ensure proper reclamation, and to deal effectively with problems, gaps, or unforeseen situations should they develop in the future.
- The recent changes that federal and Nevada regulators made to the bonding program clearly demonstrate that the current federal and state regulations work well.
- The sweeping changes to the nation's environmental and regulatory programs governing hardrock mining that are included in the House Mining Law bill (H.R. 2262) are not needed.
  - —The environmental provisions in H.R. 2262 are solutions in search of a problem which seek to fix a system that is working well and does not need "fixing."

HISTORICAL OVERVIEW OF FEDERAL AND NEVADA RECLAMATION BONDING PROGRAMS

The U.S. Forest Service Has Required Reclamation Bonds Since 1974

The U.S. Forest Service (USFS) has had bonding requirements for mineral projects on National Forest System lands dating back to 1974. The USFS's bonding program is included in Section 13 of the USFS's surface management regulations at 36 C.F.R. Part 228 Subpart A ("the 228A regulations".) In contrast to the original version of the Bureau of Land Management's (BLM's) regulations, which did not require bonds for small projects, the USFS regulations have always given District

Rangers the discretionary authority to require a reclamation bond for any mineral activity that requires a Plan of Operations. Therefore, since 1974 when the 228A regulations went into effect, the USFS has almost always required a bond for all exploration road building, trenching, and drilling projects and for all major mineral projects on National Forest System lands. Like the BLM bonding program described below, when calculating bonds for operations on National Forest System lands, the agency assumes it will perform the reclamation work using government contracting procedures.

BLM Has Required Bonds Since 1981

Since 1981, companies conducting exploration or mining activities affecting more than five acres of BLM-administered public lands have had to secure BLM's approval of a Plan of Operations that includes a Reclamation Plan and a reclamation cost estimate, and have also had to provide BLM with a reclamation bond. This bonding requirement is part of BLM's Surface Management Rules for Hardrock Minerals at 43 C.F.R. Subpart 3809 ("the 3809 regulations.") The amount of the required bond reflects the assumption that BLM—not the company—will perform the reclamation using third-party contractors in accordance with government contracting procedures. This means the reclamation cost estimate is calculated using Davis-Bacon wage rates and includes government administration fees and other charges related to BLM's management of the reclamation effort.

The original 1981 version of the 3809 regulations did not include a bonding requirement for Notice-level projects that disturbed fewer than five acres of public land. As discussed below, in 2001 BLM expanded its bonding program to include Notice-level projects. During the early years (1981 to 1990) of the 3809 regulations and BLM's bonding program, reclamation cost estimates were typically based on a uniform reclamation cost per acre factor that was simply multiplied by the amount of surface disturbance at a site. Although this approach simplified the preparation and review of bond cost estimates, it also increased the risk of inaccurate cost estimates. In the early 1990s, reclamation plans became considerably more detailed and were designed based on site specific conditions. This produced more detailed and realistic reclamation cost estimates.

Nevada's State Bonding Regulations Started in 1990

Nevada's regulations for "Reclamation of Land Subject to Mining Operations or Exploration Projects" (NAC 519A) became effective in October 1990. The Nevada mining industry supported the development of these regulations and the authorizing statute (NRS 519A). The Nevada regulations include stringent requirements for reclamation plans and reclamation bond cost estimates for projects on public, state, and private lands. Therefore, with the advent of the NAC 519A regulations, all Nevada mines and exploration projects affecting more than five acres—regardless of land status—require a reclamation bond. The Nevada Division of Environmental Protection/Bureau of Mining Regulation and Reclamation (NDEP) manages the Nevada reclamation bonding program cooperatively with BLM and the USFS under the terms of an interagency Memorandum of Understanding.

BLM Expanded the 3809 Bonding Program in 2001

By the late 1990s, all Plans of Operations had an accompanying detailed reclamation plan and cost estimate upon which the reclamation bond was based. But exploration projects that disturbed fewer than five acres were still operating under a Notice without a reclamation bond on BLM-administered lands.

In 1999, the National Research Council (NRC) published a study entitled "Hardrock Mining on Federal Lands." One of the recommendations from the NRC study was that BLM should require a bond for all surface disturbing activities, including Notice-level exploration projects affecting fewer than five acres. The mining industry supported this finding and encouraged BLM to modify the 3809 regulations to expand the bonding requirements to include Notice-level exploration projects. In 2001, BLM implemented a new bonding requirement for Notice-level projects.

USFS Updates its Bonding Guidance in 2004

By the 21st century, the USFS, BLM and state agencies had acquired significant experience in reclaiming and closing abandoned and bankrupt mine sites. In order to document this knowledge and experience, and to ensure that reclamation bonds are adequate to fund reclamation and closure, the USFS issued a document entitled "Training Guide for Reclamation Bond Estimation and Administration" in April 2004. This Guide is designed to be used in estimating new bonds and updating existing bonds for projects on National Forest System lands.

AGENCY RECLAMATION OF SEVERAL BANKRUPT CITES REVEALED THE NEED FOR EXPANDED BONDING REQUIREMENTS

By the late 1990s, the industry had closed a number of modern mine sites using the techniques commonly included in BLM and Nevada State reclamation plans of that era. However, NDEP and the federal land management agencies (i.e., BLM and the USFS) had closed and reclaimed only a few sites using funds from reclamation bonds.

In the late 1990s—early 2000s timeframe, historically low metal prices forced a few companies to declare bankruptcy. These bankruptcies tested the scope and efficacy of the federal and state reclamation bonding programs—programs that were supposed to provide regulators with sufficient financial resources to reclaim abandoned or bankrupt mines. However, as NDEP and the federal agencies used the reclamation bonds to close and reclaim the bankrupt sites, program-wide deficiencies and inefficiencies became readily apparent. This led to the realization that the bonds for nearly all of the bankrupt sites were inadequate for NDEP, BLM, and the USFS to implement and complete the approved reclamation plans.

The Nevada mining industry, NDEP, and federal regulators readily agreed that this situation was unacceptable and that changes in the bonding requirements were needed. Working cooperatively over the next few years, the industry and state and federal regulators identified the specific deficiencies and found solutions to address each one to ensure that adequate funding would be immediately available to state and federal agencies should any other bankruptcies occur.

This cooperative effort between the mining industry and regulatory agencies in Nevada has resulted in a program that is embraced as being fair, defensible, and accurate. All parties recognize this program may result in somewhat conservative cost estimates. However, the shared commitment to capitalize upon the lessons learned from responding to unexpected situations at the bankrupt sites and to modify the bonding program to eliminate the shortfalls that were due to these unexpected situations makes a conservative approach essential. The resulting bonding program provides comprehensive cost estimates that consider all likely contingencies.

Similar industry-agency collaboration recently occurred in Montana where the Montana Mining Association and the Montana Department of Environmental Quality worked together to update Montana's bonding requirements. This cooperative effort resulted in a bill, HB 460, which Montana Governor Brian Schweitzer recently signed into law to amend the Montana Metal Mine Reclamation statue to provide for temporary bonding in unanticipated circumstances.

THE COOPERATIVE INDUSTRY—AGENCY REVIEW REVAMPED THE BONDING PROGRAM TO ADDRESS ALL IDENTIFIED SHORTCOMINGS

The following are the major issues identified during the review and revamping of the mine closure and reclamation bonding requirements. The identified shortcomings were rectified as described below:

Identified Shortcoming.—Some types of costs which would be incurred should a regulatory agency assume responsibility for closing a mine site had not been adequately anticipated or included in the previous cost estimates. Because the agencies' and industry's experience with mine closure at that time was based on planned and orderly closure performed by the mine owner, some costs associated with government management and the timing of mine closure had not been anticipated. For example, some sites required immediate management of process solutions to ensure that the environment was protected, but the process of obtaining the money from the bonds often took several months, during which time bond funds to manage the site were not available. Other emergency funding programs were used to cover this deficiency at that time.

Implemented Solution.—The Nevada mining industry set up and funded a program to ensure that funds would be immediately available for site management at any site declaring bankruptcy. Now all bonds calculated in the state of Nevada must include the cost for managing the site including all process fluids, for a period of six months under typical care and maintenance conditions.

Identified Shortcoming.—The hourly equipment rates used in the bond cost estimates did not reflect the agencies' costs to contract the work to third parties. The equipment rates used in the bonds were based on a number of sources and varied widely from site to site.

Implemented Solution.—A small working group comprised of Nevada mining industry professionals and regulators investigated a number of options to pro-

vide realistic hourly equipment rates and ultimately decided that the local equipment suppliers' monthly, single-shift rental rates were most appropriate—even though it is highly unlikely that a contractor would only work their equipment for 40 hours per week on this type of job.

Identified Shortcoming.—Some of the bonds assumed that the equipment at the site would be the same types of equipment used for reclamation. Because some of the equipment used at mine sites is larger than the equipment a reclamation contractor would typically have available, this assumption was inappropriate and produced inaccurate reclamation cost estimates.

Implemented Solution.—Another small working group comprised of Nevada mining industry representatives and regulators reviewed the types and sizes of equipment readily available from contractors and suppliers in Nevada and limited the equipment choices for reclamation bond costs to that equipment.

Identified Shortcoming.—The productivity (quantity of work performed per hour) used for different equipment varied considerably in some of the bond cost estimates. Because the productivity of reclamation equipment has a direct impact on the time required to perform the reclamation activities, it also affects the cost estimate.

Implemented Solution.—Nevada mining industry experts and the regulatory agencies determined that equipment productivities should be calculated based on accepted, published sources such as equipment manufacturers' handbooks, engineering manuals, and published construction cost databases to provide defensibility and consistency. In addition, typical correction factors were defined to ensure that the productivities represented an average range of conditions. This is believed to represent a conservative approach because the contractors typically used in the western U.S. for reclamation work have highly experienced staff.

Identified Shortcoming.—The costs for and timing of process fluid stabilization and management were inconsistently calculated. The time required to stabilize a site for long-term passive management is directly related to the time needed to reduce the inventory of any remaining process fluids and ensure that the reclamation plan will limit the amount of water that must be managed in a passive management system. Estimating a short-and long-term water balance for a site requires a combination of science, engineering and experience. The industry has spent considerable effort globally in recent years to better understand this process for sites in closure. Most importantly, it is recognized that although common approaches can be applied, each site is different and requires detailed analysis to define the parameters that will affect closure costs.

Implemented Solution.—Standard approaches and tools that use site specific data have been defined by federal land management agencies and state regulatory agencies along with minimum design criteria and site data required to properly estimate the time and effort required to manage any solutions remaining on-site at closure.

Identified Shortcoming.—The estimate of both long-term site management and monitoring were not always adequate. The requirements and period required for long-term site management and monitoring are highly site-specific. However, the same approach used to bring consistency to the calculation of process fluid stabilization can be used to determine what, if any, long-term management and monitoring is required.

Implemented Solution.—Site-specific studies and design requirements will determine the need and requirements for long-term site management and monitoring. Often, it is uncertainty that will dictate if or how much funding must be in place for long-term site management. In these cases, trust fund-type approaches are often used to ensure that there will be funding for both expected and unknown future site requirements. Monitoring requirements are typically based on the need to demonstrate stability at the site based on trends in empirical data. This will vary by site, but most regulatory agencies have guidelines for minimum requirements. Nevada's Water Pollution Control regulations allow NDEP to require a 30-year monitoring period, or longer if needed.

Identified Shortcoming.—Some miscellaneous costs were not adequately captured in some cost estimates. The cost for removal of small infrastructure (e.g. power lines, substations, pipelines, etc.) were not included or underestimated. Other miscellaneous costs such as fence removal or installation, hazardous waste removal,

construction or removal of erosion and sediment controls were inconsistently addressed.

Implemented Solution.—Nevada mining industry personnel and the regulatory agencies cooperatively developed a checklist of miscellaneous costs that must be considered for each site.

Identified Shortcoming.—The cost to mobilize and demobilize (mob/demob) equipment from the sites was often excluded or inadequately estimated. The cost to move equipment to and from a site being reclaimed will be added by a contractor to the overall cost of reclamation. Although this cost primarily included the direct costs to transport equipment and materials to the site, some contractors also include other costs in this line item.

Implemented Solution.—The specific items that should be included in the mob/demob cost were defined by a small working group and local transport companies were contacted to determine the cost incurred to transport the necessary equipment to and from the site by a third-party transporter. Other common costs such as the establishment and use of office trailers, portable power and sanitary facilities were added to Nevada reclamation bonding guidelines as separate line items.

Identified Shortcoming.—Out of date costs were used in some bond cost estimates. Although Nevada's regulations require that bond costs be updated every three years, the hourly rates often change annually based on economic conditions. Although most annual variations are generally small, cost estimates should be based on current rates.

Implemented Solution.—NDEP and federal regulatory agencies update equipment, labor and material rates each year and post the current rates on a public web site for use in reclamation bond cost estimates.

EXHIBIT B—NEVADA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION DIVISION OF ENVIRONMENTAL PROTECTION

[NEWS RELEASE]

March 13, 2008

MINE RECLAMATION BONDING SURPASSES $1 BILLION

CARSON CITY—Reclamation bonding that guarantees the environmentally friendly reclamation of Nevada mines should they be abandoned has surpassed the $1 billion mark, state and federal officials announced today.

A state law, enacted in 1990, mandates that all mining operations and exploration projects greater than five acres in size obtain a reclamation permit and post a financial guarantee to ensure that reclamation activities are completed in the event the operator is unable or unwilling to complete them.

"The fact that this bonding pool is strong and growing should reassure all Nevadans that closure and reclamation of abandoned mines will continue in an orderly manner, and the state's environment will be protected," said Dave Gaskin, chief of the Nevada Division of Environmental Protection's (NDEP) Bureau of Mining Regulation and Reclamation.

He said the amount of bonding is one of the largest in the United States, and reflects the mining industry's commitment to environmentally responsible reclamation of mine sites in Nevada.

Currently, the financial guarantees can be filed with NDEP, as well as the State Division of Minerals, the U.S. Forest Service and the U.S. Bureau of Land Management (BLM). Collectively, the agencies now hold $1.031 billion in reserve to finance reclamation activities. That total includes: $613 million in letters of credit, $226 million in surety bonds, $180 million in corporate guarantees, $7.3 million in cash, $2.1 million in bonds administered by the Division of Minerals, and $2 million in certificates of deposit.

Administered jointly by the state and federal agencies, the bonding pool has grown substantially in recent years due to expansion of the state's mining industry and implementation of more precise cost-estimating guidelines.

In 2006, NDEP posted on its webpage the Nevada Standard Reclamation Cost Estimator, an EXCEL workbook that contains standardized cost data such as current Davis-Bacon labor rates, applicable fuel costs, equipment rental rates, mobilization and demobilization costs, and other data that the mines use to calculate the cost of their reclamation efforts. The standardized cost data and the associated cost cal-

culation spreadsheet were developed in a collaborative effort between the BLM, the Nevada Mining Association and NDEP.

The CHAIRMAN. Thank you very much.

We have a lot of good testimony here and a lot of questions, and I am sure all members have. Let me just start with a few and then call on Senator Domenici for questions.

Mr. Bisson, let me ask you from the perspective of the BLM, do you see a reason that uranium which, of course, is an energy mineral, should be leasable as are other energy minerals, as opposed to locatable? I guess that is one of the key issues that has been raised here with regard to the rewrite of this mining act.

Mr. BISSON. Senator, I actually have not considered that question. We are complying with the law. At one time, it was leasable and then it became locatable. So what we are trying to do is administer that program.

If you could ask me the question in writing, I think the administration would consider a position on it, but I cannot respond to it today. I really have not thought about a response to it.

The CHAIRMAN. OK.

Could you explain—or any of the witnesses, any of you explain—this distinction between the uranium mining that is done under the Mining Act and the uranium mining that is done in this separate program that the Department of Energy has operated where they do lease property? Are you familiar with that?

Mr. BISSON. I have read about it.

I can tell you that the activity that happens on, as an example, public lands administered by BLM is primarily exploration, looking for the mineral, and mining. The processing that occurs actually happens elsewhere. They do not process that ore on Federal lands.

In the other program that DOE administers, I think that they may do both on those sites or near those sites.

There is an annual royalty on those leases that I am aware of and a production royalty as well, as the mineral is actually mined and processed.

The CHAIRMAN. Did you look into this, Ms. Nazzaro? Are you familiar with the two different ways in which we deal with this?

Ms. NAZZARO. I am familiar with some of what DOE does, and Mr. Bisson is correct in that there is a processing also involved there. It is not just the exploration and extraction of the minerals, and I believe GAO is doing some work right now for this committee.

The CHAIRMAN. Mr. Brancard, let me ask you. One of the issues you raised, of course, is this new interpretation of SMCRA, this Surface Mining Act. I think maybe you are aware that we are introducing a bill this week with Senator Domenici and Senator Salazar, Senator Allard, and maybe several others of us here to try to reverse the interpretation that the administration has put on this; that prohibits the use of these funds for hardrock sites. I assume that that would be helpful to the State of New Mexico and other western States, to get that revenue flowing again for hardrock mining reclamation. Am I right about that?

Mr. BRANCARD. Yes, Mr. Chairman. This involves about $20 million over the next 7 years to the State of New Mexico which, under the Interior Department's interpretation, we can only use at coal

AML sites. If the change in the law goes through, we will be able to use them at either coal or non-coal and, therefore, at these hardrock sites that we are discussing today.

The CHAIRMAN. Am I correct in thinking that the biggest problem we have, as far as reclamation goes, mine site reclamation in New Mexico relates to hardrock mining. Is that right?

Mr. BRANCARD. Yes, Mr. Chairman. The 15,000 mine openings number that I gave you includes both hardrock and coal but is probably about 95 to 99 percent hardrock.

The CHAIRMAN. Let me ask Mr. Ferguson. The Forest Service, in your dealing with these issues, do you have any additional or any different standards that you apply in the case of uranium mining operations that are located on Forest Service lands as distinct from other types of hardrock mining that may occur on Forest Service land?

Mr. FERGUSON. No, Mr. Chairman. We handle those pretty much in the same process.

I will just add that there are situations when a mineral like uranium or other locatable mineral can become a leasable mineral if it is on acquired lands. So we do have situations on some of our national grasslands and on some of our other areas where we have acquired those lands, and that mineral, because of the status change in the statute, can become a leasable mineral where previously under public domain lands it would be a locatable or a mining claim approach.

The CHAIRMAN. That is because while it is in private holding, there will have been a lease term arranged with the previous owner. Is that what you are saying?

Mr. FERGUSON. I think it is not as much about the private arrangement, but it is the status of the land when it came into our management responsibility. If it was public domain land, then the 1872 Mining Law is the law that affects those minerals. If we acquired that land and the mineral estate through a Weeks Act or some other legislation that gave us the authority to acquire that land, then that mineral commodity changes to a leasable.

We have that, for instance, in Missouri. We have lead mining. In lots of other parts of the country, that lead would be a locatable mineral under the Mining Law, whereas we lease lead on the Mark Twain National Forest with the BLM. We do that jointly with the BLM.

The CHAIRMAN. Let me defer to Senator Domenici for his questions.

Senator DOMENICI. Thank you, Mr. Chairman. I was just chatting with the staff about something that I had heard and I wanted to clarify it for the record. I think maybe the next panel would help, too.

One of you mentioned that under an existing administrative action, certain lands are leased for mining of uranium and the government is paid for the mining on a royalty basis. Who mentioned that?

Mr. BISSON. I mentioned that, Senator. Just from documents that I have read recently, the Department of Energy has specific areas. They have a number of existing leases that are out there right now where the lease contract has an annual royalty requirement, and

then they have a production royalty for any yellowcake that is produced on those sites. That is very different from what happens on public lands.

Senator DOMENICI. But that is public.

Mr. BISSON. Yes, sir, you are correct. From lands administered by BLM.

Senator DOMENICI. Nobody has looked up where they get that authority. You just have seen documents showing it.

Mr. BISSON. Yes, sir.

Senator DOMENICI. I do not want to waste our time on it, but I would just like to make sure——

Mr. BISSON. I will get a copy of the documents. I have them with me, but I would have to go through the book to find it. But we will get them to you, sir.

Senator DOMENICI. Whatever you have, if you do not mind giving us those, we would like to have them.

The CHAIRMAN. I would just point out I think we do have a witness on the second panel from the Department of Energy, and this is done by them. So I think he will be able to testify about this in some detail.

Senator DOMENICI. The reason I ask is because if any mining is going on and they are charging royalties, one of the questions that keeps going around here is that we do not know what we ought to set as a reasonable royalty. There may be something helpful in that. It might be too low, it might be too high, but it might be all right, if it is working. So we could learn something from it.

Let me just move to Bill from New Mexico. I am not at all pleased with Interior's opinion that the SMCRA amendments passed in 2006 alter State authority to prioritize abandoned mine funding. I believe that they are wrong because that section of the statute was left unchanged. Senator Bingaman and I, along with other members, will seek to fix the problem, but can you clarify exactly how harmful that opinion is to important the reclamation work that you stand to do?

Mr. BRANCARD. Yes, Senator Domenici. There is a unique opportunity that States have under the amendments in SMCRA in 2006 where money that was previously allocated to the States under SMCRA, but never appropriated by Congress, is now coming to the States over a 7-year period. So we are getting this chunk of $20 million that we can do a lot of work with over the next 7 years, but now under this Interior appropriation, that work can only occur on abandoned coal mines. So the long list of abandoned hardrock mines—we will not be able to touch any of them with this new money.

Senator DOMENICI. So you were all ready. You knew what you were going to do, and now that has been aborted.

Mr. BRANCARD. Yes, sir, Senator.

Senator DOMENICI. How many abandoned mines might you have been able to fix if we kept that bunched together and you got your portion of the $20 million?

Mr. BRANCARD. It would be several hundred, probably over a thousand.

Senator DOMENICI. Thank you.

Mr. Ferguson, we hear about mining claims near our national parks which had been dealt with in legislation a number of times in the past. In 1984, for example, we passed the Arizona Wilderness Act. Did this bill put areas around the Grand Canyon off limits to location and entry under the Mining Law that were previously open to mining? Can you list some of the possible options that Congress and the agencies have for removing areas from public mining activities?

Mr. FERGUSON. Yes, Senator. My information regarding the Arizona Wilderness bill of 1984, I think as you mentioned—there is an area of about 50 or 60 miles south of the Grand Canyon. I think it was called the Kendrick Mountain area that was a wilderness area. That is the closest wilderness area that I am familiar with to the Grand Canyon. As I understand it, it is pretty much silent on any language in terms of withdrawing it from mineral activity.

In terms of, I think, your second question, what are some of the other ways that could be done, the most common we see is legislative, a withdrawal coming from Congress.

Senator DOMENICI. I have some more but I will submit them in writing.

The CHAIRMAN. All right.

Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman. I think my colleague from Montana was——

Senator TESTER. Go ahead.

Senator CANTWELL. Thank you. I thank my colleague's indulgence.

Mr. Chairman, I know we did not have an opening statement, but if I could submit a longer statement for the record. I know on our second panel, which I do not know that I will be here for, the Navajo Nation President is giving testimony, and I certainly feel like his testimony and that of the Spokane tribe who has been impacted by the Midnight Uranium Mine in Spokane, which is on the reservation and now a Superfund site, had many health problems. I am sure there are going to be many similarities of thoughts and views there. So I will miss his testimony, but if I could put a longer statement into the record on that, I would appreciate it.

The CHAIRMAN. We will include your full statement.

[The prepared statement of Senator Cantwell follows:]

PREPARED STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

Mr. Chairman, thank you for holding hearings to examine the best way to update the antiquated 1872 Mining Law. I'd also like to thank President Shirley of the Navajo Nation for being here today to share with us the story of the devastating health and environmental effects that uranium mining has had on the Navajo Nation. This is a sad but important story to tell, and a story that is familiar to the Spokane Tribe in Washington state. It also underscores the need to enact strong environmental protections to prevent these types of environmental and health hazards from mining in the future.

As the Spokane Tribe is painfully aware, the abandoned "Midnite" uranium mine on the Spokane Tribal Reservation is now a Superfund site and has also created serious environmental and health problems. Like the Navajo Nation, many former Spokane tribal mine workers have developed cancer or have died. Although mining operations ceased at the Midnight Mine in 1981, the full scale of the health impacts associated with such activities are not yet known.

Tribal representatives tell of family and friends who worked at the mines and mills being diagnosed with cancer at a seemingly disproportionate rate. This is

borne out by the shocking statistic that the median age of Tribal members living on the Spokane Tribe Reservation is 26 while the median age of their neighbors in Stevens County 37. Moreover, a significant lack of resources and access to health care for tribal members has likely exacerbated the problem.

I know that the Navajo Nation has been working with the Department of Justice since the early 1990s under a federal program to secure compensation for sick uranium miners. This program was started to help sick workers who conducted uranium mining and processing activities prior to 1972 which were critical to the production of atomic weapons during the Cold War.

Unfortunately, the Spokane Tribe is still working to secure assistance under this program for its members. Members of the Spokane Tribe need immediate assistance on their potential eligibility for compensation for their illnesses. I look forward to working with the Spokane Tribe and the Department of Justice on helping the tribe under this program, but I also believe we must examine how to prevent these types of environmental and health hazards from mining in the future.

The 135 year old Mining Law remains a relic of Western expansion. The legacy of this law can be seen throughout the West. More than 500,000 abandoned mines litter our public lands—including an estimated 3,800 abandoned mines in Washington. The price tag to clean up these abandoned mines is estimated at $50 billion, and nearly 40 percent of western headwaters are contaminated by runoff from these abandoned mines.

Many mining operations continue to leave a legacy of perpetual water pollution and the 1872 Mining Law contains no environmental or reclamation standards to deal with this issue. Vital waterways are polluted by these abandoned mines, and some of these sites now pose serious threats to the health and safety of communities downstream. While modern mines are required to post financial assurances for cleanup, existing mining laws do not specify how, or how much, a mine should be cleaned up. As the Senate undertakes comprehensive mining reform, these devastating loopholes must be closed.

The 1872 Mining Law also allows foreign and domestic mining companies to take minerals from federal lands without paying royalties, allows public land to be purchased at less than $5 an acre, and has no environmental provisions for the protection of water supplies, wildlife, and landscapes. Last November, the U.S. House of Representatives passed legislation that would reform the Mining Law and provide for a program for the reclamation of abandoned hardrock mines. This year, the Senate Energy and Natural Resources Committee is working on its own version.

Senator Wyden and I recently circulated a Dear Colleague letter where we outlined major areas of concern with this mining law which include

- putting hardrock mining on par with other public land uses;
- protecting national parks, monuments, and special places;
- giving local communities a voice;
- establishing environmental performance and reclamation standards;
- ensuring the protection of the water resources;
- and accelerating abandoned mine land clean-up

Addressing these issues will lead to much-needed environmental and taxpayer protections.

Some argue that pollution from mines results almost entirely from historic operations and that "modern" mines that are governed by newer environmental laws are responsible, problem-free operations.

It is true that historic mining polluted and continues to pollute rivers, streams and aquifers and that, until 1976, there were no federal regulations written specifically to govern hardrock mining operations. However, many mines that began operations in the past three decades have spilled cyanide, killed aquatic life, caused pollution that will require treatment in perpetuity, and burdened the taxpayers with huge liabilities.

Some examples include the Grouse Creek Mine in Idaho in 1994, where a tailings impoundment began to leak cyanide. Other examples include the Beal Mountain and Kendall mines in Montana, the Formosa mine in Oregon, and the Jerritt Canyon mine in Nevada. There are many more. These examples of modern mines that fail clean water standards demonstrate that current environmental authorities that apply to hardrock mining are not sufficient to protect the health and welfare of our citizens, environment, and economy.

The time has come to end the preferential treatment that hardrock mining receives under the 1872 Mining Law and to craft mining reform legislation that responsibly balances mineral development while protecting iconic places and western waters. I look forward to working with this Committee to pass legislation that man-

ages our nation's natural resources in an environmentally and fiscally responsible manner.

Senator CANTWELL. Thank you.

Mr. Ferguson, the 1872 Mining Law talks about mining as the highest and best use on public land. I know that Federal land managers have argued that the law forces them to approve mining projects proposed on public lands regardless of competing resource values. That is, I know there was an EIS for a proposed gold mine in Idaho where the Forest Service emphasized that it "did not have the authority to select a no alternative" under the 1872 act.

So under law, how is it possible for managers to better balance the mineral activities with other public land uses, given that challenge and how you are interpreting the law?

Mr. FERGUSON. Thank you, Senator.

I think the best way that I would answer that is in a large mine proposal like that, most of the time—I would say all the time an environmental impact statement is required. That is a very public process, and I think the statement about the rights in the 1872 Mining Law—there are rights that are there to be developed. But there is a great desire to mitigate impacts, and we are bound to try to follow all the other statutes and all the other laws, the Clean Water, Endangered Species Act. So we involve the public through that environmental impact statement process under the National Environmental Policy Act. That is the best way that I see us trying to balance those.

Senator CANTWELL. But what about no action?

Mr. FERGUSON. I am not sure that I have a really great answer for you right now on the no action other——

Senator CANTWELL. Do you not think we should change that? I mean, since we are looking at updating the law, do you not think we should change that?

Mr. FERGUSON. It would be an option to be considered, I think. The issue, I think, with the no action is the fact that there are rights under the 1872 Mining Law and I think that would be a perfect time to look at it.

Senator CANTWELL. Thank you.

I want to pronounce your name right.

Ms. STRUHSACKER. It is Struhsacker.

Senator CANTWELL. Struhsacker. Thank you very much.

Do you oppose extending to local and tribal governments the right to petition for withdrawal of certain lands for important clean drinking water, recreation, and endangered species habitat? What I am trying to get at is that I think that there have been arguments that current environmental laws and authorities are sufficient to enable that kind of input.

Ms. STRUHSACKER. Thank you, Senator Cantwell.

We fully support the role that local communities do and should play in evaluating proposed mining projects, and we can point to many, many projects where there has been a very good collaboration between local communities, mining companies, regulatory agencies to find the best possible project for that community and for that area.

The reason we have a difficulty with the proposal that I think you are referring to, which is in H.R. 2262, the House Mining Law

bill, that gives local communities essentially a veto power over a project on the basis of where that project is located, is that when you are considering mining policy, one of the concepts that you have to keep foremost in your mind is that we do not get to choose where our mineral deposits are located. The forces of geology and mother nature locate those deposits, and if we are lucky enough to discover a deposit after an expenditure of many tens of millions of dollars, we cannot simply move that project, that deposit to somewhere else because some people are concerned about that area.

Now, it has been our experience that if people will work together, we can find the win-win to develop a mine and to be responsive to people's concerns about the environment. There is a really excellent example, Senator Cantwell, in your State in Okanogan County with the Buckhorn Mountain Mine that was originally proposed as an open pit mine that I know you have a lot of familiarity with. There was a lot of local opposition to it. The mining company went back to the drawing board, sharpened its pen, came up with a completely new mine plan for a small underground mine, for which there is tremendous local support.

So we think that it is very problematic to give people a veto power on the basis of just where the project is located, that a far better solution is to work together, address concerns, and find a way to solve them.

Senator CANTWELL. I would say that you almost have a de facto veto on clean water then because part of this issue is about clean water, and when you look at the runoff from some of these facilities that still exists and the damage that they have in the communities and who is cleaning up—I mean, I do not know if you are saying that you would do an independent, guaranteed reclamation bond to fully cover the cost of maintenance and treatment and things of that nature. You can answer that if you want. I know my time is running out.

But the issue here is if the Federal Government cannot chose "no action," and tribes and communities cannot protest based on the impact on clean water, and then the mines are not obligated for the cleanup and the impact of that on a future perspective, we just have a horrible cycle here. We already know the damage that has been done. This is about stopping the damage from being done in the future.

Ms. STRUHSACKER. Mr. Chairman, may I answer that question?

The CHAIRMAN. Yes. Why don't you answer that one, and then we will go on to Senator Craig.

Ms. STRUHSACKER. OK.

Senator Cantwell, the Clean Water Act has full and complete jurisdiction over modern mines. When you read that law, there is simply no exemption for mining. There is no "olly olly oxen free" in the Clean Water Act for today's mines. We have to be able to prove that if we need an NPDES Clean Water Act discharge permit, that we will meet all of the effluent limitations, all of the regulatory requirements, just like any other industry. So when you look at the mines that were in that yellow part of the chart, the pre-Clean Water Act mines, yes, we agree there are many water quality problems associated with the old, pre-regulation, pre-Clean Water Act operations. But today's mines must fully comply with

the Clean Water Act, and if they cannot demonstrate that they will comply, they do not get a permit to operate. That is where the regulatory agencies have the full authority already to say no.

Senator CANTWELL. I am not going to belabor this, Mr. Chairman. I will submit this for the record, and I am sure this will not be the last time we have a conversation. But I have a list here of all of these mining organizations who have declared bankruptcy and are not around to help in that cleanup. So I thank the chair.

The CHAIRMAN. Thank you very much.

Senator Craig.

Senator CRAIG. Thank you, Mr. Chairman.

Panelists, thank you very much.

Let me try to understand where we are as it relates to crafting new law to provide a revenue source for abandoned mine lands because I think all of us on this panel are concerned that we address abandoned mine lands if in fact we decide to rewrite the 1872 Mining Law.

Mrs. Nazzaro, in your testimony in your highlights, you refer to $982 million to guarantee reclamation costs of 1,463 hardrock operations on BLM. Where did that money come from?

Ms. NAZZARO. These are financial assurances that the operators have to agree to, and there are various types of financial assurances that they can provide. It could be cash, letters of credit, certificates of deposit, negotiable securities, and bonds. BLM also allows surety bonds, trust funds. There is a variety of mechanisms that they can provide. However, what we have found in the past is that those financial assurances are not always adequate to cover the estimated reclamation costs should the operator walk away from the operation.

Senator CRAIG. So this $982 million of assurances to guarantee reclamation costs is not for abandoned mine lands. It is for existing operations at the time of termination of operation.

Ms. NAZZARO. Correct. It is for existing operations on BLM lands right now. These are the financial assurances that are in place. Then we looked at to what extent they were adequate. BLM says in some cases they are not adequate. We have also found other reasons they are not adequate, one just mentioned by Senator Cantwell, that some of these companies ultimately go bankrupt. Also, the financial assurances are not always up-to-date. They may not have been adjusted, say, for inflation or other purposes, sometimes they are not current.

Senator CRAIG. Whether I was mishearing you or in the broad sense there was a misunderstanding between what you were saying and what is reality—Mr. Ferguson and Mr. Bisson, when you talk about current abandoned mine land activity, not reclamation of existing or terminated operations, but those mines that were walked away from a century or a half a century ago that are out there on the public domain, you speak of reclamation today. Where does that money come from for those reclamation purposes?

Mr. FERGUSON. For the Forest Service, they come from a variety of sources. I mentioned in my comments that we have Federal sources through the appropriation process.

Senator CRAIG. So in other words, from the general fund of the U.S. Government.

Mr. FERGUSON. Yes, sir, and we also get some from the Department of Agriculture. There is an aspect of funding, again coming through the general treasury. Then we also have partners that come along with us and partner up, collaborate.

Senator CRAIG. Private.

Mr. FERGUSON. Private, yes.

Senator CRAIG. Mr. Bisson.

Mr. BISSON. For the BLM, we have a similar approach. We have some appropriated dollars. We have a central HAZMAT fund that the Department has that we utilize at times. We use partnership dollars as well.

But, Senator, just for the record, we have more than $1 billion currently in bonds in place. We do have the ability to require a trust fund. Before a mining company leaves a site now, we can actually require them to put a trust fund in place to correct any problems that may show up 20 years or 50 years down the road.

Senator CRAIG. No. I appreciate that. That was going to be my next question because the walk-aways of yesterday, if you do your permitting appropriately, do not exist today under current law. Is that not correct?

Mr. BISSON. Yes, sir.

Senator CRAIG. There has been an interchange of terms here that I think we need to clarify as it relates to abandoned mine lands on public lands versus private lands because most of the mines that were abandoned were on permitted property that became fee simple private property. Now, whether they are abandoned by all amount or whether that permit still exists—how are you defining abandoned mine lands on public lands? Those that are entirely of the public domain today?

Mr. FERGUSON. For the Forest Service, they are features or sites that are on national forest or grasslands.

Senator CRAIG. Of which you can find no ownership.

Mr. FERGUSON. That is correct.

Senator CRAIG. In that instance where you reference private, you are talking about truly abandoned mine lands on existing fee simple private property.

Mr. FERGUSON. That is correct. My example that I used where I talked about some of those partnerships with the private, the challenge with working on abandoned mine lands is those features sometimes cover both, as you are sort of alluding to. So to do an effective job of reclamation, you have to look at the entire project.

Senator CRAIG. Yes.

Mr. FERGUSON. Especially when it comes to water, you need to look at the source of the contamination, and it could be a larger area than what is just on the private or what is on the public.

Senator CRAIG. Mr. Bisson, any further comment?

Mr. BISSON. It is no different on BLM-administered lands. I think what you are looking at are historical patenting remnants. Frequently we have to look at the whole watershed or drainage, not just at individual sites, as we come up with solutions.

Senator CRAIG. Lastly, those that you are currently engaged in today, I assume, have the most egregious impact on the environment, mine seepage, drainage, heavy metals into the waters, those kinds of things, or where human risk is apparent.

Mr. BISSON. That is correct. We actually have a strategy in place and we are going down the list of the highest priorities across the West. We estimate right now that it would take roughly $130 million to clean up the sites, mostly physical hazards on BLM-administered lands.

Senator CRAIG. $130 million.

Mr. BISSON. Based on what we know about the sites.

Senator CRAIG. Does the Forest Service have a similar guesstimate?

Mr. FERGUSON. We do not have a similar estimate on that, but we do have a process very similar to what Mr. Bisson was referring to. We use a process called Choosing by Advantages, and I referenced that we have a team of Washington office and regional people who look at a number of factors, and then we have a list that we have prioritized. So we have it on the shelf. As soon as we get our appropriations, we are able to start issuing contracts and working on those projects.

Senator CRAIG. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Tester.

Senator TESTER. Thank you, Mr. Chairman. I want to thank all the panel members for——

The CHAIRMAN. Senator Domenici wanted to make some——

Senator DOMENICI. I wonder if you might take this suggestion. Rather than continue with questions along the last line, it would seem to me that it would be incumbent upon our joint staff to get from the bureau and the Forest Service as much background as they can about the current program that they have just described and where they get the money and what projects they have, how many they have that they are trying to maintain, and whether they have had some breakdowns, and whether their bonds have been sufficient or insufficient. I think that would help us.

The CHAIRMAN. I think that would be useful to understand better what the needs are of the two agencies and what progress you are making in meeting those needs.

Senator DOMENICI. Thank you, Mr. Chairman.

Mr. FERGUSON. We can provide that.

Mr. BISSON. We would be happy to do that.

The CHAIRMAN. Thank you very much. Good suggestion.

Senator Tester.

Senator TESTER. Thank you, Mr. Chairman. I want to thank the members of the panel for their testimony today.

We will start with you, Mr. Ferguson. Could you give me any idea what the Forest Service budget for abandoned mine cleanup is for 2009?

Mr. FERGUSON. For 2009, we are looking at about $14 million.

Senator TESTER. $14 million. Are there administrative fees that are also taken out of that?

Mr. FERGUSON. There are some overhead administrative fees.

Senator TESTER. Any idea what percentage that might be?

Mr. FERGUSON. I do not have that readily available. I can get it.

Senator TESTER. If I heard you correctly on Senator Craig's testimony, you do not know how much your total liability is out there for cleanup of abandoned mines?

Mr. FERGUSON. We have some estimates from back in the late 1990s.

Senator TESTER. Could you give me that estimate?

Mr. FERGUSON. I want to say it was somewhere in the $2.2 billion range, something like that, but we need to get those up to today's dollars.

Senator TESTER. It would be much more than that. But if we assumed it still was $2.2 billion and $14 million—I do not have a calculator up here, but I will be dead and gone and so will my kids by the time they get cleaned up.

Do you make a plea to anybody to bump those figures up at all, Number one?

Number two, do you have something like the BLM has which is a trust fund that you can set up for mine operators?

Mr. FERGUSON. We do provide our program and we illustrate the need that we have in terms of the number that we have out there on Forest Service and grasslands. We do have the same types of abilities in terms of trust funds when it comes to financial assurances that the BLM has when it comes to new operations.

Senator TESTER. Can you give me any idea of how many times a trust fund has been set up in the last—I do not care—5 years, 10 years?

Mr. FERGUSON. With the Forest Service?

Senator TESTER. Yes.

Mr. FERGUSON. I can find out and let you know.

Senator TESTER. That would be great.

BLM, same question. How many times has a trust fund been set up?

Mr. BISSON. I do not know that answer, but we will provide it for you.

Senator TESTER. If you could find it, that would be great.

Just a couple questions—and I am sorry—Ms. Struhsacker. Right?

Ms. STRUHSACKER. Perfect.

Senator TESTER. Close enough? All right. Good enough. We will just call you Ms. from now.

Ms. STRUHSACKER. Call me Debbie. My friends do.

Senator TESTER. I agree with you totally. You brought up two points in your testimony about needing more money and the need to enact my comrade's Good Samaritan Liability Act.

Where do we get the money?

Ms. STRUHSACKER. The industry has long supported funding an AML program with net royalty on future mining claims, production off of future mining claims. That would be one way.

I think the private/public sector partnerships that we are seeing emerge as a very successful pattern for finding resources, finding ways to get around the liability problems is another way to fund these.

Senator TESTER. In my real life, I am a farmer. OK? So net income and gross income I get. Can you tell me why you do not want to use gross income?

Ms. STRUHSACKER. Because it is not fair. It does not put us on the same taxation schedule as others. You see, when we mine a mine, when we mine ore, we get a rock out of the ground, and that

rock has no value until we put a lot of steps into processing it to take out the metals. The net royalty reflects the cost to take the rock and turn it into a product that we can market.

Senator TESTER. My concern is that there is opportunity on net to game it a little bit, if you know what I mean. So if you can work with me on that to make sure that we can limit some of that, that would be a great opportunity to really come to a conclusion.

You had said during your testimony that pre-1966 was all the problems because we did not have environmental regulation. You know this. I am sure you know this. There is a little mine not far from my farm called Zortman-Landusky that to this point, has about a $22.5 million shortfall in bonding which means taxpayers are going to have to make that difference up, and that does not include the perpetual water treatment that is going to have to go on for 1,000 years, give or take a few. I mean, what is your response to that?

There is Beal Mountain Mine. That is another one. I mean, there are a lot of mines out there that were either under-bonded or the company went broke, as Senator Cantwell said. How do we solve that? Because I am going to assume in your business, like all businesses, there are good actors and bad actors. So how do we fix it so taxpayers are not hung with the reclamation costs even on new mines? Because I think it happens today, and when we have the kind of cleanup dollars that are allocated to the Forest Service, we have got a big problem that is not going to go away until we address it.

Ms. STRUHSACKER. Senator Tester, the mining industry shares your concerns that we do not want those stories to be repeated in the future, and we believe that the regulations and bonding requirements that are in place today will prevent those types of situations from occurring in the future because they are so different than what happened at Zortman-Landusky. Let me just quickly go through some of those differences, if I may.

Zortman-Landusky was permitted in the late 1970s before even the BLM regulations went into effect. They went into effect in 1981. The BLM regulations today are very different than they were in 1981. They were updated in 2001. The new regulations require an extensive program of site-specific characterization. So we would understand from the get-go today—if Zortman-Landusky were to go through the permitting process today, they would be required to do extensive testing so that we would all understand, regulators and the mining company, what is the potential for those rocks to generate acid, which is one of the main problems there at Zortman-Landusky. That would be known before the mine was ever permitted or built. The mine would have been built in a totally different way, and the bond would have been completely different because it was not calculated the way it would be done today.

Senator TESTER. OK. I am going to wrap it up here real quick, Mr. Chairman, with your indulgence.

But my concern is that the same lack of vision that happened when that mine was bonded we may not be looking for when we go into the future. So we will need your help on that since you are on the ground.

Ms. STRUHSACKER. There is a good case history in Nevada where regulators realized fairly recently in a bankrupt mine situation they did not have quite all the tools they needed. They were able to change the regulations to get those tools.

Senator TESTER. Last question. You said that the mining association would support a net proceeds tax on mining. For existing mines?

Ms. STRUHSACKER. For new claims.

Senator TESTER. What about existing mines?

Ms. STRUHSACKER. We think if you put a royalty on existing mines, that there are some serious takings implications. So we think, to be fair, this needs to be prospective so that it does not subject the Federal Government to takings liability exposure.

Senator TESTER. Just very quickly to follow up on it. If I had land and there was a mine put on it or if you had land and there was a mine put on it, would you not want royalties?

Ms. STRUHSACKER. There is absolutely no question that the industry is at the table. We recognize the public wants to be fairly compensated for production from the land. We are just saying that given the laws that we have in this country, the Constitution, that the best way to do that to limit any possible takings claims is to do it on new mining. If we enact a mining law that encourages mining, that develops a stable environment for miners to invest and discover ore bodies, there will be a robust stream of revenue from royalties in the future. That should be our mutual goal.

Senator TESTER. Would you be willing to work with this committee on existing mines under net proceeds, or is that off the table?

Ms. STRUHSACKER. We are certainly willing to work with the committee. I am not the association's royalty expert, but we would be very happy to have that expert——

Senator TESTER. You are on the record.

Ms. STRUHSACKER. Not as the royalty expert, Senator.

Senator TESTER. All right. Thank you very much.

The CHAIRMAN. Senator Barrasso.

Senator BARRASSO. Thank you very much, Mr. Chairman.

Since your friends call you Debbie, Debbie——

Ms. STRUHSACKER. Thank you.

Senator BARRASSO. You talked about modern bankrupt mines and then the historic abandoned mines. I was just going to ask the members of the panel because you talked about bonding for clean-up and all those things there. Does everyone agree that what we are really talking about here, since there are enough rules and bonding available for current bankruptcies, that we are really talking about these historic abandoned mines? Do people on the panel all agree with that kind of across the board?

Ms. NAZZARO. No. GAO would not agree with that probably. As far as the financial assurances that are in place, BLM does require that they have these financial assurances in place before they begin any operations. The Forest Service does not have any regulations. They tell us that typically they do require them if there is a significant disturbance, but they do not have a requirement to have a financial assurance. While EPA has authority under the 1980 CERCLA, they do not apply financial assurances.

Senator BARRASSO. Mr. Bisson?

Mr. BISSON. Senator, for the Bureau-administered lands, we require 100 percent bonding for the full reclamation cost. There is at times some variation because we assess those bonds periodically. Our State directors are required to certify each year that there was sufficient bonding for total reclamation. But sometimes when we increase the bond, it is appealed, and so there may be a period of time when we go through the appeal process before the bond's full amount is put in place.

But I would agree with what you said about this issue primarily being older mines.

Senator BARRASSO. Mr. Ferguson.

Mr. FERGUSON. I just wanted to make one comment about that. Our current regulations are being reworked as we speak, and our policy, even though we do not have specific language about full reclamation bonding, has been full bonding requirements for activities. We are updating our regulations to make those consistent with what BLM has that was also a result of an NRC study that was done back in the late 1990s.

Senator BARRASSO. Mr. Brancard, I assume you are agreeing with this. I think you shook your head yes.

Can we talk about the role that the States should play versus the Federal Government? We have a lot of historic abilities in Wyoming in doing this with coal mines and with cleanup. Can you talk about the role of the Federal Government versus States and relying on some of the expertise the States have?

Mr. BRANCARD. Senator Barrasso, because we are funded under Title IV of SMCRA, as is Montana, Wyoming, Colorado, the Navajo Nation, Hopi Nation, we have a staff dedicated to mine programs with a series of experts in various areas so we can take the projects from the initial phase of reconnaissance, assessment under NEPA, the National Historic Preservation Act. We have folks who are engineers who design the closures, and then we put the projects out to bid, and we have local contractors who do the work. So we have a program that can take the project from beginning to end. So that is why we think the States are in a very good position to handle, also taking over the hardrock programs when they are willing to do that.

Senator BARRASSO. Is there a way to get the funds to the States quicker, to let you do the job faster and more effectively?

Mr. BRANCARD. I mean, the grant program under SMCRA works pretty well. We have a series of 3-year grants at any one point in time. That allows us enough time under each grant to finish any projects, more than enough time. So that process has worked pretty well. We are pretty happy with the grant process. I know the State of Wyoming has a different perspective on grants versus direct payments, but we are pretty happy with the grant program.

Senator BARRASSO. We just like the money. We want the money immediately.

Ms. Nazzaro, if I could ask you a question or two. We talked about the estimates of how many mines were out there. In some States like Wyoming, there is an exact count and we are fairly comfortable with those numbers. For other places, I read things like 16,000, 47,000, maybe 50,000. I mean, before we really kind

of go too far down the road, should we not have a better inventory of some of these?

Ms. NAZZARO. Definitely. We did see some wide variations. One of the significant problems we determined was this lack of a uniform definition. However, for example, in New Mexico, they still base the number of sites on the number of features and basically they were assuming that there were 15 to 20 features per site. So they kind of backed into their number. We did ask them to explain how they came up with the number, and we did see a lot of variance. So you are correct, and the inventory would be a great starting place.

Senator BARRASSO. Mr. Chairman, I think I am out of time. Thank you.

The CHAIRMAN. Thank you very much.

Senator Salazar.

Senator SALAZAR. Thank you very much, Senator Bingaman, for holding this hearing.

I have a fuller statement for the record that I will just submit for the record.

[The prepared statement of Senator Salazar follows:]

PREPARED STATEMENT OF HON. KEN SALAZAR, U.S. SENATOR FROM COLORADO

Thank you Mr. Chairman and Ranking Member Domenici for holding today's important hearing on two critical issues: the legacy of abandoned mine lands and uranium mining. I look forward to hearing from our witnesses today about the issues they believe Congress should consider as we grapple with hardrock mining reform.

We have had several hearings on hardrock mining in this Congress, and members of this committee have heard me speak before to an issue related to mining law reform that has been a top priority for me since I joined the Senate: Good Samaritan cleanups of abandoned hard-rock mining sites. I am grateful that today's hearing will shine a direct spotlight on the need to enable more cleanups of abandoned mine lands, including Good Sam cleanups.

The Western United States is home to many abandoned mines and mining residues; my state of Colorado has over 23,000 abandoned mine sites. At these sites there are typically significant physical hazards to humans and wildlife. Many of these sites continue to pollute the water, land, and air. According to the Colorado Division of Reclamation Mining, and Safety over 1,300 miles of stream in Colorado are affected by heavy metal contamination. Erosion and sedimentation, acid rock drainage, heavy metals leaching into streams, sulfide waste piles, contaminated soils, and improperly disposed mining processing chemicals are some of the numerous legacies of abandoned mine sites.

The Environmental Protection Agency (EPA) estimates there are over half a million abandoned mines nationwide, most of which are former hard rock mines located in the western States. In many cases, no one alive is legally responsible for cleaning these sites. In other cases, those who are legally responsible lack the money or other resources necessary to clean them up, and the pollution continues unabated.

Today, relative to the scope of the problem, there is a paucity of federal revenue devoted to cleaning up abandoned hardrock mines. In truly exceptional circumstances, abandoned mines have been reclaimed under EPA's Superfund program; in its history 88 hardrock mines have been listed on the National Priority List. A limited funding stream is available for cleanups of hardrock mines through the Coal Abandoned Mine Land Program. According to the Office of Surface Mining Reclamation and Enforcement (OSM), over the history of this thrity-or-so year old program only 1,279 hardrock sites have been reclaimed. I am pleased to be an original cosponsor of a bill with Chairman Bingaman to undo a recent ruling by the Bush Administration that forbids the use of these funds for hardrock mine cleanups.

I believe that, going forward, Good Samaritan cleanups have to be a part of our national mine reclamation "toolbox." Providing a framework that encourages Good Samaritan cleanups is essential to expanding reclamation activities. More rivers and streams will return to habitable condition with Good Sam legislation in place than without it. I look forward to working with my colleagues to ensure we move forward in this Congress on encouraging the clean up of abandoned mine sites.

The second topic of today's hearing is uranium mining, another issue that is critically important in my home state of Colorado. As we all know, today there is a "gold-rush" mentality when it comes to uranium claims. From a lowpoint of $7 per pound in 2000, the market price of uranium ballooned nearly 2000 percent between 2000 and 2007. This rapid price increase and the possibility of expanded use of nuclear power has led to an enormous increase in the number of uranium mining claims. Perhaps the highest profile example of this surge in claims are the hundreds of new claims within a few miles of the rim of the Grand Canyon. Colorado is also seeing a rush of new claims in several areas of the state.

The price volatility of this commodity alone is disconcerting, but of course uranium mining has a troubled environmental and public health legacy. Traditional open-pit uranium mining has long been associated with adverse health impacts for miners and tailings piles that plague nearby communities. In northern Colorado, there is a proposal to perform in situ leaching uranium mining. The citizens who live near the proposed site have expressed their grave concerns to me about the potential negative economic and environmental impacts that this project may have on their communities. The proposed project would be located within 30 miles of a population of approximately 300,000 people. Many are worried that the in situ leaching process employed at the mines will result in contamination of their groundwater.

Today I would like the witnesses on our second panel to address the fundamental question of the cumulative global experience with in situ leach uranium mining. In my correspondence with EPA on the subject thus far, I have not been assured that we understand the risks, especially to our groundwater, and that we have the regulatory processes and requirements in place to assess the impacts of "excursions" of uranium solution in these operations. I am seeking clarification from each of the regulatory agencies involved in licensing in situ leach mining operations that they share a coherent vision of the risks and issues of public concern.

Senator SALAZAR. I may not be around for the second panel, so I will make a little longer opening narrative here.

First, my interest in terms of dealing with this issue is that it does seem that we need to update the 1872 Mining Law. It has been around for a very, very long time and it is probably one of those laws that should have been updated a long time ago. I think the time has come, and we may have the coalition here in the United States Senate to get that done this year.

Secondly, I am very interested in having, as part of that reform, Good Samaritan legislation included in that reform. We attempted to get that legislation through last year. We were not successful in doing that, but it is my hope that as we move forward with any reform effort, that Good Samaritan legislation will be a part of that.

Third, I am concerned about uranium mining in my State of Colorado, as well as across the West, and making sure that as we move forward with uranium mining on our public lands that we are doing it in a way that is going to safeguard our communities and our environment.

First of all, with respect to the abandoned mine lands problem, in Colorado we have 23,000 abandoned mines according to our Division of Minerals and Geology. We have 1,300 miles of stream, according to them also, that has been affected by heavy metal contamination and a whole host of other related facts, demonstrating the problem with respect to abandoned mines.

My question to Mr. Bisson, Mr. Ferguson, and Mr. Brancard, and Ms. Struhsacker is if we were to move forward with Good Samaritan legislation, could we, in your opinion, start nibbling away at this huge problem that we have in the West with respect to what has been estimated to be half a million abandoned mines? If so, how important do you think this is as an issue for us as we look at mining reform?

Mr. Bisson.

Mr. BISSON. Senator, I think that one of the keys to getting many sites cleaned up is public/private partnership. To the extent that private parties are not coming to the table to help work with us on cleanup because of that issue, I think solving that issue would greatly help getting a lot of these sites cleaned up faster.

Senator SALAZAR. Mr. Ferguson.

Mr. FERGUSON. I would just echo that. The information we are receiving from partners, as well as industry, is that they would be more than happy to help out in some of these areas, but this is a hurdle that they see right now.

Senator SALAZAR. Mr. Brancard.

Mr. BRANCARD. Senator Salazar, New Mexico supports the long-term efforts of the Western Governors Association. This has been a priority for the WGA for many years to try to get Good Samaritan legislation through. We see a lot of benefits for State government and for the private partners who want to work on these projects.

Senator SALAZAR. Ms. Struhsacker.

Ms. STRUHSACKER. I would echo these comments. I mean, Senator Salazar, you have in Colorado one of the examples of a terrific partnership there at the Animas River Stakeholders Group where some very challenging environmental issues have been addressed through a collaboration of public/private sector efforts. But think about what they could have achieved if they did not have to focus as much of the attention as they did in figuring out how to get around those liability issues, if that money and that energy and that capital could have been put directly into the ground as opposed to overcoming that legal and institutional hurdle.

Senator SALAZAR. Let me ask a couple of you this question. Some have said that maybe what we ought to do is to limit the access to the immunity provisions of Good Samaritan only to nonprofit organizations. From your point of view, would that cause a diminishment in the possibility of the effort here with respect to private companies being able to enter into these collaborations to clean up these abandoned mine sites?

Ms. STRUHSACKER. Oh, absolutely. There are lots of examples of private companies being involved, and sometimes it is mining companies but sometimes it is other companies. There is a wonderful example in the State of Utah where there was a coalition involving State and Federal regulators, Trout Unlimited, and Tiffany and Company. Tiffany and Company has been involved in this Mining Law debate for a number of years, and unlike many groups, they have actually put their money where their mouth is and they contributed financial resources to the cleanup of an abandoned mine.

Senator SALAZAR. Mr. Brancard, if you can speak on behalf of the Interstate Compact Association that you represent, would it be a good thing to allow private companies also to have immunity under Good Samaritan legislation if we can provide the right safeguards in the law?

Mr. BRANCARD. Senator Salazar, I think the concerns of the States have been not necessarily about private parties in general, but just to make sure that parties who are potentially responsible under law are given immunity here. So if there is a company, an

innocent purchaser, et cetera, who comes in and wants to participate in the program, we see that as reasonable.

Senator SALAZAR. Let me just say, if I may, Mr. Chairman, that I think that we cannot move forward with good Mining Law reform unless we address the legacy issue that we have to address, and it seems to me the Good Samaritan legislation is a good way of moving forward and I hope we get it done.

Mr. Chairman, because I am going to have to leave for an amendment that I am doing on the floor, I want to just make a quick comment, if I may, concerning uranium.

We were part of the 2005 Energy Policy Act out of this committee, and in my view, it helped open up the door to much of the uranium exploration that is taking place across the country on our public lands. In my State of Colorado, the number of active claims has risen 432 percent—432 percent—just in the last 5 years. We now have about 23,500 claims in the State of Colorado for uranium. That is a reflection I think of what has happened with respect to the price of uranium where in 2000 it was $7 per pound, and it reached a high last summer of $136 per pound. So we have a huge issue in terms of dealing with the pressure that is being put on the State and on our public lands with respect to uranium mining.

One of the key concerns that I have has got to do with in-situ mining on uranium properties. There are projects in my own State which are being proposed where the mining method is an in-situ mining method, and at least according to what we have heard from the EPA, we have not received any assurance that we can, in fact, protect the groundwater, aquifers, and the other environmental concerns that we have.

So not for this panel, I will say for the panel that comes afterwards, as well for this committee, it is an issue that I have some keen interest in because some of the projects that are proposed in Colorado are very close to some very major communities in my State, and many people in my State are raising concerns about whether or not this new methodology of mining is going to be a safe method.

The CHAIRMAN. All right. Thank you very much.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman, and thank you to the members of the panel.

The GAO testimony indicates that in my home State of Alaska, we have relatively few abandoned hardrock sites and even fewer that pose a significant hazard to public safety and significant risk of environmental degradation. We are glad for that.

But what we see in the State is opponents of mineral development, in general, are pointing to the legacy of abandoned mine sites in the other States and they use this to support the argument that local communities, and particularly our native communities in rural Alaska, that they oppose mineral development in general. I find this a very troubling situation for us as a State.

Here in the Congress we passed the Alaska Native Claims Settlement Act back in 1971, and part of the purpose of this act was to put valuable natural resources in the hands of Alaska Native corporations in the hopes that they would develop these lands and create employment opportunities in very remote areas of the State

that would really not have economic opportunity otherwise and economic opportunity in parts of the State where unemployment is incredible.

So we are now facing this in the State as we try to advance mining opportunities and we are seeing resistance. It is not from things that we have done or failed to do in our own State but examples that have happened outside the State of Alaska.

So I guess I am asking a very general question in the sense of is it fair. I mean, is it fair that you have opponents of mineral development that will use these types of examples, the things that have happened historically in the Lower 48 to prejudice communities against mineral development in a State like Alaska.

I know, Ms. Struhsacker, and you certainly, Mr. Bisson, both of you have experience in Alaska. Can we just stand up and say, well, we do not have the abandoned mines problem in the State like you do in the Lower 48, so ignore that? Do not look at that man behind the curtain.

Mr. Bisson.

Mr. BISSON. Senator, as you know, I recently moved from Alaska, and I watch what is happening up there with the huge mines that are being proposed. There is a lot of debate on all sides of those issues.

I can only say that if you want to compare what may happen on those big mines, you really have to look at what is going on with the current-day mines under the current regulations. We simply do not believe we are seeing or going to see the same problems that happened in the past.

I do not know what to suggest to you in terms of defending it because I think there is a lot of money being thrown on that issue by people who simply oppose mining in those locations. I do not know what you can say or what you can do to offset it.

Senator MURKOWSKI. Ms. Struhsacker, any suggestions, observations?

Ms. STRUHSACKER. Senator Murkowski, those who are pointing to old, unregulated mines and saying that is what is going to happen in the future if you allow mining in Alaska are clinging to an anachronism. If we could simply ask them to take a look at what it is that we do today, look at all of those regulations that I showed on that chart that apply to mining—they have absolutely every right to demand and expect that mining be done right. I think what we say to them is those regulations and those bonding requirements demand that too, and they guarantee that mining will be done right.

There will be a number of safeguards at today's modern mines. You will have monitoring that will provide ongoing verification if the mine is performing the way it said it was going to. If it is not, both the Forest Service and the BLM and State regulators already have the authority to require miners to submit larger bonds or to do something different.

So I guess I would say to them that they should become more informed about the new regulations that apply to mining, come see what is happening in my State of Nevada. I think if you could get some of the mine opponents in Alaska to come see the on-the-

ground environmental protections that are going into mining in Nevada, I think they would come away with a different impression.

Senator MURKOWSKI. I appreciate that, and we may take you up on the offer to do a field trip there.

It is frustrating and it is not frustrating just within the mining industry. Mr. Bisson certainly knows that we have been trying to educate people outside the State of Alaska that the technology and the rules of the game, as they relate to oil and gas extraction, have certainly changed in a 30-year period. Yet, people still cling to the way it used to be, and whether it is the technology or whether it is the environmental laws and regulations that we have put in place to make sure that we do not have the mistakes of the past, sometimes it is difficult to bring people into this decade insofar as what we have learned.

Mr. Bisson.

Mr. BISSON. Senator, in your State, if you want to take people and show them an example of how a mining company does it right, take them to the Fort Knox Mine up near Fairbanks and look at the restoration that that company did on the watershed below from past practices. It is amazing what they have done in terms of cleaning up past issues, and that is all on State land.

Senator MURKOWSKI. We do have some great examples.

I appreciate your comments and your testimony this afternoon. Thank you, Mr. Chair.

The CHAIRMAN. Thank you and let me thank everyone on this panel. I think this has been very good testimony.

We have a second panel, and I will just call them forward and I will introduce them as they come forward. On our second panel is the Honorable Joe Shirley, who is President of the Navajo Nation in Window Rock, Arizona. We also have Benjamin Grumbles who is the Assistant Administrator for Water in the EPA. We have David Geiser, who is the Deputy Director of the Office of Legacy Management in the Department of Energy. We have Charles Miller, who is the Director of the Office of Federal and State Materials and Environmental Management Programs in the Nuclear Regulatory Commission. We have Senator David Ulibarri, who is Cibola County Manager in Grants, New Mexico, and Fletcher Newton, who is with the National Mining Association out of Denver. We appreciate all of you being here.

Let me ask that each of you please summarize your statement, if you would, make the main points that you think we need to be aware of. As I am sure you are aware, this has turned into something of a long hearing, and I am afraid some of our members have had to leave. But we are anxious to get your full testimony. We will include it in the record, and we would appreciate it if you could hit the high points for us. Why don't we start with President Shirley over here on the left? Thank you for being here.

STATEMENT OF JOE SHIRLEY, JR., PRESIDENT, THE NAVAJO NATION, WINDOW ROCK, AZ

Mr. SHIRLEY. Thank you, Senator Bingaman, Chairman, Senator Domenici, and members of the committee.

The CHAIRMAN. Let me interrupt just to say that Senator Domenici was called off to another meeting, and he apologized for not being able to remain for the full hearing.

So please go ahead.

Mr. SHIRLEY. I understand I have at least 300 seconds. I will try to do that, Mr. Chairman.

As you begin to make changes to the laws that govern mineral extraction, you will hear from many interests that will encourage you to expand uranium mining throughout the country, particularly in the Southwest. I am here to ask you to respect the Navajo Nation's tragic experience with uranium mining and allow the Navajo people and Navajo Indian Country to remain free of renewed contamination.

The Navajo people do not want renewed uranium mining on or near the Navajo Nation. I ask you to respect the National Resources Protection Act, a Navajo law that places a moratorium on uranium mining on Navajo land and within Navajo Indian Country. Uranium mining that takes place on land just off the Navajo land boundary will not and cannot hold its contaminants within a narrow area. The contamination will travel. It does not stay in one place. It moves as it has for decades and will continue to defile the land, water, and the people.

The Navajo Nation also needs the Federal Government to clean up the contamination left behind from past uranium mining by companies that have long disappeared. Decades after mining has ceased on the Navajo Nation, my people continue to get sick and die from the contamination left behind.

Over a half century ago, the United States Government, faced by the threats of the cold war, began a massive effort to mine and process uranium ore for use in the country's nuclear weapons programs. Much of that uranium was mined on or near Navajo lands and much of it extracted and processed with Navajo hands. Now more than 50 years alter, the legacy of uranium mining has devastated both the people and the land. The workers, their families, and their neighbors suffer increased incidences of cancers and other medical disorders caused by their exposure to uranium. Fathers and sons who went to work in the mines and the processing facilities brought the remnants of uranium into their homes at the end of each day, infecting their families. The mines, so many of which have been abandoned, have left open scars in the ground leaking radioactive waste. The companies that processed the uranium ore dumped their waste in open and, in some cases, unauthorized pits infecting both the soil and the water. The tragedy of uranium's legacy extends not only to those who worked in the mines, but to those who worked and lived near the mines that have also experienced devastating illnesses. An even greater tragedy is that decades later, the families who live in those same areas continue to experience health problems today. The remnants of uranium activity continue to pollute our land, our water, and our lives.

Many companies have approached the Navajo Nation to mine our uranium deposits and have promised us newer and cleaner methods of mining that do not harm the land, the water, or the people. Recently some companies have promoted the use of a process called in-situ leach mining that mines uranium ore by injecting a solution

in the earth that pulls the ore from the surrounding rock. These companies claim the process is harmless. The science on this process is, at best, inclusive and, at worst, points to increased background radiation than existed before the mining operation.

I have a hard time believing the claims of those who wish to profit from uranium mining that their new process is so much safer when history and science establish a different record. The Navajo people have been consistently lied to over the last 60-plus years by companies and Government officials concerning the effects of various mining activities. Unfortunately, the true cost of these activities is only understood later when the companies have stolen away with their profits, leaving the Navajo people to bear the health burdens.

Why should we believe these companies now when they failed to clean up the toxic mess they left behind the first time? Why should we believe these companies now when, years after the last pound of uranium was removed from Navajo land, my people still get sick and die from the contamination?

We are asked to believe blindly what the companies tell us, that the process is clean and nonintrusive. The very nature of this clean and nonintrusive process involves the injection of fluid that cannot be controlled and will most assuredly contaminate anywhere it flows, including into our groundwater. The absolutes of clean and nonintrusive do not equate in my mind to uncontrolled and unproven. Why should we believe any of these companies when they threaten our water and try to pit the Navajo people against one another?

In response to these attempts to renew uranium mining, the Navajo Nation Council passed and I signed into law the Natural Resources Protection Act. This act places a ban on all uranium mining, both within the Navajo Nation boundary and within what we call Navajo Indian Country. This means that the Navajo Nation asserts its right and jurisdiction as a sovereign government, as recognized by the Federal law and more recently by courts and the EPA, to place a ban on the mining of uranium on both the Navajo Nation and surrounding lands.

The Navajo Nation Code and the United States Code define the extension of Navajo jurisdiction to include Navajo lands, trust lands, allotted lands, and dependent Indian communities. Under this definition, the areas currently under mining permit review fall within the Navajo jurisdiction. Alternatively, regardless of whether or not Navajo jurisdiction under the Natural Resources Protection Act is found to be controlling, the Navajo Nation Environmental Protection Agency maintains jurisdiction under the grant of primacy by the U.S. EPA to control groundwater injection. The Navajo Nation will use any and all measures at its disposal as a sovereign nation to ensure that our law is carried out.

As time has gone on and the land has been eroded by wind and rain, we continue to discover new contaminationsites where uranium was mined and processed. We have also discovered both illegal dump sites and legal dump sites that were properly closed that have been eroded and are now open to the elements spreading their contaminants with every gust of wind. It is unconscionable to me that the Federal Government would consider allowing uranium

mining to be restarted anywhere near the Navajo Nation when we are still suffering from previous mining activities.

As an example, my people and their livestock still drink from contaminated wells. There are only two options for rectifying this type of problem, finding a new source of water or removing the contaminants from the existing sources. A new source would require large-scale water development projects such as the proposed Navajo Gallup Water Supply Project. While such projects are expensive, they pale in comparison to the cost of removing the contaminants from drinking water sources. Cleaning the contaminated water sources will cost many billions of dollars. This is just a fraction of the ongoing costs associated with uranium contamination.

In summary, the Navajo Nation asks you to respect our wishes to live free of uranium mining. If the Government and corporations insist on uranium mining, we insist it not be on the Navajo Indian Country. We have lived through that once and continue to live with its effects today. The Navajo people have earned the right, through illness and death, to choose not to live through it again. I pray that the committee will learn from the experiences of the Navajo people and protect their own constituents and land from generations of contamination.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Shirley follows:]

PREPARED STATEMENT OF JOE SHIRLEY, JR., PRESIDENT, THE NAVAJO NATION, WINDOW ROCK, AZ

Good afternoon Chairman Bingaman, ranking member Domenici, and members of the Committee. Thank you for inviting me to testify before you today. As you begin to make changes to the laws that govern mineral extraction, you will hear from many interests that will encourage you to expand uranium mining throughout the country; particularly in the southwest. I am here to ask you to respect the Navajo Nation's tragic experience with uranium mining, and allow the Navajo People and Navajo Indian Country to remain free of renewed contamination.

The Navajo People do not want renewed uranium mining on or near the Navajo Nation. I ask you to respect the Diń Natural Resources Protection Act (DNRPA) that places a moratorium on Navajo Land and within Navajo Indian Country. Uranium mining that takes place on land just off the reservation boundary will not and cannot hold its contaminants within a narrow area. The contamination will travel; it does not stay in one place. It moves as it has for decades spreading contamination as it moves. The federal government should clean up these existing contaminated sites before it promotes renewed uranium mining. Decades after mining has ceased on the Navajo Nation, my people continue to get sick and die from the contamination left behind.

Over a half century ago, the United States government faced by the threats of the Cold War began a massive effort to mine and process uranium ore for use in the country's nuclear weapons programs. Much of that uranium was mined on, or near, Navajo lands, and much of it extracted and processed with Navajo hands. Now more than 50 later, the legacy of uranium mining has devastated both the people and the land. The workers, their families, and their neighbors suffer increased incidences of cancers and other medical disorders caused by their exposure to uranium. Fathers and sons who went to work in the mines and the processing facilities brought the remnants of uranium in to their homes at the end of the each day infecting their families. The mines, so many of which have been abandoned, have left open scars in the ground leaking radioactive waste. The companies that processed the uranium ore dumped their waste in open, and in some cases unauthorized, pits infecting both the soil and the water. The tragedy of uranium's legacy extends not only to those who worked in the mines, but to those who worked and lived near the mines that have also experienced devastating illnesses. An even greater tragedy is that decades later, the families who live in those same areas continue to experience health problems today. The remnants of uranium activity continue to pollute

our land, our water, and our lives. It would be unforgivable to allow this cycle to continue for another generation.

Many companies have approached the Navajo Nation over the years with promises of vast riches if we were to allow them to mine our uranium deposits. They have promised us newer and cleaner methods of mining that do not harm the land, the water, or the People. Recently some companies have promoted the use of a process called in situ leach mining that mines uranium ore by injecting a solution in the earth that pulls the ore from the surrounding rock. These companies claim the process is harmless. The science on this process is at best inconclusive, and at worst points to increased background radiation than existed before the mining operation. I have a hard time believing the claims of those who wish to profit from uranium mining that their "new" process is so much safer when history and science establish a different record. The Navajo People have been consistently lied to over the last 50 plus years by companies and government officials concerning the effects of various mining activities. Unfortunately, the true cost of these activities is only understood later when the companies have stolen away with their profits leaving the Navajo People to bear the health burdens. Why should we believe these companies now when this industry failed to clean up the toxic mess they left behind the first time? Why should we believe these companies now, when years after the last pound of uranium was removed from Navajo Land, my people still get sick and die from contamination?

I would like to take a moment to discuss the community of Crownpoint, New Mexico. For years a company has attempted to mine uranium using the in situ process here. The majority of the population of Crownpoint has consistently opposed any attempted mining. In response to the wishes of the community, the company has used Navajos who hold title to their land to bypass the objections of the community. By luring these Navajos with promises of riches they have managed to divide the community against itself, and are now pressing hard to begin mining operations. Are these the business practices that the Navajo People will have to look forward to in the Great 21st Century Uranium Rush? Are we to be cast aside again so others may profit?

The area where this mining would take place is located next to a school and is only several hundred feet from the sole drinking water source for more than 3000 Navajos. While we have been promised that in situ leach mining is a harmless process, one need only watch a stream flow to understand that a liquid will follow its own path. No one here can guarantee me that once this toxic solution is in the ground that it won't move of its own accord and contaminate our drinking water. I will not risk the health and safety of my people on the promises of those who advance as a fact something for which there is little evidence. I will not allow my Navajo People to be the guinea pigs of those seeking only profit. I will not sit idly by and watch as another generation of Navajos face a litany of cancers and other illnesses.

We are asked to believe blindly what the companies tell us, that the process is clean and nonintrusive. The very nature of this clean and nonintrusive process involves the injection of fluid that cannot be controlled, and will most assuredly contaminate anywhere it flows including into our ground water. The absolutes of clean and nonintrusive do not equate in my mind to uncontrolled and unproven. Why should we believe any of these companies when they threaten our water and try to pit the Navajo People against one another? I will not allow dividing and conquering the Navajo People to remain a profitable strategy.

In response to these attempts to renew uranium mining, the Navajo Nation Council passed, and I signed into law, the DNRPA. This Act places a ban on all uranium mining both within the Navajo Nation boundary, and within "Navajo Indian Country." This means that the Navajo Nation asserts its rights and jurisdiction as a sovereign government as recognized by federal law, and more recently by the courts and the EPA to place a ban on the mining of uranium on both the Navajo Nation and surrounding lands. The Navajo Nation Code and the US Code define the extension of Navajo jurisdiction to include reservation lands, trust lands, allotted lands, and dependent Indian communities. Under this definition the areas currently under mining permit review fall within Navajo jurisdiction. Alternatively, regardless of whether or not Navajo jurisdiction under the DNRP is found to be controlling, the Navajo Nation Environmental Protection Agency maintains jurisdiction under the grant of primacy by the US EPA to control ground water injection. The Navajo Nation will use any and all measures at its disposal as a sovereign power to ensure that our law is carried out.

As time has gone on and the land has been eroded by wind and rain, we continue to discover new contamination sites where uranium was mined and processed. We have also discovered both illegal dump sites, and legal dump sites that were prop-

erly closed, that have been eroded and are now open to the elements spreading their contaminants with every gust of wind. It is unconscionable to me that the federal government would consider allowing uranium mining to be restarted anywhere near the Navajo Nation when we are still suffering from previous mining activities. As an example, my people and their livestock still drink from contaminated wells. There are only two options for rectifying this type of problem, finding a new source of water, or removing the contaminants from the existing sources. A new source would require large scale water development projects such as the proposed Navajo Gallup Water Supply Project. While such projects are expensive they pale in comparison to the cost of removing the contaminants from drinking water sources. Cleaning the contaminated water sources would cost many billions of dollars. This is just a fraction of the ongoing costs associated with uranium contamination.

If the committee insists on promoting renewed uranium mining outside of Navajo Indian Country, then the federal government should at minimum take this opportunity to use the profits from such mining activity to clean up historic mining and processing sites. This is in no way an endorsement of uranium mining, but an argument that any future revenues from uranium mining should at a very minimum go to alleviating the sins of historic uranium activities.

In sum, the Navajo Nation asks you to respect our wishes to live free of uranium mining. If the government and corporations insist on uranium mining we insist it not be on Navajo Indian Country; do it elsewhere. We have lived through that once, and continue to live with its effects today. The Navajo People have earned the right through illness and death to choose to not live through it again. I pray that the committee will learn from the experiences of the Navajo People and protect their own constituents and land from generations of contamination.

The CHAIRMAN. Thank you very much for your testimony.

Mr. Grumbles, why do you not go right ahead?

STATEMENT OF BENJAMIN H. GRUMBLES, ASSISTANT ADMINISTRATOR FOR WATER, ENVIRONMENTAL PROTECTION AGENCY

Mr. GRUMBLES. Thank you, Mr. Chairman, Senator Craig. I am Benjamin Grumbles, Assistant Administrator for Water at the U.S. EPA. Thank you for your stamina for this hearing.

The CHAIRMAN. Thank you for yours.

Mr. GRUMBLES. I was listening intently to the discussions of the first panel and there was a lot of discussion about existing Federal regulatory environmental tools, the role of EPA, and the development of new tools through Good Samaritan legislation. So in the brief moments I have to summarize the testimony, Mr. Chairman, I would like to say that EPA is committed to using all appropriate regulatory tools, Safe Drinking Water Act, Clean Water Act, CERCLA, as well as innovative applications of those programs and new tools, including the Good Samaritan initiative and the legislation that has been proposed. I also want to say that we are coordinating closely with the Nuclear Regulatory Commission on uranium mining issues.

I heard excellent discussion about the scope of the problem, the number of mining sites, abandoned mine sites, and the risks they pose to environmental health and safety. Mr. Chairman, the reality is that there is some good news, and the good news is that there are some innovative tools, tools such as the ones that EPA and other Federal agencies have been working on with western Governors to encourage Good Samaritans to step in. Unfortunately, that is needed because of the result of legal and bureaucratic obstacles under current laws, particularly the Clean Water Act.

Mr. Chairman, we have found that through the use of administrative procedures such as the tools that the Administrator, Steven Johnson, issued last year for CERCLA, Superfund, Good Samaritan

initiatives, we think that sends a very strong signal so that those who are afraid to step forward, those who are truly Good Samaritans but are afraid of possible Superfund/CERCLA liability—they will receive comfort letters or covenants not to sue, cleanup covenants. We think that is going to help tremendously in the effort to use new tools.

Our view is that we should not let the perfect be the enemy of the good or the perfect being the enemy of the Good Samaritan. So we support targeted bipartisan clean water legislation.

The other two items I wanted to mention, Mr. Chairman, are in-situ recovery of uranium. I certainly know there is growing interest in developing uranium mining sites in several States. The United States EPA is aware of potential concerns from this process. We share authority with the Nuclear Regulatory Commission and with States in overseeing practices at these facilities, and we commit to continue to work together to ensure that there are safeguards for groundwater, there are safeguards for water and for the rest of the environment as projects move forward and use our authorities under the Uranium Mill Tailings Radiation Control Act as well.

The other item, Mr. Chairman, is just to point out that EPA is working very closely with the Navajo Nation and other Federal agencies. We developed a draft action plan March 3rd to respond to the many concerns and to develop an approach to help remediate and respond to the problems that have occurred over the years on Navajo land.

I look forward to answering your questions.

[The prepared statement of Mr. Grumbles follows:]

PREPARED STATEMENT OF BENJAMIN H. GRUMBLES, ASSISTANT ADMINISTRATOR FOR WATER, ENVIRONMENTAL PROTECTION AGENCY

Mr. Chairman and Members of the Committee, I am Benjamin H. Grumbles, Assistant Administrator for Water at the United States Environmental Protection Agency (EPA). Thank you for the opportunity to discuss EPA's efforts to protect and restore water resources which may be affected by mining activities. EPA is committed to using all appropriate regulatory tools and collaborative partnerships to prevent or reduce pollution at mining sites and restore impaired watersheds. We're using our current authorities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) to reduce risks and developing new tools and approaches, including our Good Samaritan Initiative, to clean up abandoned hardrock mines. We are also working closely with NRC on uranium mining issues.

THE ABANDONED MINE PROBLEM

Inactive or abandoned mine sites can pose serious public safety and environmental hazards. The good news is that there are significant resources available through voluntary efforts to remediate these sites and improve environmental health and safety. Unfortunately, as a result of legal obstacles, we have been unable to take full advantage of opportunities to promote cooperative conservation through partnerships that will restore and enhance abandoned mine sites throughout the United States.

According to estimates, there are over half a million abandoned mines nationwide, most of which are former hardrock mines located in the western states, which are among the largest sources of pollution degrading water quality in the United States. Acid mine drainage from these abandoned mines has polluted thousands of miles of streams and rivers, as well as ground water, posing serious risks to human health, wildlife, and the environment. This problem can affect local economies by threatening drinking and agricultural water supplies, increasing water treatment costs, and limiting fishing and recreational opportunities.

The Center of the American West at the University of Colorado, Boulder developed and published a report entitled, "Cleaning Up Abandoned Hardrock Mines in the West—Prospecting for a Better Future," for which EPA provided financial assistance. However, the report does not represent formal EPA policy. The report details the history of the nation's mining industry, the environmental legacy that remains, and describes challenges and management options—at the Federal, State and local level—in reducing the effects of inactive and abandoned mines.

Mine drainage and runoff problems can be extremely complex and solutions are often highly site specific. In many cases, the parties responsible for the pollution and cleanup of these mines no longer exist. However, over the years, an increasing number of Good Samaritans, who are not responsible for the pollution, have expressed interest in cleaning up abandoned mines. Through their efforts, we can help restore watersheds and improve water quality.

LIABILITY

The threat of liability, whether under the Clean Water Act or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), can be a real impediment to voluntary remediation. A private party cleaning up a release of hazardous substances might become liable as either an operator of the site, or as an arranger for disposal of the hazardous substances. Under the Clean Water Act, a party may be obligated to obtain a discharge permit which requires compliance with water quality standards in streams that are already in violation of these standards. The potential assignment of liability occurs even though the party performing the cleanup did not create the conditions causing or contributing to the degradation. Removing this liability threat will encourage more Good Samaritans to restore watersheds impacted by acid mine drainage.

The Clean Water Act requires permit holders to comply with their permits so discharges do not violate water quality standards. While this concept has been extremely effective for protecting and restoring our Nation's waters, it inhibits the type of work Good Samaritans would undertake. Partial cleanups by Good Samaritans will result in meaningful environmental improvements and will accelerate achieving water quality standards. Yet, in many cases, the impacted water bodies may never fully meet water quality standards, regardless of how much cleanup or remediation is done.

By holding Good Samaritans accountable to the same cleanup standards as polluters or requiring strict compliance with the highest water quality standards, we have created a strong disincentive to voluntary cleanups. Unfortunately, this has resulted in the perfect being the enemy of the good. Another concern for potential Good Samaritans is their potential liability for any remaining discharges at the abandoned mine site. Under current law, it may not be possible for a Good Samaritan to go onto a site, do a cleanup to improve the quality of a discharge, and maintain the site after completing what they said they were going to do without long term liability. A statutory change to the Clean Water Act is appropriate to provide this protection and to be realistic and fair to a volunteer agreeing to improve water quality. By removing this threat of liability, we will encourage more voluntary and collaborative efforts to restore watersheds impacted by acid mine drainage.

Let me emphasize, however, that our support for Good Samaritan cleanups is not about lowering environmental standards or letting polluters off the hook. Good Samaritans should be held to a realistic standard that results in environmental improvements and to be held accountable while they have a permit. And those responsible for the pollution, if still in existence, will remain accountable, consistent with the Agency's "polluter pays" policy.

GOOD SAMARITAN TOOLS

In June 2007, EPA Administrator Steve Johnson released administrative tools that provide strong protections for Good Samaritans under CERCLA. The Agency developed a model Good Samaritan Agreement and comfort/status letter that can be used to provide greater legal certainty to a volunteer while also providing adequate assurances to the Agency that a cleanup will be performed properly. We are also working closely with our Federal land management agencies and State partners to encourage, where appropriate, greater use of voluntary cleanup programs for abandoned mine remediation. In addition, we developed guidance that will help Good Samaritans understand our approach to these cleanups. Our administrative tools do much under CERCLA to remove roadblocks, but we can only go so far administratively.

LEGISLATIVE EFFORTS

In addition to the administrative tools, the Administration and EPA proposed the Good Samaritan Clean Watershed Act in the last Congress to comprehensively reduce the Good Samaritan liability issues. That legislation, as you probably know, would modify both CERCLA and the Clean Water Act. With the release of our administrative tools, and our desire to accelerate the pace of environmental improvement, EPA continues to work with a broad range of stakeholders including the Western Governors' Association, and others, to develop a targeted bipartisan legislative proposal for the Clean Water Act, which remains the main obstacle to Good Samaritan cleanups. In fact, there are many cleanups in the State of Colorado that remain on hold and unfinished, not because of CERCLA liability concerns, but because of Clean Water Act liability concerns.

We applaud the bipartisan legislative efforts in both houses of Congress to correct the issue, and we look forward to working with the appropriate Congressional committees on legislation. In the interim, and until such time as Good Samaritan legislation is enacted, EPA will continue to encourage and facilitate cleanup of abandon mines through use of its administrative tools and authorities.

GOOD SAMARITAN ACTIVITIES

The first project under the Agency's Good Samaritan Initiative is the abandoned mine in Utah's American Fork Canyon. EPA worked with Trout Unlimited (TU) and a private landowner who had not caused the pollution at the site to help restore a watershed that has been impacted for well over a century, restoring the water quality and the habitat of a rare cutthroat trout species. Restoration of the American Fork is part of an ambitious multi-year effort by Trout Unlimited to draw attention to the problem of abandoned mines in the western United States while also identifying solutions. EPA has learned from the experience of the Trout Unlimited project, and is putting those lessons to good use. This restoration effort exemplifies how the President's vision of cooperative conservation, which emphasizes collaboration over confrontation, can accelerate environmental protection.

Mine scarred lands are a particular concern of the EPA Brownfields Program and they were explicitly highlighted in the Brownfields Law passed in 2002. The Brownfields Program has coordinated a multi-agency collaborative initiative to help communities clean up and reuse mine-scarred lands. The federal partners are implementing six community pilots in Virginia, Pennsylvania, West Virginia, Colorado, and Nevada. The pilot communities received targeted federal technical and financial support initially to help develop action plans and then to create local assistance packages leading to revitalization.

We hope the Good Samaritan initiative will be a springboard for future successes, such as those achieved through the Brownfields program. But unlike the situation with Brownfields, Good Samaritans at abandoned mine sites are not looking to purchase the property or receive monetary awards for their efforts—they simply want to engage in voluntary stewardship activities that benefit the environment.

The bottom line is that this type of innovative partnership agreement—coupled with other assistance—can help dramatically in revitalizing thousands of water bodies harmed by acid mine runoff.

A comprehensive solution to the problem associated with abandoned mine remediation is long overdue. EPA is actively working with Congress and our partners at the State and local levels to create a long term solution to encourage and expedite Good Samaritan cleanups. EPA will continue to provide leadership through the Good Samaritan Initiative and to work with other Federal land management agencies, States and Congress to pass legislation for the Clean Water Act that promotes and encourages environmental restoration of abandon mine sites across the country.

IN-SITU RECOVERY OF URANIUM

There is growing interest in developing uranium mining sites in several states due to significant increases in the price of uranium. Uranium is mined through conventional open pit and underground mining practices. However, most of the uranium extracted in the U.S. is now produced by in-situ leaching, or ISL. ISL uses injection wells to introduce alkaline fluids into underground formations to dissolve uranium into solution. Production wells subsequently bring the uranium-bearing fluids to the surface, where they are processed into "yellowcake" for use by the nuclear industry.

EPA shares authority with the Nuclear Regulatory Commission (NRC) and with the States in overseeing practices at ISL facilities. NRC regulates all ISL facility operations, including the injection of fluids, using environmental, radiation, and

ground water protection standards developed by EPA in accordance with the Uranium Mill Tailings Radiation Control Act (UMTRCA). Operators of injection wells used at ISL facilities also must apply for and receive a Class III well permit under the authority of the Safe Drinking Water Act's Underground Injection Control (UIC) program requirements. Permits for Class III solution mining wells are issued by the state UIC agency or EPA, in those states that have not taken primary enforcement responsibility for the UIC program. State UIC programs may have requirements that are more stringent than EPA requirements.

At the end of 2007 there were five ISL facilities licensed and operating in the U.S.—in Wyoming, Nebraska and Texas. One facility in Wyoming is licensed and permitted, but not operating. The NRC has licensed another one in New Mexico, but it is not operating because of pending Federal court litigation regarding Safe Drinking Water Act permits for the facility. The NRC has received four new license applications and expects several additional applications in the next two years. Additional license applications have been received, or are likely to be received in the NRC Agreement States of Texas and Colorado. Any new facilities will be licensed by NRC or its Agreement States, and must apply for and receive permits from their state UIC program or EPA.

We are working closely with the NRC as they develop revisions to their existing ground water regulations to ensure that they incorporate EPA regulatory requirements developed under UMTRCA and are consistent with EPA regulations for Class III injection wells. EPA or the state UIC program will maintain responsibility for permitting ISL injection wells. Permits consider the siting of wells, construction standards, operational practices, monitoring and reporting, closure, financial responsibility, and cleanup. The NRC regulations and related guidance require operators to take action to prevent off-site excursions of uranium production fluids into ground water aquifers during operations, and to restore ground water after operations are completed.

EPA understands that some communities are very concerned about the potential development of new uranium ISL mining operations. States that may need to regulate these new mining sites are also very engaged in this issue, as evidenced by the national panel of presentations and discussions of in-situ extraction of uranium at the recent Ground Water Protection Council meeting in New Orleans. We will continue to work with our federal partners and state co-regulators to ensure that ISL practices do not endanger underground sources of drinking water.

CERCLA

The Superfund program was established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), which Congress passed in December 1980 to respond to concerns over Love Canal and other toxic waste sites. The Superfund program protects human health and the environment by performing or requiring cleanup of hazardous waste sites and short-term actions to mitigate immediate threats to human health. Some of the Nation's most contaminated sites are listed on EPA's Superfund National Priorities List (NPL). A small percentage of the 1,569 sites listed on the NPL are related to mining. Through FY 2007, there were 84 sites on the NPL that had been associated with mining or mine-related activities. The vast majority of abandoned mining sites in the U.S. will not be addressed through the Superfund program but through other federal, state, local, or private sector mechanisms.

URANIUM MINE LEGACY ON NAVAJO NATION

Additionally, EPA has provided assistance to the Navajo Nation to address uranium abandoned mine land contamination, principally through the Agency's Region 9 Office. Working together with the Nuclear Regulatory Commission, Department of Energy, Indian Health Service, and Bureau of Indian Affairs, EPA has committed to provide continued support to the Navajo Nation to address the legacy of uranium mine wastes and uranium contaminated buildings and water sources. This support is embodied in a draft five-year plan from the five federal agencies that reviews public health and environmental impacts of uranium contamination in the Navajo Nation. We will continue to work closely with the Navajo Nation and other federal, state and local partners to manage the environmental effects of abandoned uranium mines on Navajo Nation.

CONCLUSION

Thank you, Mr. Chairman for giving me the opportunity to testify today. EPA understands the importance of mining to our nation's economy and global competitiveness, and is committed to using available regulatory tools and partnerships to pro-

tect and restore the environment. We look forward to working with you and your colleagues on mining-related environmental issues and making this the year that Good Samaritan legislation is enacted into law.

The CHAIRMAN. Thank you very much.

Mr. Geiser.

STATEMENT OF DAVID W. GEISER, DEPUTY DIRECTOR FOR LEGACY MANAGEMENT, DEPARTMENT OF ENERGY

Mr. GEISER. Good afternoon, Mr. Chairman. My written testimony addresses the two items your staff had requested which is our management of the former inactive uranium milling sites and our current uranium leasing program. In the interest of time, I will just focus on the uranium leasing program, as that seems to be the primary interest today.

The Office of Legacy Management administers the Department of Energy's Uranium Leasing Program. The original program began in the late 1940s when the U.S. Atomic Energy Commission was authorized to withdraw lands from public use to ensure an adequate reserve of uranium and vanadium ores for the Nation's defense program. The Atomic Energy Act of 1954, as amended, further authorized the AEC to lease the lands under its administrative control to the domestic uranium industry for the exploration, development, and extraction of uranium and associated minerals and to collect royalties on the production of those minerals.

Today we manage the Uranium Leasing Program under the authority of the Atomic Energy Act of 1954 and in accordance with 10 C.F.R. 760.

We currently manage 32 lease tracts, roughly 25,000 acres. All those tracts are located within the Uravan Mineral Belt in southwestern Colorado.

We completed a programmatic environmental assessment in June 2007, and a finding of no significant impact was issued in July 2007 for DOE's preferred alternative, which was the expanded leasing program.

In March 2008, DOE will extend the 13 active leases for an additional 10-year period.

Additionally, last Friday on March 7, we offered the inactive lease tracts to the domestic uranium industry through a Web-based competitive bid solicitation.

Today, according to industry reports, the nuclear power industry throughout the world consumes approximately 180 million pounds of uranium annually. It is important to note that the ore reserves associated with the Department of Energy's program are currently estimated to be 13 million pounds of uranium. This is less than 2 percent of the United States known reserves of roughly 900 million pounds.

While DOE is the managing Federal agency for the Uranium Leasing Program, we work closely with the Bureau of Land Management, who is responsible for all the other resource uses and non-DOE lease-related activities, and with the State of Colorado, the Division of Reclamation Mining and Safety.

DOE does collect royalties from the Uranium Leasing Program. There is a site-specific annual royalty and then there are also pro-

duction royalties that are based on the amount of ore actually extracted.

This is a discussion of bonds. The Department of Energy also has a requirement for a bond associated with mining reclamation activities, and we establish that required bond on a site-by-site basis.

In closing, DOE's Uranium Leasing Program covers 32 lease tracts in southwestern Colorado. It accounts for less than 2 percent of the country's known uranium reserves, and we manage that program closely in cooperation with the Bureau of Land Management and the State of Colorado.

Thank you.

[The prepared statement of Mr. Geiser follows:]

PREPARED STATEMENT OF DAVID W. GEISER, DEPUTY DIRECTOR FOR LEGACY MANAGEMENT, DEPARTMENT OF ENERGY

Good morning Mr. Chairman, and distinguished Members of the Committee. My name is David Geiser, and I am the Deputy Director of the Office of Legacy Management (LM) at the Department of Energy (DOE). The Office of Legacy Management is responsible for ensuring that DOE's post-closure responsibilities are met by providing long-term surveillance and maintenance, records management, workforce restructuring and benefits continuity, property management, and land use planning. By managing post-closure responsibilities, LM has better positioned the Department to continue focusing DOE programs and personnel on achieving the diverse missions of the Department.

LEGACY MANAGEMENT MISSION AND VISION

LM's mission is to manage the Department's post-closure responsibilities and ensure the future protection of human health and the environment. Our mission ensures Departmental legacy responsibilities are managed in a manner that best serves Department workers, communities, and the environment. This vision includes several elements:

- Human health and the environment are protected at closed sites, through effective environmental surveillance and maintenance. This often involves cooperative partnerships with stakeholders and State, Tribal, and local governments.
- Key records and critical information are preserved, protected and made publicly accessible.
- Effective oversight and management is provided for health and pension benefits of the Department's former contract workforce, who have been instrumental to the success of our missions; and
- Federal land and other assets are returned to the most beneficial use consistent with the Department's mission requirements.

In response to the Committee's request, I am here today to discuss two topics: (1) the Department's responsibility for managing former inactive uranium milling sites; and, (2) our uranium leasing program.

LONG-TERM MANAGEMENT OF URANIUM MILLING SITES

Under the Uranium Mill Tailings Radiation Control Act of 1978, as amended (referred to as the "the Act" or "UMTRCA"), Public Law 95-604, DOE was responsible for cleaning up inactive uranium milling sites that were abandoned at the time the legislation was enacted, in cooperation with the state in which the tailings were located, and subject to the oversight of the U.S. Nuclear Regulatory Commission (NRC). Sites that were operating in 1978, or thereafter, are cleaned up by the operator under NRC or State oversight.

LM's primary responsibility is to manage the Department's roughly 90 closure sites and the liabilities associated with retired contractor workers from those sites. The 90 closure sites include approximately 30 former inactive or active uranium milling sites that have been remediated under either Title I or Title II of the UMTRCA. At the former uranium milling sites, tailings or waste were produced by the extraction or concentration of uranium or thorium ore. LM provides long-term surveillance and maintenance for sites that are transferred to the Federal Government for custodial care. For the UMTRCA sites, this includes both surveillance and

maintenance of the disposal cells and maintenance of contaminated groundwater treatment activities initiated under the clean-up phase.

THE URANIUM MILL TAILINGS RADIATION CONTROL ACT OF 1978 AUTHORIZED DOE'S CLEANUP OF THE FORMER INACTIVE URANIUM MILLING SITES AND CERTAIN NEARBY CONTAMINATED PROPERTIES

Title I of UMTRCA originally required the cleanup of 22 inactive uranium milling sites and nearby contaminated properties in the vicinity of the milling sites that contained residual radioactive materials from the milling sites. UMTRCA was amended a number of times: to extend UMTRCA's expiration date; to add the Edgemont, South Dakota vicinity properties (but not the milling site); and most recently, to add the Moab, Utah milling site, including any contaminated vicinity properties.

Under the Act, DOE's authority for surface (tailings) cleanup at the original 22 milling sites and vicinity properties (including the Edgemont, South Dakota vicinity properties) expired in 1998. DOE's authority for groundwater remediation does not have an expiration date.

DOE remediated the inactive uranium milling sites and vicinity properties in accordance with standards promulgated by the U.S. Environmental Protection Agency (EPA) in 40 C.F.R. Part 192. The regulations provided standards for the cleanup of soil outside structures (radium-226 concentration in soils) and the cleanup of structural interiors (gamma radiation and radon-222). In addition, the regulations established the design standard for the longevity of disposal cells. The regulations also covered the cleanup of contaminated groundwater.

By 1998, DOE had remediated 22 inactive milling sites and a total of 5,335 vicinity properties, including construction of 18 disposal cells. DOE's costs for the cleanup of all 22 milling sites and the vicinity properties totaled $1.476 billion.

URANIUM LEASING PROGRAM—INTRODUCTION

LM currently administers the Department's Uranium Leasing (UL) Program. The original program began in the late 1940s when the U.S. Atomic Energy Commission (AEC), a predecessor agency of DOE, was authorized to withdraw lands from public use to ensure an adequate reserve of uranium and vanadium ores for the nation's defense program. Approximately 720 square miles (460,000 acres) of public lands, primarily in the States of Colorado, New Mexico, Utah, and Wyoming, were withdrawn from mineral entry by the Bureau of Land Management (BLM) for use by the AEC. Subsequent to the withdrawal, the AEC, along with the U.S. Geological Survey, began a massive drilling exploration program to: (1) locate deposits of uranium ores; and (2) identify other areas containing favorable geologic formations. On the basis of that exploration program, the AEC retained approximately 27,000 acres of public lands in withdrawn status, and the remaining lands reverted to the public domain.

The Atomic Energy Act of 1954, as amended, further authorized the AEC to lease the lands under its administrative control to the domestic uranium industry for the exploration, development, and extraction of uranium and associated minerals, and to collect royalties on the production of those minerals. That authorization, included in AEC Circular 8, Revised, was subsequently codified as, Uranium Leasing Program, in title 10 Code of Federal Regulations Part 760 (10 CFR Part 760).

Today, according to industry reports, the nuclear power industry throughout the world consumes approximately 180 million pounds of uranium annually. Against that demand, world production of uranium is only 80 to 100 million pounds of uranium annually. The balance of the demand has historically been met through the depletion of various industry stockpiles; however, over the last decade, these stockpiles have dwindled, and can no longer sustain the continued demand. The realization of this fact has led to today's renaissance of the uranium mining industry.

It is important to note that the ore reserves associated with the Department's UL Program are currently estimated to be 13.5 million pounds of uranium. This is less than two percent of the United States' known reserves, purported to be nearly 900 million pounds of uranium, which in turn is approximately 8.6 percent of the known world reserves (10.5 billion pounds of uranium).

URANIUM LEASING PROGRAM HISTORY

The Atomic Energy Acts of 1946 and 1954 authorized the original AEC leasing program, which began in 1948 and ended in 1962, when existing purchase contracts met national defense needs. This program yielded more than 1.2 million pounds of uranium and 6.8 million pounds of vanadium and generated $5.9 million in royalties to the Federal Government.

In the early 1970s, the emphasis for the UL Program switched from national defense to preserving the domestic uranium industry and infrastructure in support of commercial nuclear power. The current leasing program was initiated in 1974 with two 10-year lease periods that yielded approximately 6.5 million pounds of uranium and 33.4 million pounds of vanadium. This production generated $53 million in royalties to the Federal Government. Most lease tract production activities occurred prior to 1984; however, some production operations resumed briefly in 1989 and 1990.

In 1994, all leases expired. DOE prepared a Programmatic Environmental Assessment (PEA) of the UL Program to determine what action DOE should take. This PEA was completed in 1995 and culminated in the issuance of a Finding of No Significant Impact (FONSI) for the proposed action, which called for continued leasing of DOE-managed lands for exploration and production of uranium and vanadium ores. Subsequent to the FONSI, DOE offered its previous leaseholders a sole right of refusal for an additional 10-year lease of their respective lease tracts. Fifteen leaseholders accepted DOE's offer and executed new lease agreements. At that time, all other leaseholders reclaimed their respective lease operations and relinquished their rights back to DOE. Subsequent to 1995, two additional lease tracts have been fully reclaimed and relinquished back to DOE.

Between 1994 and 2007, production only occurred during a three-year period, 2003 through 2005. These operations on four lease tracts produced over 65 thousand tons of ore, resulting in production royalty payments of approximately $5 million to the Federal Government.

TODAY'S URANIUM LEASING PROGRAM

LM currently manages 32 lease tracts (25,000 acres), all located within the Uravan Mineral Belt in southwestern Colorado. Thirteen of these lease tracts are actively held under lease, and the remaining 19 lease tracts are currently inactive.

A second PEA was completed in June 2007, and a FONSI was issued in July 2007 for DOE's preferred (Expanded Program) alternative. This alternative included continuing the leasing program for an additional period of time, extending the 13 existing leases for that same period, and expanding the program to include the competitive offering of DOE's inactive lease tracts to the domestic uranium industry. As defined in the PEA, the existing lease tracts contain approximately 300 acres of surface disturbance from the current leaseholders' operations. In addition, up to 410 acres of new surface disturbance is anticipated over the next 10 years from the expansion of program activities.

In March 2008, DOE will extend the 13 active leases for an additional 10-year period. Additionally, on March 7, DOE offered the inactive lease tracts to the domestic uranium industry through a web-based competitive bid solicitation. Over 100 interested parties have requested that they be notified of the pending solicitation. Following the 60-day solicitation period and the subsequent review and evaluation of all bid submittals, new 10-year leases will be executed with the successful bidders.

COORDINATION WITH FEDERAL AND STATE AGENCIES

LM is the managing federal agency for the UL Program and is responsible for administering the program, including compliance with the National Environmental Policy Act and other environmental and regulatory requirements. The Bureau of Land Management (BLM), as the federal surface-management agency, is responsible for managing all other resource uses and non-DOE lease-related activities (oil and gas development, grazing, recreation, etc.) that occur on these public lands. Additionally, DOE coordinates with BLM to review all leaseholder-proposed plans to minimize potential impacts to the various resources.

The Colorado Division of Reclamation, Mining, and Safety (CDRMS) is the lead state agency involved with the UL Program and DOE's leaseholder-proposed activities. CDRMS requires and issues permits for all mineral exploration, mining, and reclamation activities conducted within the State of Colorado. DOE coordinates with CDRMS to review all leaseholder-proposed plans and monitor all subsequent leaseholder activities to ensure compliance with applicable statutes, rules, and regulations. CDRMS regulations include provisions for applicable reviews by all local agencies, the general public, and other interested stakeholders.

CALCULATION AND PAYMENT OF ROYALTIES

As mentioned, DOE collects royalties from the UL Program. Each leaseholder is required to pay a lease-specific annual royalty to DOE to maintain rights to the lease. In addition to the annual royalty, each leaseholder is required to pay a production royalty to DOE on all ores produced from the lease tract. The production

royalties are established as a bid-percentage of the fair market value of the ore, which in turn is calculated from the quarterly weighted average price of uranium (derived from the long-term and spot market prices for uranium) and the quarterly average price of vanadium. The bid-percentage is established by each potential leaseholder as the percentage amount they are willing to pay to obtain the lease, recognizing that the successful bidder is generally the qualified bidder offering the highest royalty bid percentage. During the 1974 lease solicitation, the successful bids ranged from approximately four percent to over 36 percent. The range of the bids is, in part, dependent on the estimated value of the ore (quantity and quality), size of the lease tract, and proximity to milling sites.

As the UL Program goes forward, DOE will receive an aggregate amount of $500,000 annually from its leaseholders in the form of minimum annual royalty payments. This amount serves to offset the cost for DOE to administer the program. DOE will also receive production royalties from its leaseholders for all ores produced from the lease tracts; the 2007 PEA estimated that these future production royalties could total $10 million annually, once lease operations reach previous production levels (estimated at 150,000 tons of ore at prices comparable to those seen in the first quarter of 2007—$80 per pound of uranium and $6.60 per pound of vanadium).

MINING RECLAMATION ACTIVITIES

Each leaseholder is required to reclaim its operations in accordance with all applicable statutes, rules, and regulations and to the satisfaction of the DOE Realty Officer. This typically includes: (1) permanent closure of all mine portals, ventilation shafts, and other openings; (2) demolition and removal of all site structures and utilities; (3) identification of bulk radiological materials and burial of those materials below grade; (4) recontouring of the site, including mine-waste-rock materials to closely resemble and blend in with the existing topography; (5) redistribution of stockpiled surface soil materials back over the mine-site area; and (6) reseeding all disturbed areas with an approved, native seed mix.

In the event a leaseholder defaults on its responsibilities, DOE's lease agreements require each leaseholder to post a reclamation-performance bond (payable to DOE) in an amount adequate to cover the final reclamation of all leaseholder operations. DOE, through experience gained from the successful reclamation of the Department's own legacy abandoned uranium mine sites (initiated in 1994 and completed in 2001), establishes the required bond amounts on a site-bysite basis and includes such factors as the type of operation being proposed and the location, acreage, and topography of the area to be disturbed. These bond amounts are calculated such that DOE could subcontract all final mine-site reclamation activities at no cost to the Government. Additionally, the bond amounts are reviewed periodically and revised as the leaseholder's operations change.

CDRMS also requires that a reclamation-performance bond be posted for all mineral exploration and mining activities conducted within the State of Colorado. CDRMS routinely reviews the bond amounts established by DOE, and if it determines that DOE's bond is sufficient to cover all necessary reclamation costs for the leaseholders' operations, then CDRMS can (and often will) establish its bonding amount at a minimal level. DOE and CDRMS coordinate the oversight of reclamation activities to ensure that both agencies are satisfied once final reclamation is complete.

CONCLUSION

In closing, LM's primary responsibility is to manage the Department's roughly 90 closure sites and the liabilities associated with retired contractor workers from those sites. The 90 closure sites include approximately 30 former inactive and active uranium milling sites that have been remediated under either Title I or Title II of UMTRCA. In addition to this primary mission, the Office of Legacy Management administers the Department's UL program. The UL program currently covers 32 lease tracts in southwestern Colorado and accounts for less than 2 percent of the country's known uranium reserves. We manage that leasing program in accordance with 10 CFR Part 760, and in cooperation with the U.S. Bureau of Land Management and the State of Colorado.

Mr. Chairman and distinguished Members of the Committee, this concludes my statement.

The CHAIRMAN. Thank you very much.

Dr. Miller.

STATEMENT OF CHARLES L. MILLER, DIRECTOR, OFFICE OF FEDERAL AND STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS, NUCLEAR REGULATORY COMMISSION

Mr. MILLER. Thank you, Mr. Chairman. I am honored to appear before you today to discuss the U.S. Nuclear Regulatory Commission's regulatory role for uranium recovery facilities. I have submitted my written testimony for the record. With my allotted time this afternoon, I will summarize some of the key points.

The NRC does not have the statutory authority to regulate traditional uranium mining. Therefore, the NRC does not regulate the digging or removal of uranium ore from the earth. Likewise, the NRC is not responsible for abandoned uranium mine sites.

The NRC does regulate uranium recovery facilities under its Atomic Energy Act authority. The NRC's role is that of safety and environmental oversight of uranium recovery facilities and has no role in pre-application, uranium exploration, claims, royalties, or patents.

There are two primary uranium recovery facilities, conventional mills and in-situ leach facilities, referred to as ISL's or sometimes ISR's.

A conventional mill processes uranium ore which is crushed and sent through an extraction operation to concentrate the uranium and produce yellowcake.

In the ISL uranium extraction process, wells are drilled into the rock formations containing the uranium ore. Water mixed with oxygen and sodium bicarbonate is injected into the uranium ore body so that it dissolves and can be extracted. The recovered uranium-bearing solution is pumped to a central processing plant which separates out the uranium and concentrates it.

At the end of the uranium recovery process, after a licensee has reclaimed the site and remediated any groundwater contamination to NRC standards, the license is terminated.

Waste from conventional milling is primarily mill tailings, a sandy ore residue. NRC regulates the safe storage and disposal of these tailings which are transferred to the Department of Energy for perpetual care.

The ISL process does not produce mill tailings. Waste from this process includes items such as filters and piping and is relatively of small volume. This waste is shipped offsite to a licensed disposal facility.

Many portions of the conventional and ISL uranium recovery sites are on or partially on Federal lands administered by BLM. The NRC is responsible for oversight of all uranium recovery facilities, both conventional and ISL, on Federal land in the same manner as I previously described. The BLM is often the cooperating agency in development of the environmental impact statements or complex environmental assessments for new applications involving Federal land. NRC applicants and licensees must separately obtain any permits required by other Federal agencies prior to construction and operation.

The NRC has recently received three new applications for ISL facilities in Wyoming. Over the next few years, we are expecting 24

more applications for new uranium recovery facilities, restarts, and expansions of existing facilities and maybe some others.

Existing facilities and potential new sites are in Wyoming, New Mexico, Arizona, Nebraska, South Dakota, and the NRC Agreement States of Texas, Colorado, and Utah. The NRC plans to work closely with all stakeholders, including Native American tribes, to ensure that any concerns associated with licensing of proposed uranium recovery facilities are appropriately addressed. The formal license application review process includes comprehensive safety and environmental reviews. If NRC issues a license, our continued oversight of these facilities is implemented through the licensing reviews and inspections.

Mr. Chairman and members of the committee, which obviously are absent at this point, I hope my testimony provides you an understanding of NRC's role with regard to these sites. I would be pleased to respond to your questions. Thank you.

[The prepared statement of Mr. Miller follows:]

PREPARED STATEMENT OF CHARLES L. MILLER, DIRECTOR, OFFICE OF FEDERAL AND STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS, NUCLEAR REGULATORY COMMISSION

INTRODUCTION

Mr. Chairman and Members of the Committee, I am honored to appear before you today to discuss the U.S. Nuclear Regulatory Commission's (NRC) regulatory role for uranium recovery facilities. I hope that my testimony and clarification of NRC's jurisdiction will be helpful to you in your work on mining legislation.

URANIUM RECOVERY

The NRC does not have the statutory authority to regulate traditional mining. Therefore, the NRC does not regulate the digging or removal of uranium ore from the earth. Likewise, the NRC is not responsible for abandoned uranium mine sites. These operations are the responsibility of other Federal and State regulators.

The NRC does regulate the processing of uranium ore. Under its Atomic Energy Act authority, the NRC regulates uranium recovery facilities, which use chemical and/or mechanical processes to convert raw uranium into a compound commonly referred to as "yellowcake." Yellowcake is then shipped to a uranium conversion facility for further processing as it moves along the uranium fuel cycle process.

There are two primary uranium recovery processes over which NRC has jurisdiction: conventional mills and in situ leach (ISL). A conventional mill processes uranium ore which has been removed from the earth by either open pit or underground mining. The ore is then crushed and sent through a mill, where extraction processes concentrate the uranium. Waste from this process is primarily mill tailings, a sandy ore residue that poses a potential hazard to public health and safety due to its radium and chemical content. Conventional milling produces a substantial amount of mill tailings. NRC regulates the recovery process and the safe storage and disposal of these tailings.

In the ISL uranium extraction process, wells are drilled into rock formations containing uranium ore. Water, usually fortified with oxygen and sodium bicarbonate, is injected down the wells to mobilize the uranium in the rock so that it dissolves in the groundwater. The location of the uranium-bearing solution is controlled by pumping more water out of the formation than is pumped into it. Containment and water quality are assessed through a network of monitor wells. The uranium-bearing solution is pumped to a central processing plant, which uses ion exchange to separate the uranium and concentrate it. Although these ISL facilities are sometimes referred to as "mines", the entire uranium extraction process, below and above ground, is considered to be processing and is therefore subject to NRC jurisdiction under the Atomic Energy Act. Waste from this process is specific in nature (e.g., filters, piping), relatively small in volume, and can be disposed in a tailings pile at a conventional mill site or at a licensed disposal facility. Tailings are not generated at ISL facilities. However, ISL facilities may have settling ponds where sediment

containing uranium can accumulate and which must be remediated as part of decommissioning.

An additional extraction process is heap leaching. Heap leaching is used most often when the content in the ore is too low for the ore to be economically processed in a uranium mill.

NRC'S ROLE UNDER UMTRCA

With the enactment of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), mill tailings became subject to NRC regulation. UMTRCA was established by Congress to provide for the disposal, long-term stabilization and control of uranium mill tailings in a safe and environmentally sound manner. UMTRCA established two programs to protect the public and environment from the potential hazards of uranium mill tailings and other milling waste. Title I of UMTRCA generally addresses mill tailings sites that were abandoned by 1978. Title II focuses on uranium recovery facilities and mill tailing sites that possessed an active license in 1978 or were licensed after 1978 by NRC or an Agreement State.[1]

Title I—Reclamation Work at Inactive Uranium Tailings Sites

Title I of UMTRCA covers 22 inactive uranium mill tailings sites. Title I established a U.S. Department of Energy (DOE) program to remediate uranium mill sites that were abandoned prior to the enactment of UMTRCA in 1978. Congress directed the U.S. Environmental Protection Agency (EPA) to promulgate the standards for remediation. These standards primarily address stabilization of the tailings pile and the cleanup of on and offsite contamination, including contaminated groundwater. Under Title I, the DOE is responsible for remediation of these abandoned sites. The NRC is required to evaluate the DOE's design and implementation of its remedial action, and, after remediation and NRC evaluation, concur that the sites meet the standards set by the EPA (40 CFR Part 192). DOE conducted its remediation activities in two distinct stages: surface remediation and groundwater restoration. Surface restoration activities at all but two Title 1 sites have been completed. DOE continues to perform groundwater restoration activities at sites with groundwater concerns.

Title I also requires DOE to remediate vicinity properties. Vicinity properties are land in the surrounding area of a mill site that DOE determined were contaminated with residual radioactive materials from the mill site. Here again, NRC's role is limited to evaluation and concurrence on DOE's remediation design and implementation. However because of the large number of vicinity properties, DOE prepared a document ("Vicinity Properties Management and Implementation Manual" or VPMIM) containing generic procedures for identifying and remediating vicinity properties. NRC concurred on the VPMIM and only separately evaluates and potentially concurs in vicinity property remediations that do not conform to this generic document.

10 CFR §40.27—General License for DOE Established by Regulation

To implement Title I, the NRC promulgated regulations (10 CFR §40.27) to establish, in the regulation itself, a general license authorizing DOE's custody and long-term care of residual radioactive material disposal sites with conditions imposed by the regulation—These conditions include requirements for the monitoring, maintenance, and emergency measures necessary to protect public health and safety and other actions necessary to comply with the standards promulgated by the EPA (40 CFR Part 192). Although the DOE is not an NRC licensee during site cleanup, NRC must evaluate and potentially concur with DOE's proposed remedial action. The NRC general license authorizing the custody and long-term care of a specific site becomes effective after NRC concurs with DOE that its site-specific remedial action has been completed and when the Commission accepts DOE's Long-Term Surveillance Plan (LTSP) for the site that meets NRC requirements as specified in our regulations. After these actions, the DOE is the perpetual custodian of a site under NRC's General License established in this regulation.

An LTSP must include an executed waiver under which any person—including an Indian Tribe—holding any interest in the Title I disposal site, releases the United States from any liability or claim arising from the DOE's remedial action. A two-step process with respect to NRC concurrence was used at sites where groundwater

[1] Section 274 of the Atomic Energy Act of 1954, as amended, provides for State assumption of NRC's regulatory authority to license and regulate byproduct materials (radioisotopes); source materials (uranium and thorium); and certain quantities of special nuclear materials. NRC periodically reviews these programs for adequacy and compatibility with NRC regulations. There are currently 34 agreement states.

contamination exists. At such sites, the NRC concurred on surface remediation; however, NRC concurrence in groundwater remediation was addressed separately and, in some cases, has not yet occurred. Once the NRC accepted the LTSP for surface remediation, each site was then included in the general license in 10 CFR §40.27. Ongoing groundwater monitoring is addressed in the LISP to assess performance of the tailings disposal units. When the NRC concurs that groundwater restoration has been completed, the LISP may be modified as necessary to reflect completion.

Once an LTSP has been approved, the DOE has the primary responsibility to ensure public health and safety at the site. However, the NRC continues to have an oversight role. The NRC receives annual updates on the results of the DOE's Title I inspection program and under 10 CFR §40.27, the NRC maintains permanent right-of-entry to Title I Sites. NRC staff periodically accompany the DOE during Title I site inspections. If, for any reason, (e.g., DOE report, NRC inspection, allegation), the NRC determines the site is not safe, it can require DOE to correct the condition.

Title Il—Licensed Uranium Recovery Facilities and Mill Tailings Sites

Title II of UMTRCA established the framework for NRC and Agreement States to regulate mill tailings and other wastes at uranium and thorium mills licensed by the NRC at the time of UMTRCA's passage in 1978 or after. The statute created a second category of byproduct material, referred to as 11e.(2) byproduct material, defined as the tailings or wastes produced under any license by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Under Title II of UMTRCA, NRC regulates this byproduct material during mill operation and requires that the site be properly closed prior to terminating the license. The NRC standards for site closure, contained in Appendix A of 10 CFR Part 40, conform to standards promulgated by EPA (40 CFR Part 192) and are similar to EPA standards for the remediation of Title I sites. After license termination, the site is governed by another general license, established in NRC regulations (10 CFR §40.28) which imposes conditions for custody and long-term care of uranium or thorium byproduct materials disposal sites. A State can become the perpetual custodian. However if a State chooses not to do so, DOE must assume custody. To date, no State has become a perpetual custodian.

REGULATORY IMPROVEMENTS IMPLEMENTED BY NRC

With the promulgation of Appendix A and the associated development of more than a dozen Regulatory Guides related to uranium recovery site location, design, operation, inspection, and licensing, the NRC has a well-established regulatory framework for ensuring that uranium recovery facilities are appropriately licensed, operated, decommissioned and monitored to protect public health and safety. Improvements to the program include below grade disposal of mill tailings, liners for tailings impoundments and groundwater monitoring to prevent groundwater contamination, siting and design features of tailings impoundments which minimize disturbance by natural forces, design features of impoundments to minimize release of radon, inspection and oversight of both active and inactive mill sites, stringent financial surety requirements to ensure adequate funds are available for decommissioning, comprehensive reclamation and decommissioning requirements to ensure adequate cleanup of formerly operating mills, and long-term monitoring and oversight of decommissioned facilities.

NEW URANIUM RECOVERY LICENSING

Consistent with the intent of UMTRCA, the NRC believes that the Agency's comprehensive regulatory framework is sufficient to ensure the continued safe operation of active facilities and those in decommissioning, as well as any new facilities that operate in the future. New applicants are required to address in their application the handling and cleanup of solid and liquid wastes generated as a result of proposed operations. Prior to the commencement of operations, applicants must also provide financial surety arrangements to carry out the decontamination and decommissioning of the mill and site and for the reclamation of any tailings or waste disposal areas.

To date, the NRC has received three new applications for ISL facilities in Wyoming. The Agency is anticipating fifteen more applications for new uranium recovery facilities, as well as a number of restarts and expansions of existing facilities in the next few years due to a resurgence in the industry. Existing facilities and new potential sites are located in the States of Wyoming, New Mexico, Nebraska, South Dakota, and Arizona, and in the Agreement States of Texas, Colorado, and

Utah. The NRC plans to work closely with the stakeholders, including Indian Tribes, to ensure that any concerns associated with licensing of future proposed uranium recovery facilities are appropriately addressed. The formal license application review process should be completed within a period of 24 months, depending on resources. This process includes the NRC conducting a comprehensive safety and environmental review on any new application for a uranium recovery site. Uranium recovery facility license application review schedules are generally driven by the environmental review, which involves the preparation of an environmental impact statement (EIS), as specified in 10 CFR Part 51.20(b)(8), or a complex Environmental Assessment (EA) for in-situ recovery facilities that may expand upon a Generic EIS that NRC staff is currently developing. If an application is accepted for full review, a notice of opportunity for an adjudicatory hearing would be published in the *Federal Register*. Adjudicatory proceedings may begin at any point in the license review process and are subject to decisions of the Atomic Safety and Licensing Board. Hearings may also occur concurrently or after the technical and environmental review. If the NRC issues a license for a new uranium recovery facility, NRC's continued oversight of these facilitates is implemented through licensing reviews and inspections.

URANIUM RECOVERY FACILITIES ON FEDERAL LANDS

Many of the uranium recovery facilities are partly on Federal lands administered by the Bureau of Land Management (BLM). The NRC is responsible for oversight of uranium recovery facilities, both conventional mills and ISL, on Federal land in the same manner as described above for facilities located on private land. The NRC's focus is on the safety and potential environmental impacts of these facilities. The NRC staff works with the BLM in its review of new license applications and the BLM is often a cooperating agency in the development of an EIS or complex EA in complying with NEPA requirements. However, the NRC is not involved in any pre-application exploration, mining claim, and mining royalty issues. Applicants work outside of the NRC licensing process to obtain any other permits from the BLM or other agencies such as the National Park Service or Forest Service for mineral exploration. In addition to the NRC license, an applicant must also comply with other Federal and local permitting requirements prior to construction and operation of a uranium recovery facility. Analysis of potential environmental impacts from exploration and mining claim issues are outside the scope of the regulatory authority held by the NRC and NRC Agreement States.

CONCLUSION

Mr. Chairman and Members of the Committee, I hope my testimony provides you with an understanding of NRC's regulatory role with regard to uranium recovery. I would be pleased to respond to your questions.

The CHAIRMAN. Thank you very much.

Senator Ulibarri, thank you for being here.

STATEMENT OF DAVID ULIBARRI, STATE SENATOR AND CIBOLA COUNTY MANAGER, GRANTS, NM

Mr. ULIBARRI. Thank you, Senator Bingaman.

I am very pleased to have the opportunity to speak with you today on the reemerging uranium industry in New Mexico. I am here representing the Cibola County Commission where I serve as County Manager also the State Senator for New Mexico, Senate District 30, which is 43,000 in population, which includes portions of Valencia, Socorro, and Cibola County.

Responsible utilization and reclamation of private, State, and Federal lands affected by the exploration and mining and extraction of minerals is a worthy goal vital to the Nation. New Mexico and the counties and districts of the Cibola County and McKinley County Commission and the city of Grants passed resolutions supporting renewed uranium production in the Grants Mineral Belt. This support is premised on the understanding that current standards and regulations are in place which ensure these operations

will be conducted to protect the workers, the public, and the environment. We believe that Federal and State requirements will allow responsible, safe operations and reclamation of new uranium mines in New Mexico.

We are supportive of the uranium industry for two main reasons. First, those operations will bring substantial capital investments, economic benefit, and safe jobs to our area. Projected uranium production will conservatively create about 2,000 to 3,000 direct jobs and certainly that many more indirect jobs. We are already experiencing positive economic impact from recent exploration permits and development of work.

We strongly believe that this is a sound Government policy to produce domestic uranium that will be required to fuel our Nation's growing nuclear reactors' requirement. Over-reliance on foreign oil has got this country in terrible straits. Production of domestic uranium to power domestic reactors will promote energy security and independence. Nuclear power, clean, inexpensive energy, is necessary to improve our air quality in this country.

But in order to produce the reliable base energy requirement to power our economy, nuclear power must play the leading role. We have substantial uranium resources in the United States. These resources include those located in the Grants Mineral Belt. They must be extracted to provide domestic fuel for our reactors.

The vast majority of our constituents support the resumption of safe uranium mining in the Grants area. I have delivered about 800 letters of support to your office.

My constituents, including the leaders of Acoma and Laguna Pueblo, have serious concern about the uranium industry. They, along with the Navajo leaders, urge that no new mining commence until legacy issues from the past are addressed. Certainly the legacies matter should be reviewed and discussed.

First, the mining companies did not create these legacy matters. Second, most importantly, the standard regulations and technology used today in uranium mining and millings have been significantly improved to ensure these problems will not re-occur. Both the industry and the regulators have learned from the past experience how to extract uranium without experiencing the problems of the past. Congress, and particularly this committee, has recognized the Government's role in abetting legacy issues and should play a role in educating workers with the stakeholders to advance the uranium industry.

With respect to the impact of the proposed revision to the Mining Act of 1872 on uranium mining, I have attached an exhibit to my written testimony, a resolution by the Cibola County Commission that urges Congress to avoid amending the existing laws in such manner to make the mining of public lands less competitive. This is particularly important for uranium mining as the cost of mining includes taxes and royalties and determines the economic grade of minerals that can be extracted. The higher the cost, the more low-grade minerals must be left in the ground. The 8 percent gross royalty included in H.R. 2262 is too high to prevent undue waste and otherwise economic ore.

H.R. 2262 also would allow limitations to the time to explore and develop mineral properties. The exploration and development per-

mit lead time for a uranium mine is very long. Individuals and companies that have located mining claims on Federal lands will be required to commit substantial time, skill, investment to develop the uranium deposits located on these lands. They must be allowed to have the time properly to develop these properties and interests.

I also believe that the existing Federal and State laws are significant and provide sufficient standards and regulations of responsible mining and reclamation of uranium properties. I am especially confident the uranium operators will undertake the public and private land in New Mexico and will reclaim the self-sustaining ecosystem because of the State Mining Act and its regulators. The New Mexico Mining Act application process contains not only operation requirements but also closure plans and bonding requirements to assure the closure plans are complete.

Thank you very much for the opportunity for me to present these views of my commission and my constituents. I am looking forward to working with you and to establish responsible uranium mining in the Grants Mineral Belt. Thank you.

[The prepared statement of Mr. Ulibarri follows:]

PREPARED STATEMENT OF DAVID ULIBARRI, STATE SENATOR AND CIBOLA COUNTY MANAGER, GRANTS, NM

Chairman Bingaman, Senator Domenici, and Members of the Committee. My name is David Ulibarri. I am the County Manager of Cibola County, New Mexico and I am also the State Senator representing District 30 of New Mexico. My district includes portions of Cibola, Socorro and Valencia Counties. I am pleased to testify today on behalf of the Cibola County Commission and the constituents I represent in my Senate district.

URANIUM AND THE 1872 MINING ACT

The Cibola County Commission passed Resolution 07-21, Support of the Federal Mining Law of 1872 on July 23, 2007.[1] Cibola County, as is true of much of New Mexico, is comprised of a great deal of federal land. The City of Grants sits in the shadow of Mt. Taylor, much of which consists of the Cibola National Forest.

The Cibola County resolution urges Congress not to amend the existing federal Mining Law in a manner to make mining on public lands less competitive. Substantial federal royalties, like the 8% gross royalty suggested in HR 2262, would have the affect of greatly diminishing our nation's uranium resource base. Millions of pounds of lower grade uranium, economic at today's market prices, would be rendered uneconomic and unmineable with the imposition of the proposed 8% gross royalty. If a federal royalty on hard rock minerals is necessary, it should be at a level mindful of existing royalties, taxes and costs that already encumber these operations. Given the lengthy lead time for exploration, development and permitting a uranium mine, miners on public lands must also have security of tenure not allowed in HR 2262. The Cibola County Commission firmly believes that tenure of ownership is vital for these operations. We believe that existing state and federal environmental laws and standards are sufficient to protect the public and environment. We would urge this Committee to come up with reasonable changes to the Mining Act that will allow the United States to remain competitive in the field of mineral production. We believe that the nation should not continue its reliance on unreliable foreign sources of energy and other strategic minerals, particularly when we have tremendous domestic resources, such as the 600 million pounds of known uranium resources in the Grants Mineral Belt.

Cibola County is the location of bountiful natural uranium resources. The Cibola County Commission and the Grants City Commission have passed resolutions supporting the reemerging uranium production industry. Neighboring McKinley County Commissioners have likewise passed a pro-uranium mining resolution[2]. The gist of

[1] See Resolution 07-21 attached as Exhibit 1. *Note: Resolutions have been retained in committee files.

[2] See Cibola County, McKinley County and City of Grants, New Mexico Resolutions attached as Exhibit 2.

these resolutions is that so long as future uranium production can be carried out in such a manner as to protect the workers, the public and the environment, we welcome this industry's return to our community. Grants once termed itself the Uranium Capital of the World. We would be proud to reclaim this title.

The New Mexico Legislature enacted the New Mexico Mining Act in 1993.[3] The purpose of this Act is to promote responsible utilization and reclamation of lands affected by the exploration, mining and extraction of minerals vital to the welfare of New Mexico. The Act's purpose section establishes the high standards to which the Cibola County Commission and I expect new uranium operations to adhere. The Act defined "existing mining operations" as those extraction operations that produced minerals beginning in the 1970's. This definition requires reclamation of the mining operations that were conducted after the conclusion of the Atomic Energy Commission's uranium procurement program for national defense purposes which ended in 1969.

New conventional uranium mines in New Mexico are subject to the New Mexico Mining Act which was enacted in 1993. These operations will be subject to a stringent application process that requires at a minimum a one year baseline data characterization of the site. The application will also include a site closure plan and financial assurance deemed adequate by the state to assure that reclamation after mining will be completed.

A new mining operation is required to meet without perpetual care all applicable environmental requirements imposed by the New Mexico Mining Act and regulations.[4] The State Mining Act and its regulations provide that mine sites be reclaimed to a self-sustaining ecosystem and provides for hearings to assure public participation. The New Mexico Mining Act also applies to operations on public lands. The New Mexico Water Quality Control Commission has recently adopted groundwater table standards for uranium that are the same as the federal drinking water standard. Groundwater from underground mines will have to meet existing groundwater standards or background standards for new mines to operate.[5] Given the strength of the New Mexico Mining Act and Water Quality Standards, the Cibola County Commission and I are comfortable that we can support new uranium operations with the knowledge that such operations will be carried out safely and with environmental impacts responsibly addressed. New Mexico policymakers have established sufficient environmental controls, and the new operators should be allowed to mine if they can demonstrate their ability to meet these requirements.

The same is true for federal lands. Sufficient environmental rules exist to assure that responsible utilization and reclamation of lands affected by the much needed production of minerals will take place. In addition to state regulation, any mine that will be located on federal land, and therefore subject to the Mining Act of 1872 must submit a Plan of Operations to the federal land management agency responsible for the federal land. The agency is then responsible to ensure the approval of this plan is in compliance with the National Environment Policy Act before granting approval. As such, an extensive Environmental Impact Assessment must be prepared by the agency, a process that provides significant opportunity for public input. Despite representations that the industry is largely unregulated, nothing could be further from the truth. There are existing environmental regulations, both federal and state, that make certain that the industry will operate in an environmentally protective manner.

The economic impact of the renewed uranium industry in New Mexico will be substantial. In a review of the industry in 1982, University of New Mexico experts provided a vivid snapshot of the industry's impact on the Cibola and McKinley County economic base. In 1979 the following numbers were computed by this study:

Uranium Employment	7,750
Uranium Payroll	$165,034,109
Direct Uranium Income and Gross Receipts Taxes	$7,426,500
Indirect Employment	9,703
Indirect Payroll	$206,622,891
Indirect Income and Gross Receipts Taxes	$9,298,100
Total Employment	17,453

[3] See New Mexico Mining Act, NMSA 1978, §§ 69-36-1 to 69-36-20.
[4] NMSA 1978, § 69-13-12.
[5] NMAC 20.6.2.3103.

Total Payroll	$371,657,000
Total Taxes (Income and Gross Receipts Taxes)	$16,724,0006
Total Severance, Resource Excise and Conservation Taxes	$16,356,567

Current plans call for at least 10,000 tons per day milling capacity which would conservatively result in over 14 million pounds of annual uranium production in New Mexico. This production will conservatively require between 2,000–3,000 direct employees.

Interposing these numbers at today's dollars establish a significant economic benefit from this industry. We are already experiencing positive economic impacts from the uranium industry's reawakening. Drilling companies, new office space, truck dealers and retail establishments have profited from recent exploration and development activities in the area. The mining companies are receiving inquiries from former residents asking when the mines will start production. While many of the former miners are too old to go back to mining, they indicate they would like to move back with adult children that would like the opportunity to become well-paid miners. As suggested by the County and City resolutions attached, the capital investment and employment that will be created in Cibola and McKinley Counties will provide considerable economic growth which these counties desperately need.

In addition to the positive economic impact renewed uranium production will bring to the Grants Mineral Belt, we also believe the growth of nuclear power is essential to provide the clean, cheap electricity that makes our country grow. As this Committee is very aware, nuclear powered energy must become a primary generator of baseload electricity to relieve pressure on other energy sources and improve atmospheric conditions.

As a State Senator, I represent members of the Acoma and Laguna Pueblos, whose leadership have questioned the benefits of the renewal of uranium production. They point toward the so-called legacy issues from earlier uranium mining, much of which was carried out under the direction of the federal government for national defense purposes. While I respect their concerns, because of new federal and state standards and better appreciation for the impacts of uranium production, I would submit that new mining will not result in creating the impacts of the past. As noted, we have a strict Mining Act in place for conventional mining. The Nuclear Regulatory Commission has established much more stringent standards for in situ recovery and conventional milling of uranium ore. Federal exposure standards have been greatly strengthened as understanding of radon effects has been increased. Uranium mill tailings disposal now have modern regulations that require zero discharge to prevent harm to the groundwater. Conventional mining and milling safety practices, equipment and protective clothing are all greatly enhanced as a result of over a half century of research and practice.

Comparing today's uranium mining and milling practices to those of the past is truly comparing apples to oranges. I would urge this Committee to help in educating the public to allay concerns that the uranium industry would create negative impacts to their health and safety. I would also urge the Acoma and Laguna leadership and their Navajo counterparts to become part of the discussion on how we can achieve the benefits of this industry in a safe and environmentally protective manner. We can all truly have a win-win situation in what is now a very economically disadvantaged region of New Mexico.

ABANDONED MINES

I would also like to take the opportunity to address the issue of abandoned uranium mines in my written testimony. The legacy issue of abandoned mines is important in New Mexico. Some leaders feel that no new mines should be allowed until all of the abandoned sites have been reclaimed. As noted earlier, I don't agree with this position, because the new operators were not responsible for old sites. Further, new standards and regulations are in place to address closure and reclamation of new sites. However, the new operators in New Mexico have expressed a willingness to assist in addressing abandoned mines with a reasonable surtax on new production.

Last year I brought the new miners and the New Mexico Mining and Minerals Division ("MMD") together to begin a study of the true impacts of abandoned mines. The MMD identified approximately 400 uranium mine sites of which 259 were producing mines in New Mexico. Of these, approximately 114 mines had undergone some kind of completed reclamation. Reclamation status at the remaining 145 mines

is unknown and in need of further study. MMD chose 23 of the latter sites located on state and federal lands for further review by a contractor to characterize these sites. The MMD created the scope of work for the contractor and the New Mexico uranium industry is paying for the MMD's study. This study should be completed in the next few months and will begin to give a true indication of the scope and priorities of the abandoned uranium mine issue in our state.

Along with State Representative Lundstrom from the Gallup area, I also introduced legislation in the recent New Mexico legislative session to place a surtax on new uranium production to assist in paying for abandoned mine reclamation in the state. This measure passed the legislature but was vetoed by Governor Richardson. Because the nature and extent of abandoned uranium mines in New Mexico is not fully understood, the legislation may have been premature. However, I believe those opposing the measure did so because they felt this would somehow give a positive stamp of approval to the new uranium industry. I don't believe this is the case, given the rigorous New Mexico and federal permit application processes new operations must achieve. While contribution of monies to assist in abandoned mine reclamation would be welcomed, the new uranium producers must still characterize their sites and comply with all application requirements, including closure plans and bonding.

I would submit that the vast majority of abandoned mines and workings in the uranium field will be found to be those mined before the 1970's to meet the federal government's charge to produce weapons material. Thus, I believe the federal government should also assist in the reclamation of these sites. While the new uranium industry is willing to contribute, putting all the cost of reclamation on their shoulders is unfair and would make mining in New Mexico non-8 competitive with neighboring states that don't have this issue. I believe this Committee is currently looking at coal mine reclamation funds that could be used for non-coal abandoned mine reclamation. State officials have advised me that the Department of Interior is holding about $20 million of these funds that could be used to address New Mexico's legacy issue. I would urge this Committee to work to free these funds for non-coal abandoned mines in New Mexico. As is generally the case, I believe that interested parties should work together to determine the scope of the abandoned mines issue and come up with reasonable funding measures to solve this problem.

CONCLUSION

Cibola County and the vast majority of my constituents believe that a renewed uranium production industry can bring tremendous employment and economic growth to our area. Even with the limited exploration and development activities already in place, we are seeing new employment and contribution to our tax base. We also believe that this industry can provide the fuel badly needed by the domestic nuclear power industry to grow and meet our nation's electric energy needs in an economic and clean energy manner required to combat global warming.

Congress should demand that uranium be produced in this country for energy security and independence. We cannot allow dependence on foreign uranium like dependence on foreign oil, particularly when we have substantial uranium resources and the ability to provide a significant percentage of domestic nuclear utilities' needs with uranium production in the United States. A forward thinking energy policy in the United States should recreate the extensive uranium production capacity our country once enjoyed. The use of public lands to assist in making America less dependent on foreign uranium should be encouraged, not hamstrung, by ill-conceived changes to the Mining Act.

The members of the Cibola County Commission and I echo the sentiment of the vast majority of our constituents. As long as new uranium production operations can be accomplished in a manner to protect the safety and welfare of the workers, public and environment, such operations should be encouraged. We believe standards, regulations and technologies are in place to allow responsible utilization and reclamation of lands in the Grants Uranium Belt. We hope that this committee will understand the benefits uranium mining can bring to our community and our country when modifying the 1872 Mining Act. Any modifications must be reasonable allow the domestic mining industry to maintain a competitive edge. It is important that responsible uranium operations begin producing this valuable mineral so essential to our nation's energy security and independence and to combat global warming.Thank you, Mr. Chairman, for inviting me to testify.

The CHAIRMAN. Thank you very much for your excellent testimony.

Mr. Newton, go right ahead.

STATEMENT OF FLETCHER T. NEWTON, EXECUTIVE VICE PRESIDENT, CORPORATE & STRATEGIC AFFAIRS, URANIUM ONE, INC., DENVER, CO

Mr. NEWTON. Thank you, Mr. Chairman. My name is Fletcher Newton. I am the Executive Vice President for Strategic Affairs and Corporate Development at Uranium One. Uranium One is a publicly traded company. More than 90 percent of our shareholders are American investors.

We currently have properties and claims throughout the western United States, in Colorado, Wyoming, Texas, and Nevada, Utah, New Mexico. We currently have production coming on line in the United States at the end of this year in Texas, and we will have production coming on line in Wyoming at the end of 2010. Both of those operations are in-situ leach/in-situ recovery solution mining operations. Both operate under the auspices of the NRC, the EPA, as well as State authorities, and both of those are completely and fully bonded. Those are cash bonds, real money in the bank that is there regardless of what happens to our company.

In addition to those operations, we have existing mines now in Kazakhstan where we produce a significant amount of uranium.

We are here today, obviously, to talk about abandoned mines in the context of uranium. Obviously, you cannot talk about uranium if you do not talk about nuclear power, and you certainly cannot talk about nuclear power if you do not talk about uranium.

The United States has the world's largest fleet of reactors. As I am sure you know, Mr. Chairman, it is 104. They produce 20 percent of our country's electricity. Those reactors operate at the highest average capacity factor of any country in the world, over 90 percent. They produce more electricity now than they ever have before, and as a result of that, they also consume more uranium than they ever have before. We consume now 56 million pounds of uranium every year in the United States. Last year in the United States, we produced 4.5 million pounds. That difference, more than 51 million pounds, is imported from places like Kazakhstan, Russia, Canada, Uzbekistan, Ukraine, Niger, countries that produce uranium around the world.

Certainly this is something today that is of great concern to us because we look at the United States as a country that has historically produced tremendous amounts of uranium. It was not that long ago, in fact, that the United States was the world's leading producer of uranium. In 1983, we produced over 40 million pounds. You have heard testimony today about the significant reserves of uranium in the United States. By conservative estimates, there are over 900 million pounds of commercially minable deposits of uranium in the United States. Much of that uranium is in your home State, Mr. Chairman, in New Mexico, which up until just a couple of years ago had been the leading producer of uranium. That position was taken over just a couple of years ago by the State of Wyoming.

This is one of the reasons why the uranium industry is so interested in reasonable reform to the Mining Law of 1872. We recognize that there is tremendous concern over the legacy issues associated with uranium mining, but we also recognize that we need to look forward and find a way to encourage uranium mining while,

at the same time, providing reasonable reforms that address the issues of the past.

It is not an exaggeration to say that the uranium mining industry is probably one of the most heavily regulated industries in the country. We are under the auspices, as I said earlier, of the EPA, of the NRC, of the BLM, of the Forest Service, a host of State agencies. There is a long list of Federal laws that cover uranium mining that includes the Safe Drinking Water Act, UMTRCA, the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act. it is a long, long list. It is not an exaggeration to say, Mr. Chairman, that to permit a new uranium mine in the United States can easily take more than a decade.

So this is the situation with which we are dealing and this is why we are concerned about possible reforms to the Mining Law of 1872. We are concerned that if we act in a hasty manner without due consideration for the realities of uranium mining, we run the risk of aggravating our balance of payment situation. We run the risk of putting ourselves at the risk of extreme disruptions in the price, and we run the risk of putting our future uranium supply in the hands of foreign governments where we certainly have no control over what happens in those countries.

We all understand that nuclear energy is a very important part of the energy mix going forward. Concerns over global warming have certainly heightened that.

We in the uranium business recognize that there is a significant legacy with which to deal. We would like to help address that, but we also want to make sure that we do not close the door to encourage new uranium mining in the future. All I can say, Mr. Chairman, is that we certainly support reasonable reform to the Mining Law of 1872, but we want to make sure that we do so with due regard for the realities of uranium mining, taking into consideration the interests of the communities where we operate and the legacy issues with which we have to deal.

I would be happy to answer any questions.

[The prepared statement of Mr. Newton follows:]

PREPARED STATEMENT OF FLETCHER T. NEWTON, EXECUTIVE VICE PRESIDENT, CORPORATE & STRATEGIC AFFAIRS, URANIUM ONE, INC., DENVER, CO

Good morning, Mr. Chairman and members of the Committee.My name is Fletcher Newton, and I am the Executive Vice President of Corporate and Strategic Affairs for Uranium One, Inc. Uranium One is a publicly traded company 90% of whose shareholders are American investors. We are developing new uranium mines in the United States, Australia, and South Africa and own interests in existing mines in Kazakhstan. Our U.S. production will be primarily in Texas and Wyoming and exclusively use solution mining to recover uranium. We expect to see our first production from Texas at the end of this year, with production from Wyoming coming on line in 2010. I am testifying today on behalf of the National Mining Association (NMA). NMA appreciates the opportunity to testify before the Committee on this issue of great importance to the domestic mining industry. NMA members support reform of the Mining Law and look forward to working with the Committee to try to resolve this issue during this Congress.

NMA is the principal representative of the producers of most of America's coal, metals, industrial and agricultural minerals; the manufacturers of mining and mineral processing machinery, equipment and supplies; and the engineering and consulting firms, financial institutions and other firms that serve our nation's mining industry. Our association and our members, which employ or support 170,000 high-wage jobs, have a significant interest in the exploration for, and development of, minerals on federal lands. The public lands in the Western states are an important

source of minerals, metal production and reserves for the nation's security and well-being. Mining on federal lands provides for high-wage employment, vitality of communities, and for the future of this critical industry.

NMA is committed to the development of a fair, predictable and efficient national minerals policy through amendments to the Mining Law of 1872. Because the vitality of the modern American economy is firmly rooted in the ready availability of metals and minerals that are essential to our way of life and our national security, our efforts in the end should result in a mining law that:

- Secures a fair return to the government in the form of a net income production payment for minerals produced from new mining claims on federal lands;
- Establishes an abandoned mine lands clean-up fund financed with revenue generated from a net income production payment; and
- Provides the certainty needed for private investment in mining activities on federal lands by ensuring security of title and tenure from the time of claim location through mine reclamation and closure.

URANIUM MINING IS APPROPRIATELY GOVERNED BY THE MINING LAW

Extraction of uranium on federal lands is conducted similarly to extraction for other hardrock minerals governed by the Mining Law. As with other types of hardrock mining there are several methods for extraction of uranium, such as underground uranium mining, open pit mining and in situ recovery. The type of mining undertaken depends on a number of factors including the nature of the deposit and grade of ore. Underground uranium mining is in principle no different than any other hard rock mining and other ores are often mined in association (e.g., copper, gold, silver). In open pit mining, overburden is removed by drilling and blasting to expose the ore body which is mined by blasting and excavation via loaders and dump trucks. In situ recovery is performed by pumping liquids down through injection wells placed on one side of the deposit of uranium, through the deposit, and up through recovery wells on the opposing side of the deposit.

CURRENT ENVIRONMENTAL SCHEME GOVERNING URANIUM MINING ON FEDERAL LANDS

The potential impacts from uranium mining on federal lands are substantially similar to those from other hardrock mining and the existing regulatory scheme adequately protects federal lands from all types of hardrock mining. Mining on public lands, including uranium mining, is a pervasively regulated enterprise with a vast range of federal, state, and local environmental laws and regulations governing mineral exploration, development, operation, closure and reclamation. Under current law, companies that engage in hardrock mining and related activities on the public lands are subject to a comprehensive framework of federal and State environmental, ecological, and reclamation laws and regulations to ensure that operations are fully protective of public health and safety, the environment, and wildlife including:

- Specific mining environmental standards administered by the Bureau of Land Management (BLM) and the Forest Service, the federal surface land management agencies, and supplemented by state laws;
- All major applicable federal environmental laws such as the National Environmental Policy Act (NEPA), the Clean Air Act (CAA), the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA), the Resource Conservation and Recovery Act (RCRA), Superfund, the Safe Drinking Water Act (SDWA), the Toxic Substances Control Act (TSCA) and many others;
- Wildlife protection statutes administered by the Department of the Interior and/or States such as the Endangered Species Act.
- Comprehensive Western State laws and regulations dealing with the protection of groundwater quality and quantity, both for operations and closure, the management and disposal of solid waste, and the reclamation of mining sites, which typically focus on the establishment of post-mining habitat for wildlife.

As seen by the number of approvals and permits the typical mining operation on federal lands must obtain before commencing construction, mining is heavily and thoroughly regulated. Depending on a project's complexity, the environmental assessment and permitting process can take upwards of a decade to complete. Typical environmental permits and approvals include:

- A plan of operations from the BLM or Forest Service, requiring a reclamation plan, closure plan, and cultural resources plan. The plan of operations is scrutinized under NEPA, usually requiring the preparation of an environmental impact statement (EIS), which evaluates potential environmental impacts of the

mining operation, assesses alternatives and requires the identification of mitigation measures to reduce potentially significant environmental impacts.

- Air quality permits from EPA or state agencies with delegated programs under the CAA.
- Water quality permits from EPA or state agencies with delegated programs under the CWA. Water quality permits can include discharge permits, stormwater management permits and section 404 permits. States also require permits to address potential impacts to ground water, both during operations and closure to protect the reasonably foreseeable beneficial uses of groundwater resources.
- Rights to use or consume water from appropriate state authorities.
- Hazardous waste permits that govern storage, transportation and disposal of laboratory or processing wastes.
- Authorization under the National Historic Preservation Act if cultural or historic resources are present.

These laws and regulations that govern mining on federal lands are "cradle to grave," covering virtually every aspect of mining from exploration through mine reclamation and closure. The National Academy of Sciences (NAS) reviewed the existing federal and state regulatory framework for hardrock mining and concluded that the existing laws were "generally effective" in ensuring environmental protection. Hardrock Mining on Federal Lands, National Academy of Sciences, National Academy Press, 1999, p. 89.

Since the NAS study was published, the federal land management agencies have acted to make this effective regulatory program even stronger. For example, BLM and the Forest Service have significantly strengthened their financial guarantee requirements. BLM's regulations now require financial guarantees for all mining and exploration disturbances, no matter how small, before activities can proceed. Both agencies require the financial guarantee to cover the full cost to reclaim the operation, as if the agencies were to contract with a third party to conduct reclamation. In addition, the agencies can now require the establishment of a trust fund or other funding mechanism to ensure the continuation of long-term treatment to achieve water quality standards and for other long-term, post-mining reclamation and maintenance requirements. State-specific regulations require the establishment of financial assurance using a variety of specified forms.

Furthermore, the agencies require periodic review of reclamation funding. BLM has implemented a tracking system under which BLM state directors are required to certify each fiscal year that the reclamation cost estimates for proposed and operating mines have been reviewed and are sufficient to cover the cost of reclamation. Similarly, the Forest Service requires annual review of financial assurances. The improvements in financial assurance requirements, combined with sustained environmental compliance, will ensure that the public will not ultimately become responsible for reclamation of mine sites on federal lands.

The existing comprehensive framework of federal and state environmental and cultural resources laws already regulates all aspects of mining from exploration through mine reclamation and closure. Additional federal regulation is unnecessary, duplicative and unreasonable.

EXISTING AUTHORITIES ADEQUATELY PROTECT SPECIAL PLACES

Access to federal lands for mineral exploration and development is critical to maintain a strong domestic mining industry. Federal lands account for as much as 86 percent of the land area in certain Western states. These same states, rich in minerals, account for 75 percent of our nation's metals production and will continue to provide a large share of the future metals and hardrock minerals produced in this country.

Efforts to amend the Mining Law must recognize existing authorities to close certain "special places" to mining activity. Congress has closed lands to mining for wilderness, national parks, wildlife refuges, recreation areas, and wild and scenic rivers. Congress also has granted additional authority to the Executive Branch to close federal lands to mining. The Antiquities Act authorizes the president to create national monuments to protect landmarks and objects of historic and scientific interest. Finally, Congress authorized the Secretary of the Interior to close federal lands to mining pursuant to the land withdrawal authority of the Federal Land Policy and Management Act. As a result of these laws and practices, new mining operations are either restricted or banned on more than half of all federally owned public lands. These existing laws and authorities are adequate to protect special areas. New closures of public land, based on vague and subjective criteria without congres-

sional oversight, would arbitrarily impair domestic mineral and economic development.

In addition, the federal land management agencies have land use planning processes to identify natural or cultural resources or environmental and social sensitivities that require special consideration. These planning processes are used to identify areas that need to be withdrawn as well as any terms, conditions, or other special considerations needed to protect other resource values while conducting activities under the operation of the mining laws. Other mechanisms available to federal land management agencies for protecting valuable resources and sensitive areas include use of advisory guidelines to identify categories of resources or lands that deserve special consideration and the adoption of sitespecific mitigation measures in a plan of operations to protect cultural values, riparian habitat, springs, seeps, and ephemeral streams that are not otherwise protected by specific laws.

RIGHT TO DENY APPROVAL

With the existing tools available to protect special resources and environmentally sensitive areas, there is no need to provide additional federal authority to address where mining claims should be denied on federal lands due to environmental or other concerns. In particular, it is not necessary to give the Secretary of Interior the right to stop a mining project when all environmental and other legal requirements are met. Such authority is simply not needed to protect against unnecessary or undue degradation as the federal land management agencies have other statutory and regulatory means of preventing irreparable harm to significant scientific, cultural, or environmental resource values. The Department of the Interior exercises case-by-case discretion to protect the environment from any unnecessary or undue degradation through the process of approving or rejecting individual mining plans of operations.

Not only is such federal authority unnecessary to protect the environment or special resources, providing such authority creates significant uncertainty regarding ultimate mining project approval. Mining projects will not be able to attract investments if there is no certainty that the project can obtain approval even when the operator complies with all relevant laws and regulations. Investors need to know that a mining project in the United States can obtain approval and proceed unimpeded as long as the operator complies with all relevant laws and regulations. Mining projects—from exploration to extraction to reclamation and closure—are time-and capital-intensive undertakings, requiring years of development before investors realize positive cash flows. Uncertainty in the legal regime applicable to mining projects can chill the climate for capital investments in domestic mining projects and have serious consequences for our economic and national security. If the investments critical for bringing a mine to fruition tend to migrate toward projects planned in other countries, the United States will become even more reliant on foreign sources of minerals.

GROWING RELIANCE ON FOREIGN SOURCES OF MINERALS

Despite reserves of 78 important mined minerals, the United States currently attracts only eight percent of worldwide exploration dollars. As a result, our nation is becoming more dependent upon foreign sources to meet our country's strategic and critical metals and minerals requirements, even for minerals with adequate domestic resources. The 2007 U.S. Geological Survey Minerals Commodity Summaries reported that America now depends on imports from other countries for 100 percent of 17 mineral commodities and for more than 50 percent of 45 mineral commodities. This increased import dependency is not in our national interest particularly for commodities critical to pending strategic programs such as reducing greenhouse gas emissions or undertaking energy efficiency efforts. Increased import dependency causes a multitude of negative consequences, including aggravation of the U.S. balance of payments, unpredictable price fluctuations, and vulnerability to possible supply disruptions due to political or military instability.

Our over-reliance on foreign supplies is exacerbated by competition from the surging economies of countries such as China and India. As these countries continue to evolve and emerge into the global economy, their consumption rates for mineral resources are ever-increasing; they are growing their economies by employing the same mineral resources that we used to build and maintain our economy. As a result, there exists a much more competitive market for global mineral resources. Even now, some mineral resources that we need in our daily lives are no longer as readily available to the United States.

Uranium is an excellent example of a mineral that the US relies on foreign sources. The United States currently consumes about 56 million pounds of uranium

each year, yet we only produce 4 and a half million pounds. We have the worlds largest fleet of reactors (now 104), which operate at the world's highest average capacity factor and produce 20% of our country's electricity. In fact, America's nuclear reactors now produce more electricity than ever before. And we have one of the world's largest resource bases of uranium of any country in the world.

Despite the size of our nuclear fleet, however, we produce less than 10% of our own uranium and import over 90% of what we need to operate our reactors. The price for uranium has recently climbed to an historic high, and yet new U.S. production is still lagging, at least in part because of uncertainty over the regulatory environment for new production here.

PROCESSING OF URANIUM

Uranium processing, as opposed to uranium mining, is not conducted under the auspices of the Mining Law. Instead, a comprehensive federal program for processing has evolved through the Atomic Energy Act of 1946 (1946 AEA), the Atomic Energy Act of 1954 (1954 AEA) and the Uranium Mill Tailings Radiation Control Act of 1978 and its amendments (UMTRCA). After World War II, in recognition of the significant military importance of uranium, and in recognition of the strategic value of having a secure supply of uranium, Congress passed the 1946 AEA.[1] This act created the Atomic Energy Commission (AEC), the forerunner of Nuclear Regulatory Commission (NRC), and it provided the AEC with substantial powers with respect to uranium.

At its inception, the AEC recognized that the United States atomic weapons program was almost completely dependent on uranium ores originating in the Belgian Congo. The AEC set out to correct this strategic weakness by developing a domestic uranium producing industry. To accomplish this task, the AEC went to work implementing a policy that would encourage private companies and individuals to explore for uranium and develop any reserves located in the United States. In these efforts, the AEC was fully aware that its most significant obstacle was the high cost associated with the domestic extraction and production of yellowcake.[2] Added to the uncertainties of mineral exploration, these costs were a substantial barrier to domestic mining—particularly in light of the fact that there existed no private market for either uranium ore or processed uranium. Therefore, to provide an incentive to potential prospectors, the AEC developed a program that guaranteed prices for ore production, provided bonuses for the initial production from new mines, and reimbursed producers for transportation costs.[3]

It was not enough, however, just to locate uranium reserves and extract the ore: as the AEC recognized, it would also be important to encourage the development of a domestic uranium milling industry. Accordingly, the AEC set out to encourage the private development of milling facilities, by creating an incentive system in the form of agreements by the AEC to purchase processed uranium on terms that allowed private companies to recover the cost of constructing and operating a mill during the life of the contract.[4] Under this program, uranium mills were privately constructed and operated pursuant to contracts negotiated with the AEC, under which the AEC committed to purchases of uranium concentrate that would effectively return to the mill operator the costs of mill construction and operation plus a reasonable return on investment.

Concerns regarding the potential health and environmental hazards of mill tailings awakened in the late 1960s, however, as information came to light regarding the dispersal of uranium mill tailings in the area of Grand Junction, Colorado. Congress reacted to this information by taking a second look at the scope of AEC's legal authority to regulate uranium mill tailings.

In the early and mid-1970s the AEC (and later NRC)[5] relied upon the combined authorities contained in the AEA and NEPA to impose restrictions on the management and disposition of uranium mill tailings through the issuance of "Regulatory Guides" and "Branch Positions." NRC and Congress soon recognized the inadequa-

---

[1] Atomic Energy Act of 1946, Pub. L. No. 79-585, 60 Stat. 755 (1946).

[2] As an example, at that time, the cost of Belgian Congo yellowcake delivered in the United States was $3.40 per lb., while yellowcake from the Colorado Plateau would cost at least $20 per lb. to produce. Gray supra note 1 at 42.

[3] Gray supra note 1 at 42–43.

[4] Final Generic Environmental Impact Statement on Uranium Milling, NUREG-0706 vol. I at 2-1 (September 1980).

[5] In 1974, the AEC was terminated and divided into a promotional and a regulatory agency. The Energy Research and Development Administration, the precursor to the current Department of Energy (DOE) was the promotional agency. The new regulatory agency created was the NRC.

cies of the authority claimed by the Commission to regulate mill tailings through NEPA and the AEA; and in response, UMTRCA was passed to grant the Commission explicit authority to directly regulate uranium mill tailings and related wastes.

UMTRCA created a two-part regulatory system to deal, comprehensively, with uranium milling operations and, in particular, with the tailings and other wastes generated from those operations. In Title I of UMTRCA, Congress established a program to identify and remediate so-called "inactive" sites; that is, sites at which uranium milling operations had occurred in the past or that contained the tailings or other wastes produced during such milling operations and that were not covered by an existing license. In Title II of the Act, Congress created a program for the regulation of tailings and wastes generated at "active" milling sites; that is, sites with active licenses under the AEA. To implement the provisions of the Act, Congress established a tripartite jurisdictional scheme involving EPA, NRC and the Department of Energy (DOE), each of which have a defined role in the comprehensive national program to regulate uranium mill tailings and related wastes.

Under the program set out in Title I of UMTRCA, DOE is authorized to enter into "cooperative agreements" with states containing inactive sites, for the purpose of remediating those sites. Remedial actions undertaken by DOE under Title I are required to have the Commission's concurrence and to conform with standards developed by EPA for the protection of public health, safety and the environment from the potential radiological and non-radiological hazards associated with tailings and other uranium milling wastes.[6] Following remediation of these inactive sites, title to the tailings and wastes from the sites, and to the land used for their disposal, is to be transferred to DOE with concurrence of the Commission, and the sites are to be maintained by DOE in perpetuity, pursuant to licenses issued by the Commission.[7] In addition, the Commission is authorized under Title I to require that DOE, as the custodian of remediated inactive sites, undertake such monitoring, maintenance and emergency measures as the Commission may deem necessary to protect public health and safety. The Commission can also require DOE to take other actions that the Commission deems necessary to comply with EPA's generally applicable standards for protection against potential radiological and nonradiological hazards associated with uranium mill tailings and related wastes.[8]

The complement to the Title I program is found in Title II of UMTRCA. In Title II Congress granted the Commission expansive authority, along with EPA, to regulate directly all aspects of the management and disposition of uranium mill tailings and related wastes generated at active sites.[9] The centerpiece of this grant of direct authority was the creation of a new category of AEA-regulated materials. Specifically, by modifying the existing definition of "byproduct" material under the AEA, Congress created "11e.(2) byproduct material," which was defined to mean:

> the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.[10]

This class of material was (and is) unique among the materials regulated under the AEA because it was defined not solely in terms of its radiologic characteristics, but instead was defined broadly enough to encompass "all wastes"—both radioactive and non-radioactive—resulting from uranium ore processing.[11]

---

[6] 42 U.S.C. §7918 (1994).

[7] 42 U.S.C. §7914 (1994).

[8] In many respects, the role assigned to DOE under Title I of UMTRCA is akin to that of a super "potentially responsible party" or "PRP" under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601, et seq., since DOE is responsible for remediating Title I sites and maintaining them in perpetuity, and the agency is responsible for most of the costs associated with those efforts. Indeed, because of the unique role per-formed by DOE at Title I sites, Congress deemed it appropriate to specifically exclude those sites from the reach of CERCLA. 42 U.S.C. § 9601(22).

[9] Under section 274 of the AEA states can enter into agreements with NRC under which the states assume the authority of the Commission with respect to the regulation of uranium mill tailings and related wastes. Accordingly, reference in this White Paper regarding the authority of the Commission with respect to uranium mill tailings are intended to encompass Agreement states as well.

[10] AEA section 11e.(2)142 U.S.C. § 2014e(2). Previously, "byproduct material" had been defined to mean "any radioactive material (except special nuclear material) yielded or made radioactive by exposure to radiation incident to the process of producing or utilizing special nuclear material." This definition has been retained in AEA section 11e.(1).

[11] See 57 Fed. Reg. 20,525, 20,526 (1992) ("The definition of byproduct material in section 11e.(2) of the AEA includes all the wastes from the milling process, not just the radioactive components . . . The designation of 11e.(2) material contrasts significantly with the situation for source material and other radioactive materials controlled under the authority of the AEA.").

In addition, the legislative history of the Act makes plain Congress' intent that this unique material be regulated under a single, coordinated regulatory regime. As Senator Domenici explained in floor debates on a Senate bill that was substantially similar to the bill eventually enacted as UMTRCA:

> A basic principle of the amendment is the creation of a unified regime for mill tailings so that the various distinct materials which make up a single mill tailings pile need not be subject to fragmented [sic], duplicative and potentially conflicting regulatory activities by different government agencies.[12]

UMTRCA assigned to EPA the authority to promulgate standards of general applicability—for both the Title I and Title II programs addressing both the radiological and non-radiological hazards of uranium mill tailings and related wastes. For the non-radiological hazards, these generally applicable standards are to provide protection equivalent to that provided by EPA's RCRA standards. At the same time, however, such tailings and wastes, because they are 11e.(2) byproduct material, are specifically exempted from regulation by EPA under RCRA, and permitting authority over 11e.(2) material is deliberately withheld from EPA. Instead, UMTRCA calls upon the Commission to implement and enforce through licensing the generally-applicable standards developed by EPA.[13] Furthermore, Congress directed NRC to independently develop specific requirements and criteria applicable to licensees that (1) the Commission deems appropriate to protect against both the potential radiological and non-radiological hazards associated with 11e.(2) material; and (ii) that are compatible with EPA's generally-applicable RCRAbased standards.[14]

Thus, by adding a new category to the existing AEA definition of "byproduct material" Congress, in UMTRCA, created a whole new class of regulated materials and expanded EPA's and NRC's jurisdiction under the AEA into entirely new areas of regulation (namely, the direct regulation of non-radiological materials associated with uranium milling). Based on this definitional change and on the provisions of Sections 84 and 275 of the AEA (which were also added by UMTRCA), Congress incorporated protection against potential non-radiological hazards (consistent with that provided by EPA's RCRA standards) into the program for regulating uranium mill tailings and other 11e.(2) materials, without giving EPA any direct permitting authority over Title I sites or Title II licensees.

THE CREATION OF A REGULATORY PROGRAM FOR URANIUM MILL TAILINGS

After UMTRCA's enactment, the Commission developed the regulatory program needed to implement its new statutory authority. NRC first issued a Draft Generic Environmental Impact Statement (DGEIS) examining the environmental ramifications of uranium milling activities and possible regulatory standards pertaining to those activities. NRC then published proposed regulations governing uranium milling and mill tailings.[15] NRC's regulations adopted extremely conservative standards for the management and disposal of uranium mill tailings.

In the decade of the 1980s, the various pieces that were required to construct a comprehensive system for regulating UR activities were put into place, and a mature regulatory program for uranium milling operations began to take shape. At the same time, however, the uranium recovery industry began to experience a fundamental shift away from conventional mining and milling.

In 1983, three years after NRC issued its final GEIS and promulgated initial regulations on uranium milling, EPA promulgated its first set of "generally applicable standards."[16] These standards applied only to "inactive" sites (i.e., sites regulated under Title I of UMTRCA that were no longer operated under an active license). Although these types of sites were not addressed in NRC's initial regulations, EPA's inactive site regulations opened a window on some important differences between NRC and EPA, particularly with respect to the establishment of standards for the control of radon emissions from tailings. Thus, for example, in its final inactive sites regulations, EPA concluded that a radon emission standard of 20 pCi/m^2/s was ade-

---

[12] 124 Cong. Rec. 29,776 (Sept. 18, 1978).

[13] 42 U.S.C. § 2022(d).

[14] This basic division of authority between EPA and the Commission for the entire nuclear fuel cycle, under which EPA promulgates standards of general applicability and NRC imposes specific requirements consistent with those EPA standards, generally is consistent with the division of authority established under Reorganization Plan No. 3 of 1970, 5 U.S.C. App. at 1551. Under that Plan the functions of the AEC were transferred to EPA, but only to the extent that such functions of the Commission consist of establishing generally applicable standards for the protection of the general environment from radioactive material."

[15] 44 Fed. Reg. 50,015 (1979).

[16] 48 Fed. Reg. 590 (January 5, 1983).

quately protective of human health and safety, as compared to the 2 pCi/m²/s standard adopted by NRC. In addition, EPA's regulations did not include any specific standards for radon barriers (since, arguably, EPA did not have any authority to impose that sort of design requirement on tailings facilities) although, in its rulemaking materials, EPA indicated that its 20 pCi/m²/s radon standard was premised on the use of thick barriers. By contrast, NRC's regulations required the use of an earthen barrier at least 10 feet thick.

EPA's inactive site regulations also established what has come to be known as the "5/15" clean-up standard for radium-226 in soil. Under this standard, radium concentrations in soil are to be reduced to levels of no more than 5 pCi/g in the first 15 cm soil horizon and no more than 15 pCi/g in succeeding 15 cm soil layers. In addition, EPA required that disposal systems be designed to provide "reasonable assurance" of achieving the Agency's disposal standard for 1,000 years, but no less that 200 years without reliance on "active" maintenance. Finally, EPA did not, in its inactive sites regulations, establish any generally applicable criteria for groundwater contamination because, in the Agency's view at the time, the risks from groundwater contamination were not sufficiently significant to require the development of such standards. Consequently, instead of establishing groundwater standards of general applicability in its inactive sites regulations, EPA concluded that groundwater issues would have to be addressed by DOE on a site-by-site basis, taking into account various site-specific factors.[17]

Later in 1983, EPA promulgated final regulations for active sites (i.e., sites addressed under Title II of UMTRCA that were operated under active licenses).[18] As with the inactive site standards, EPA's active site regulations require that radon emanation from tailings disposal sites be limited to 20 pCi/m^c/s.[19] The regulations also require that the controls used for tailings disposal provide "reasonable assurance" of achieving this standard for 1,000 years, but not less than 200 years.[20] In addition, like the inactive sites regulations, EPA's active sites provisions also incorporate the 5/15 standard for radium in soil.[21]

Despite these similarities, EPA's active sites regulations deviated from the inactive sites requirements in at least one significant way: by establishing generally applicable groundwater standards that were intended to provide a level of protection equivalent to that provided by EPA's regulations under RCRA.[22] The groundwater standards in EPA's active site regulations, which were directed primarily at potential non-radiological contaminants, were divided into a primary standard and a secondary standard. The primary standard is a design standard, requiring the installation of a bottom liner under all new tailings impoundments and under new extensions of existing impoundments. The secondary standard is a performance standard, requiring that groundwater at the edge of a tailings pile meet background levels or, for certain parameters, the higher of background levels or drinking water standards. In addition, the new active sites regulations allowed for the establishment of alternate concentration limits (ACLs), on a site-specific basis, at the point of compliance (POC) (i.e., the area necessary for disposal), provided that groundwater constituent concentrations protection of public health, safety, and the environment were attained at the point of exposure (POE).

Congress addressed additional concerns about the NRC regulation in 1983 by amending the AEA to modify certain sections that had been added previously by UMTRCA.[23] In particular, section 274 of the Act was amended to provide Agreement states with explicit authority to adopt "alternatives (including, where appropriate, site-specific alternatives) to the requirements adopted and enforced by the Commission" provided that they achieve a level of protection "equivalent to, to the extent practicable, or more stringent than" the level of protection afforded by NRC's standards.[24] Similarly, section 84 of the Act was also amended to allow NRC to approve licensee-proposed alternatives to the requirements adopted by the Commission if the licensee-proposed alternatives provide a level of protection that is "equivalent

[17] Id. at 599-600.
[18] 48 Fed. Reg. 45,926 (1983).
[19] Id. at 45947.
[20] Id.
[21] Id.
[22] Although the inactive sites regulations promulgated by EPA in 1983 did not include generally-applicable standards for groundwater protection (because, as indicated previously, the Agency believed at the time that the risks from groundwater contamination were not sufficiently significant to require the development of such standards), EPA was subsequently required by the courts to adopt groundwater standards for inactive sites that were comparable to those promulgated for active sites. See 60 Fed. Reg. 2854 (1995).
[23] Pub. L. No. 97-415, 96 Stat. 2067 (1983).
[24] Id. codified at 42 U.S.C. § 2021(o).

to, to the extent practicable, or more stringent than" the level of protection afforded by the NRC standards.[25]

In addition, the 1983 amendments to the AEA clarified NRC's responsibilities under AEA section 84(a) by specifically requiring that the Commission consider environmental and economic costs and balance those costs against potential risks when developing standards and requirements for the management of 11e.(2) material.[26] By the end of 1983, EPA had issued standards of general applicability for active uranium mill tailings sites (as well as for inactive sites), and Congress had amended the AEA to provide more flexibility for Agreement states and NRC licensees to achieve the levels of protection required under EPA and NRC regulations without necessarily being bound to the specific requirements set forth in those regulations. In addition, Congress specifically directed NRC and EPA to balance costs against risks when developing regulations and standards governing the management of uranium mill tailings and related wastes.

Under the administrative scheme set out in the statute, NRC's mill tailings regulations were required to conform to EPA's generally applicable standards. However, since NRC had promulgated its mill tailings regulations three years prior to EPA's issuance of generally applicable standards (instead of waiting for EPA action before promulgating its regulations), at the time EPA's generally-applicable standards were promulgated they were in conflict with the Commission's regulations. Consequently, NRC was forced to revise its 1980 regulations so that they would conform to EPA's later-issued generally applicable standards.

Although NRC was able to conform its mill tailings regulations to EPA's radon and surface stabilization standards fairly quickly, it took a significantly longer period of time for the Commission to conform its regulations to EPA's groundwater standards. Indeed, although NRC. published an advance notice of proposed rulemaking in November of 1984, it was not until three years later, at the end of 1987, that NRC's final groundwater regulations were promulgated.[27] Those regulations, like the EPA groundwater protection regulations described above, included a design standard and a performance standard. Also like the EPA standard, NRC's performance standard required the licensee to achieve background concentrations, drinking water standards, or an ACL. At around the same time that NRC promulgated its final groundwater standards, the Commission began to require that licensees implement groundwater corrective action programs aimed at ensuring compliance with those standards.

NRC's failure to promulgate final groundwater regulations prior to 1987 created difficulties for some mill operators. By the mid-1980s, unfavorable world market conditions for uranium were beginning to take their toll on conventional uranium milling operations in the United States, causing a general decline in the industry. As a consequence, a number of uranium mills that had been on "standby" status in the United States began to seriously address the closure process. However, final closure was, as a practical matter, impossible until NRC's groundwater regulations were in place. And the closure efforts of some facilities were further delayed by the time required to develop and issue guidance on obtaining ACLs (which, for most facilities, would be essential to satisfying NRC's groundwater standards). NRC did not issue "final" guidance on ACLs until December of 1992 (although the regulated community would have to wait until 1996 for further revised ACL guidance that incorporated risk-based limits).

Another component of NRC's regulatory program to address closure of uranium mill and tailings facilities was put into place in August of 1990, when NRC issued its "Final Staff Technical Position" on the design of erosion protection covers for uranium mill tailings disposal sites. This technical guidance document, intended to assist licensees in designing erosion protection covers satisfying the surface stabilization criteria in NRC's mill tailings regulations, required most licensees to reconsider either proposed or approved surface reclamation plans. Also in 1990, NRC promulgated regulations establishing a general license to DOE for the longterm care, maintenance and monitoring of uranium mill tailings sites following license termination and closure. Under these regulations, DOE is required to submit for NRC approval a Long-Term Surveillance Plan (LTSP) for the site over which it is to assume custody. The LTSP must include a detailed description of DOE's long term monitoring program and it must identify criteria for instituting maintenance or emergency measures.[28]

---

[25] 52 Fed. Reg. 43,553 (1987).
[26] Pub. L. No. 97-415 § 22 (1983).
[27] 52 Fed. Reg. 43,553 (1987).
[28] 55 Fed. Reg. 45,591 (1990) codified at 10 C.F.R. § 40.28.

Further, in 1994, NRC participated in a settlement negotiation between the American Mining Congress (now NMA), EPA, and environmental groups as part of the recision of 40 C.F.R. Part 61, Subpart T. As a result of this negotiation, NRC revised its mill tailings regulations to require licensees to achieve enforceable "milestones" leading to accelerated placement of radon barriers at non-operational (i.e., no longer actively milling or on standby) Title II mill tailings disposal sites.[29] These milestones were included in the settlement agreement to satisfy EPA's and the environmental groups' concerns that the potential threat from radon emissions be addressed by the prompt placement of radon barriers over disposal areas.[30]

Finally, in January of 1998, NRC and DOE generated a protocol for the transfer and licensing of mill tailings disposal sites to DOE for long term surveillance and maintenance following site closure and license termination. This "Working Protocol for Long-Term Licensing of Commercial Uranium Mills" sets forth a number of principles that NRC and DOE will follow in affecting the transfer of these sites. For example, the Protocol specifies that NRC will require current licensees to demonstrate that all applicable NRC requirements have been met before the Commission will terminate current licenses. In addition, the Protocol provides that NRC "will not terminate any site-specific license until the site licensee has demonstrated that all issues with state regulatory authorities have been resolved."

Two decades after Congress first provided the Commission with direct authority to regulate uranium mill tailings, there is now in place a comprehensive and mature regulatory program governing UR facilities and uranium mill tailings. Unlike the regulatory program for mill tailings that NRC first put into place in 1980, which focused primarily on radon, the regulatory regime that has developed over the past two decades now covers all aspects of UR facility management, with a particular focus on groundwater issues at both conventional and ISL facilities. At the same time, the fundamental nature of the UR industry has changed dramatically since Congress first enacted UMTRCA. Contrary to NRC staff expectations in 1980, dozens of new conventional mills have not come on line since the development of the final GEIS. Further, most conventional mills are no longer engaged in active milling operations or on standby but instead are inactive and working toward final site closure and license termination. Similarly, ISL operations no longer account for only a small fraction of domestic UR, as was the case in 1980. Instead, ISL operations are now the most vital segment of the UR production industry and will continue to generate wastes (albeit small quantities of waste, when compared to the tailings generated by convent ional mining and milling) for years into the future.

THE IN SITU RECOVERY (ISR) PROCESS FOR URANIUM

The nature of the ISR uranium recovery process and the geologic and hydrologic conditions under which uranium deposits amenable to this process are found both are critical factors in understanding the low-risk nature of ISR uranium recovery. Even though ISR uranium recovery technology is not new, the process itself is frequently misunderstood or mischaracterized.

ISR uranium recovery leaves the underground ore body in place and continuously recirculates native groundwater from the aquifer in which the ore body resides (fortified with oxygen and carbon dioxide, which is not a "toxic chemical cocktail") through the ore body. ISR uranium recovery was first tried on an experimental basis in the early 1960s with the first commercial facility commencing operations in 1974. Uranium deposits amenable to ISR uranium recovery occur in permeable sand or sandstones that are confined above and below by impermeable strata. These formations may either be flat or "roll-front" in cross-section, C-shaped deposits within a permeable sedimentary layer. These uranium-bearing formations were formed by the lateral movement of groundwater bearing minute amounts of oxidized uranium in solution through the aquifer with precipitation of the uranium occurring when the oxygen content decreases along extensive oxidation-reduction interfaces. Uranium roll front deposition currently is ongoing on a regional basis every day. Regional roll fronts require broad areas of upgradient oxidation to keep uranium mobile until the oxidized water moves downgradient far enough to encounter a zone

[29] 59 Fed. Reg. 28,220 (1994).

[30] EPA was clearly concerned with prompt placement of radon barriers over tailings piles, the Agency thus indicated that the primary purpose of the settlement was to

> to ensure that owners of uranium mill tailings disposal sites . . . bring those piles into compliance with the 20 pCi/m^{2}s flux standard as expeditiously as practicable considering technological feasibility . . . with the goal that all current disposal sites be closed and in compliance with the radon emission standard by the end of 1997, or within seven years of the date on which existing operations and standby sites enter disposal status.

59 Fed. Reg. 36,280, 36,282 (1994).

of abundant reductant. It is at this regional redox interface where the oxygenated water is reduced and uranium is deposited in what is known as a redistributed ore body that ISR uranium recovery operations are conducted.

Uranium mineralization leaves a distinct radiochemical footprint in rock and water. The basis for geophysical logging is the presence of radioactive materials which allow the discovery and delineation of ore. Where the uranium ore zone is saturated by groundwater, the footprint extends itself into water. Given natural erosion processes, uranium and uranium progeny accumulated in the rock will manifest themselves in surrounding media. For a uranium ore body to be amenable to ISR uranium recovery using the typical recovery chemistry noted above, the ore zone must be saturated with relatively fresh water and the rock must have enough transmissivity for water to flow from injection to extraction wells. In other words, for ISR uranium recovery to work, the ore must be situated in an aquifer. There are no ISR uranium recovery operations in ore bodies that are not in aquifers.

Techniques for ISR uranium recovery have evolved to the point where it is a controlled, safe, and, indeed, an occupationally and environmentally benign method of uranium recovery that does not result in any significant, potential adverse impacts to workers, the surface (lands) or the subsurface (groundwater), including underground sources of drinking water (USDWs). After an ore body that is amenable to ISR uranium recovery is identified, the licensee develops wellfield designs that progressively remove uranium from the identified ore body. Wellfield design is based on grids with alternating extraction and injection wells and a ring of monitoring wells above and below and outside of but surrounding the entire recovery area to detect any potential excursions of solubilized uranium and other minerals from the uranium recovery production zone.

As noted above, during active operations, native groundwater from the recovery zone in the aquifer is pumped to the surface for fortification with oxygen and carbon dioxide. This fortified water (i.e., lixiviant), which is similar to soda water, is then returned to the recovery zone through a series of injection wells in varying patterns in the wellfields. Water withdrawn from extraction wells in these patterns exceeds the water injected into the patterns creating a "cone of depression" that assures a net inflow of water into the recovery zone of the aquifer so that adjacent, non-exempt USDWs will not be impacted by excursions of recovery solutions. It also brings fresh water into the recovery zone to inhibit the build-up of contaminants, such as sodium chloride, that could reduce the efficiency of the operation.

Since water from the ore body, already containing naturally occurring uranium and its progeny, is continuously refortified with oxygen and re-circulated through the sandstone to enhance uranium values removed in the ion-exchange (IX) columns, injection is "locked" to extraction (i.e., without extracting at least as much water as is injected, the surface plant will run dry and re-circulation will stop). Injection cannot proceed without an equal or greater amount of extraction; therefore, overinjection across the area cannot take place. Wellfield balance is critical to optimum uranium recovery operations and post-operation recovery efforts. Wellfield balance involves monitoring, to the extent necessary, and adjusting pumping pressure in every well and across every wellfield on a daily basis or even hour-to-hour basis. To help keep the continuously operating system in balance, the extra water that is extracted is removed from the circuit as a process "bleed." The process "bleed," which contains elevated levels of radium, can be, and in the past frequently was, treated in settlement ponds or by filtration to remove the radium using a bariumradium sulphate precipitation method. Otherwise, the process "bleed" water is then discharged to holding ponds or tanks and from there it must be disposed of using land application, deep well injection, solar evaporation or some combination of these methods.

During active uranium recovery operations and groundwater restoration activities, ISR operators are required to install a comprehensive system of monitoring wells around, above, and below the aquifer zone where uranium recovery will occur to assure that, if excursions occur, they can be identified readily and addressed immediately. The design, installation, and operation of monitoring wells are performed in a progressive, iterative manner to assure that they remain viable and, thus, provide the ISR operator with adequate, up-to-date information to identify any excursions. The wells are cased to ensure that recovery solutions only flow through and from the ore zone and do not migrate to adjacent, overlying or underlying, non-exempt USDWs. Prior to use, all monitoring wells are pump-tested to verify that they are operational and technically sufficient for active operations. Pump tests also are used to verify continuing confinement provided by less permeable overlying and underlying strata (i.e., aquitards), which forced the regional groundwater flow through the more porous sands which contain the redistributed uranium ore body amenable to the ISR process. Indeed, without the confining strata, these redistributed ura-

nium ore bodies probably would not exist. The confining strata assist ISR operators' control of recovery solutions by limiting their movement to radial or lateral flow paths.

After uranium recovery ceases, the groundwater in the recovery zone is restored consistent with baseline or other water quality standards that are approved by NRC prior to the commencement of active production operations. Upon completion of groundwater restoration, wells are sealed or capped below the soil surface using approved plugging methods. Surface process facilities are decontaminated, if necessary, and removed, and any necessary reclamation and re-vegetation of surface soils is completed. As a result, after site closure is completed and approved, there is no visual evidence of an ISR uranium recovery site, and the decommissioned site will be available for unrestricted (i.e., any future) use.

In over three decades of ISR operations, there have been no significant, adverse impacts to adjacent, non-exempt USDWs outside the recovery zone and into the related area of review (AOR) from ISR uranium recovery operations in the United States. Wellfield balancing, including the process "bleed," monitoring, and pump tests at ISR uranium recovery sites have been highly successful in assuring that recovery solutions are contained within the ore (recovery) zone. Before monitoring ceases, restoration is completed to minimize or eliminate the potential risk of postoperation excursions that could result in the migration of contaminants from the exempted recovery zone portion of the aquifer to adjacent, non-exempt portions of the aquifer. Restoration assists in restoring the pre-operational reductant conditions in the recovery zone(s) which the introduction of solubilizing "soda-water-like" recovery solutions reversed during active recovery operations.

The inescapable reality of massive regional redox capacity over the long-term combined with the presence of adequate safeguards under NRC's AEA and EPA's UIC program make it highly unlikely that excursions to adjacent, non-exempt USDWs will occur after operations cease. Indeed, NRC has imposed groundwater restoration requirements on all ISR operators to minimize, if not eliminate, the potential for excursions to adjacent, non-exempt USDWs after such restoration is complete.

Pursuant to relevant NRC license conditions, ISR operators are required to engage in active groundwater restoration for each portion of the defined ore body where wellfields have been installed and where uranium recovery has occurred. Indeed, in NUREG-1508, NRC specifically states: "Following uranium recovery in each mine [recovery] unit, HRI would be required by NRC license to restore groundwater quality . . . .Detailed restoration, reclamation, and decommissioning plans, related cost estimates, and an appropriate surety would be required by the NRC before HRI [or any other licensee] could begin uranium recovery operations."

The process of determining a licensable approach to restoration begins well before the issuance of an NRC license when an applicant/licensee proposes a technical plan for groundwater restoration, including an estimate of the number of "pore volumes" necessary to complete restoration, which is adequately protective of public health and safety. "Pore volume" is an industry and NRC term which is used to describe the quantity of free water in the pores of a given volume of rock. "Pore volume" provides a unit of reference that an ISR operator can use to describe the amount of circulation that is needed to deplete an ore body or to describe the amount of water that must be circulated through a quantity of depleted ore to achieve restoration. Using this pore volume estimate, licensees can calculate adequate financial assurance cost estimates based on the amount of water that likely will need to be used to complete adequate restoration.

However, the number of pore volumes required for groundwater restoration, like many aspects of the ISR process, is calculated based on the best available data and analyses when an applicant submits a license application. After a licensee ceases active operations in a given wellfield, active groundwater restoration commences. During the restoration process, a licensee may determine that additional or fewer "pore volumes" are required to restore water quality consistent with baseline. If this is the case, pursuant to 10 CFR Part 40, Appendix A, Criterion 9, the licensee is required to notify NRC Staff of the proposed change in estimated "pore volumes" in order to re-calculate its financial assurance cost estimate based on the increase or decrease in "pore volumes."2 Simply put, groundwater restoration requirements, as reflected in mandatory financial assurance commitments, provide additional evidence that ISR operations are iterative and "phased" in nature and that adequate NRC safeguards exist to ensure that site water quality is restored in a manner that minimizes, if not eliminates, the potential for excursions to adjacent, non-exempt USDWs after restoration is approved by NRC.

NRC's restoration approach was further refined by the Commission in the HRI administrative litigation by requiring that an ISR operator submit a groundwater restoration action plan (RAP)3 providing NRC Staff with line-item cost estimates for

site reclamation, including restoration and disposition of resulting wastes prior to the issuance of an NRC uranium recovery license. While the actual financial assurance mechanism is not required to be available until the licensee is prepared to commence active uranium recovery operations, the RAP detailing its proposed line-item cost estimates (including costs for groundwater restoration) must be approved by NRC Staff prior to the issuance of an NRC uranium recovery license. As a result, no ISR license applicant may receive a license to conduct active ISR operations without NRC's Staff's express approval of its proposed RAP.

In addition, EPA's UIC program provides a final regulatory safeguard which ensures that, in the highly unlikely event that a post-restoration excursion to an adjacent, non-exempt aquifer occurs, post-restoration water quality will be maintained. 40 CFR § 146.7 provides the EPA Administrator with the authority to require that an ISR operator re-commence active groundwater restoration/remediation if a postrestoration excursion occurs. However, while this regulatory safeguard exists, to the best of NMA's knowledge, neither EPA nor a State with UIC "primacy" has ever exercised this authority with any ISR operator nor has the need ever been presented. Thus, in summary, adequate safeguards exist during active ISR operations, during groundwater restoration, and after restoration to ensure that adjacent, non-exempt USDWs will not experience any significant, adverse impacts as a result of ISR operations.

STATUTORY AND REGULATORY PROGRAMS FOR ISR URANIUM RECOVERY

A robust regulatory program for ISR uranium recovery is in place to assure adequate protection of public health and safety and the environment.

Pursuant to the AEA, as amended by UMTRCA, NRC is the federal agency empowered with the responsibility for regulating ISR uranium recovery operations at the point processing of uranium begins. NRC maintains active regulatory oversight over the conduct of ISR operations by using license conditions and 10 CFR Part 40, Appendix A Criteria, as relevant and appropriate, 10 CFR Parts 20 & 51, and related guidance. Appendix A Criteria are broad, performance-oriented Criteria that govern uranium recovery activities and waste disposal. At a time when emerging environmental regulations were frequently considered to be extremely prescriptive, Appendix A can be classified as somewhat "ahead of its time" because NRC sought to develop performance-oriented Criteria rather than prescriptive regulations so that uranium recovery licensees could address site-specific circumstances effectively.[31] In total, Appendix A contains thirteen criteria designed to allow licensees to properly locate, operate, and decontaminate and decommission their sites.

However, given that Appendix A Criteria were designed primarily for application to conventional mills and not ISR facilities, NRC has determined that Appendix A Criteria will be applied to ISR projects "as relevant and appropriate." As a result, NRC has applied these Criteria to ISR licensees through the use of specific license conditions.

To assure safe and effective underground injection throughout the United States, the United States Congress also enacted the SDWA which, in part, authorized establishment of the Underground Injection Control (UIC) program so that injection wells would not endanger current and future underground sources of drinking water (USDWs). The SDWA empowered EPA with the primary authority to regulate underground injection to protect current and future sources of drinking water. EPA also was authorized to provide States with the opportunity to assume primary authority over UIC programs in accordance with final regulations promulgated by EPA in 1980, which set minimum standards for State programs to meet to be delegated primary enforcement responsibility (primacy) for such programs.[32]

Underground injection is broadly defined as the process of placing fluids underground in porous formations of rocks through wells or other similar conveyance systems. Before NRC-licensed ISR uranium recovery operations can commence at any project site, an ISR licensee must have obtained two UIC authorizations: (1) an aq-

[31] For example, NRC Staff developed these Appendix A Criteria "mindful of the fact that the problem of mill tailings management is highly site-specific. The precise details of a program can be worked out only when the unique conditions of a site are known." Indeed, the word "requirements" in the Introduction to "Appendix A" was replaced with the word "criteria", NUREG 0706, Volume II A-81, 82.

[32] See 42 U.S.C. § 300h(1).

uifer exemption for the aquifer or portion of the aquifer wherein ISR uranium recovery operations will occur and (2) a Class III UIC permit.[33]

EPA's UIC program was created to protect current or future USDWs. A USDW is defined as an aquifer, or portion thereof, which serves as a source of drinking water for human consumption, or contains a sufficient quantity of water to supply a public water system, and contains fewer than 10,000 mg/liter of total dissolved solids (TDS). The broad definition of a USDW was mandated by Congress in Section 1421(d)(2)[34] of the SDWA to ensure that future USDWs will be protected, even where those aquifers currently are not being utilized as a drinking water source or could not be so used without some form of water treatment.

Within this regulatory framework, however, some aquifers or portions of aquifers, which can satisfy the broad regulatory definition of a USDW, may not reasonably be expected to serve as a current or future source of drinking water. As a result, the UIC program regulations allow EPA to exempt portions of an aquifer from delineation as a USDW and allow for injection into such aquifers or portions thereof. EPA regulations at 40 CFR § 146.4 state:

> An aquifer or a portion thereof which meets the criteria for an 'underground source of drinking water' in § 146.3 may be determined under 40 CFR § 144.7 [sic] to be an "exempted aquifer" if it meets the following criteria:
>
> a. It does not currently serve as a source of drinking water; and
>
> b. It cannot now and will not in the future serve as a source of drinking water; or
>
> c. The total dissolved solids content of the ground water are more than 3,000 and less than 10,000 mg/L and it is not reasonably expected to supply a public water system."[35]

According to EPA, aquifers meeting one or more of these criteria are generally associated with in situ mineral and enhanced oil recovery. If an operator or licensee/permittee wishes to inject into a USDW for the purpose of recovering minerals (e.g., uranium), a demonstration must be made that the proposed aquifer meets at least one of the exemption criteria.[36] Aquifer exemptions are a mandatory prerequisite for any ISR project.

Therefore, logically, EPA does not prescribe specific groundwater restoration standards for exempted aquifers, because such exempted aquifers will never be used as drinking water sources at any point before, during or after ISR operations are complete. However, as described in 40 CFR § 146.7, EPA can require corrective action/remediation of any contamination of adjacent, non-exempt aquifers in accordance with the purpose of the SDWA and the UIC program to protect USDWs.[37]

UIC regulations also establish specific performance criteria for classes of wells to assure that drinking water sources, actual and potential, are not rendered unfit for such use by underground injection of the fluids common to that particular category of wells. To obtain a permit for a new Class I deep-well injection to dispose of 11e.(2) byproduct material and other wastes or Class III uranium recovery wells, the owner/operator or licensee must file an application with the UIC Director for the relevant jurisdiction containing specific information listed in 40 CFR Part 146 or in applicable State requirements. Once a UIC permit application has been reviewed, the applicant will be notified of the items needed to complete the application, if any. After a complete application is received, an initial decision to grant or deny the permit is issued. UIC regulations also provide opportunities for public participation and comment.

A UIC permit for each site also is a mandatory prerequisite for the operation of an ISR project. For individual ISR uranium recovery projects, a UIC permit is required for Class III wells for uranium recovery and, if the licensee/permitee seeks to use Class I deep injection wells for disposal of liquid wastes. As stated above,

---

[33] See e.g., United States Nuclear Regulatory Commission, Hydro Resources, Inc., SUA-1508, License Condition 9.14. ISR operators also may require a Class I UIC permit for deep-well disposal of liquid 11e.(2) byproduct material during active operations and groundwater restoration.

[34] See 42 U.S.C. § 300h(b)(1).

[35] See 40 CFR § 146.4 (emphasis added).

[36] In other words, a proposed ISR uranium recovery operation can only be conducted in an aquifer or portion thereof that cannot now or in the future serve as a source of drinking water due to the presence of significantly elevated concentrations of naturally occurring radionuclides and/or other hazardous constituents. Thus, it is incorrect and misleading for members of the public or organizations to assert that the conduct of ISR uranium recovery operations results in a degradation of "pristine" or otherwise potable sources of water.

[37] See 40 CFR § 146.7.

such permits necessarily assume the existence of an aquifer exemption for that portion of the aquifer to be used for underground injection—water that cannot now or in the future be used as a USDW.

POTENTIAL IMPACTS OF ISR URANIUM RECOVERY ARE ADEQUATELY ADDRESSED

One of the issues most frequently raised by interested stakeholders is the potential impacts to public health and safety from ISR uranium recovery. The extremely low-risk nature of ISR operations can be seen in the potential radiation dose impacts on workers and the public from ISR uranium recovery and natural background radiation in the areas where ISR projects likely will take place.

As a general matter, ionizing radiation is ubiquitous throughout the United States and, according to the National Council on Radiation Protection and Measurement (NCRP), the average background radiation dose to a member of the public in the United States is approximately 300 mrem/year. Dose from naturally occurring sources, which is the largest potential source of public radiation dose within the ambit of NRC's definition of "background radiation," is highly variable (i.e., it can vary by as much as a factor of ten across the country). Dose from "background radiation" results from cosmic radiation sources such as cosmic rays from the sun and supernova explosions and from anthropogenic (human) activities, such as global fallout and surface nuclear weapons testing, internal dose from ingested or inhaled radionuclides, terrestrial gamma doses, and the largest percentage of dose, which is from radon and its decay products. Indeed, the largest everyday anthropogenic activity causing releases of radon into the atmosphere is farming. As a result, it can be said with confidence that members of the public are exposed to radiation dose all of the time and that, depending on a person's geographic location, it can vary greatly.

Given these parameters, a proper understanding of the potential sources of radiation dose from uranium recovery operations and the corresponding potential risk is necessary. Initially, it is well-accepted that the planet contains a multitude of naturally occurring radiation sources that "bathe" every living thing on this planet in radiation. These sources are augmented further by the creation of anthropogenic sources of radiation outside the control of a licensee, such as global fallout and Chernobyl, which prompted NRC to alter its definition of "background radiation" to include such sources.[38] Thus, it is likely that locations containing elevated levels of naturally occurring radionuclides, such as recoverable uranium, will exhibit elevated levels of naturally occurring radiation. Indeed, NRC has indicated that, in the United States, background radiation total effective dose equivalents (TEDE) range from 100 mrem/year-1,000 mrem/year with higher levels in the higher altitudes in the mineralized areas of the western part of the country.

Added to this, a variety of data and analyses are available that provide evidence that potential radiation dose risks associated with both conventional and ISR uranium recovery are well below regulatory limits. While current data and analyses from United States-based conventional uranium mining operations are not available, many such data and analyses are available from Canadian-based operations. These data show the average total dose (TEDE) dose for underground miners for the period 1997 to 2005 is about 3.3 mSv, equivalent to 330 mrem, which is approximately equal to the average dose received from natural background radiation in the United States and is approximately, 1/17th of the annual worker dose limit in the United States of 5,000 mrem/year. Mill workers in Canada received an average dose of 186 mrem, and surface mining personnel received an average dose of 47 mrem. In 1975, 7 of 17 uranium mills in the US reported an average whole body dose to mill workers of 380 mrem/year. [NRC GEIS 1980] This value although somewhat higher than the current value reported for Canadian mills, is well within regulatory limits and, again, is comparable to the dose received from natural background. Thus, the dose to workers at uranium mining/milling facilities and members of the public living nearby are well-within the lower level of the range of average natural background exposures and far below NRC's annual exposure limit for workers or members of the public.

With respect to ISR operations, the potential impacts from radiation dose are, by orders of magnitude, lower than those posed by conventional mining/milling. Many of the dose pathways relevant to conventional mining/milling, such as ore removal, hauling, ore storage, mill tailings, and wind-blown particulate are not present, and therefore do not pose any risk, at ISR facilities, since no ore or waste rock is brought to the surface and there are no tailings associated with ISR activities. Thus, it is anticipated that the potential doses to actual members of the public who live near

[38] See 10 CFR § 20.1003.

ISR facilities will be significantly lower, on the order of 1 mrem/year which equates to NCRP's negligible individual risk level (NIRL).[39] Thus, it is highly unlikely that an ISR worker, much less a member of the public, will receive a dose in excess of 10 CFR § 20.1301 regulatory limits.

CONCLUSION

The U.S. mining industry has fully embraced the responsibility to conduct its operations in an environmentally and fiscally sound manner. The industry hopes and expects that Mining Law legislation will recognize and honor both its commitments to continuous improvement in our environmental performance and the industry's contribution to our national well-being.

NMA appreciates the opportunity to provide this testimony.

The CHAIRMAN. Thank you all very much for your testimony. I think it has been very useful.

I think it is late. I may have some questions that I would submit in written form and there may be other Senators who have questions they would like to submit. We will be in touch with you shortly if that is the case.

But I appreciate your being here. I think this is all very useful. It helps us to understand the issues.

I would just say in response to Mr. Newton's testimony that I do not think that there is a great risk that we are going to act in a hasty manner. It has been 136 years since we have done anything.

[Laughter.]

The CHAIRMAN. So I think that the odds are against us acting too hastily.

But I do hope we can move ahead. I think there is a consensus that some rewrite of the Mining Law is possible in this Congress, and we will continue to work on these issues and see if that is possible. There are many Senators here of good will who are anxious to come to some agreement on some reasonable changes that we could enact, and I hope we are able to proceed in that way.

But thank you all very much, and why don't we conclude the hearing with that.

[Whereupon, at 4:22 p.m., the hearing was adjourned.]

[39] NCRP's NIRL is "a level of average annual excess risk of fatal health effects attributable to irradiation, below which further effort to reduce radiation exposure to the individual is unwarranted."

APPENDIXES

APPENDIX I

Responses to Additional Questions

RESPONSES OF TONY L. FERGUSON TO QUESTIONS FROM SENATOR BINGAMAN

Question 1a. How reliable are your estimates of the number of abandoned hardrock mine sites are on Forest Service lands?

Answer. Estimates for the total number of abandoned mines on National Forest System (NFS) Lands are based on data collected by the former US Bureau of Mines (BOM). These data are now part of the Mineral Resource Database System (MRDS) which is managed by the US Geological Survey. These numbers were based on information in published reports and maps, federal and state agencies, and to some extent from private and public sources. Because these data have not been field verified, our estimates of the total number of abandoned mines should be treated as a general estimate only.

Question 1b. How many of these sites present a threat to human health and safety?

Answer. A 1995 Forest Service analysis report of the abandoned mine data compiled by the BOM indicated that there were 9,000 to 13,000 abandoned hardrock mines on NFS Lands that had a record of past mineral production. We believe that these numbers are a reasonable estimate for the range of abandoned mine sites which may pose a threat to human health and safety from physical mine features (adits, shafts etc) and/or the presence of hazardous materials.

Question 1c. How many present environmental problems?

Answer. In 1996, based on the preliminary inventory and screening of BOM data described above, Forest Service Regions estimated that 4,000 to 6,000 sites would required environmental cleanup as result of water quality problems from hazmat or other non-hazardous (sediment) materials.

Question 2a. GAO has indicated that the Forest Service's median expenditures on hardrock AML reclamation was $21 million per year from 1998 through 2007. How much would it take per year to address this problem in a meaningful way?

Answer. The Forest Service believes that significant progress has been made in mitigating the environmental damage and safety hazards at abandoned mines with historic levels of funding, and collaboration with state, federal and private partners. For example, in the 1998 to 2008 period the Forest Service also received approximately $90 million in funding from the USDA Hazardous Materials Management Account (HMMA) and recovered approximately $300 million dollars from potentially responsible parties. Maintaining such funding is expected to be difficult given the importance of competing needs, but we believe that continued funding at historic levels would be meaningful.

Question 2b. How much funding would it take to reclaim all abandoned hardrock mines on Forest Service lands in 10 years?

Answer. The Forest Service does not have sufficient data on the number of abandoned mines requiring mitigation and cleanup and the costs involved to provide an accurate estimate of the funding required to reclaim all abandoned hardrock mines in 10 years.

However, if prior estimates by the Forest Service (see below) of the total cost of abandoned mine cleanup are assumed to be accurate (5.55 billion in 2007 dollars) and considering the approximate $600 million dollars of Forest Service, USDA and potentially responsible party contributions that have been spent over the last 10 years, it would require an expenditure of nearly $490 million dollars a year to ad-

dress the remaining $4.9 billion dollars of work remaining ($5.55 billion minus $600 million)

Question 2c. What is the estimated cost of reclaiming all abandoned hardrock mines on Forest Service lands?

Answer. In 1994 the FS estimated that will cost approximately $2.1 billion to clean up hazardous substances and $2.3 billion dollars to mitigate safety hazards at abandoned mines on FS Lands. Using a simple inflation multiplier based on the consumer price index the 1994 estimate would be approximately $5.55 billion dollars in 2007 dollars. It should be stressed that these are very rough approximations at best since the actual number of abandoned mines and the extent of cleanup that will be required at each mine is not known.

Question 3. Do you think that a Westwide hardrock AML program patterned after the coal AML program is a good idea?

Answer. The FS believes that while the reclamation fund provided under the Surface Mining Control and Reclamation Act (SMCRA) could serve as a starting point, there are some unique characteristics that would need to be addressed in a program for abandoned hard rock mines in the West, patterned after the coal AML program.

For example, in contrast to abandoned coal mines, many abandoned mines in the West are found on federal lands managed by the Forest Service, Bureau of Land Management, National Park Service and others. In Nevada nearly 85% of the land is in federal ownership. Overall nearly half of all land in the 12 western states (including Alaska) is in federal ownership.

Federal land managers (FLM) have legal responsibilities and authorities under various federal statutes to manage and coordinate the activities and uses which occur on lands under their jurisdiction. Funding to allow FLM to discharge their legal responsibilities on these lands, and to plan and coordinate cleanup and safety mitigation with other activities, would be needed as part of a hardrock AML program.

Other differences due to the nature of the laws governing disposal of hardrock minerals on public domain lands would have to be addressed in planning and executing cleanups, as well as maintaining and protecting the cleanup work them in the long-term.

Question 4. Do you think an AML fee like that imposed on coal would make sense for a hardrock AML program?

Answer. We concur with the remarks made by Deborah Gibbs Tschudy, Deputy Association Director, Minerals Revenue Management for the Minerals Management Service who testified regarding this issue before this Committee on January 24, 2008.

Question 5a. The GAO testimony indicates that the Forest Service regulations do not require the posting of financial assurances but as a matter of policy, financial assurances are often required. In what circumstances are financial assurances required?

Answer. Financial assurances to perform reclamation work are required in every case where there is likely to be a significant disturbance of surface resources. Forest Service Manual at 6564.1 contains the policy for obtain performance bonds to cover the estimated reclamation costs for prospecting, mining, and other mineral operations on National Forest System lands. In estimating such bonds, FSM 2817.24a further provides that estimators should follow the guidance found in the Forest Service's Training Guide for Reclamation and Administration, adopted in April 2004 for plans of operations authorized and administered under Title 36, Code of Federal Regulations, part 228, subpart A (36 CFR part 228, subpart A).

Question 5b. Do you have information on the amount of financial assurances posted on Forest Service lands?

Answer. Yes. The total amount of financial assurances held for exploration and hardrock mining operations is approximately $100,750,000.

Question 5c. Does the Forest Service have written guidance on when financial assurances are required? If so, please provide.

Answer. Forest Service Manual at 6564.1 contains the policy for obtain performance bonds to cover the estimated reclamation costs for prospecting, mining, and other mineral operations on National Forest System lands. In estimating such bonds, FSM 2817.24a further provides that estimators should follow the guidance found in the Forest Service's Training Guide for Reclamation and Administration, adopted in April 2004 for plans of operations authorized and administered under Title 36, Code of Federal Regulations, part 228, subpart A (36 CFR part 228, subpart A).

Question 6a. How do the Forest Service and EPA coordinate on Superfund sites that involve abandoned hardrock mines on Forest Service lands?

Answer. The answer depends upon the situation. If the abandoned hardrock mine is on EPA's Superfund National Priority List (NPL), then EPA serves as the lead agency for the investigation and cleanup of the mine site pursuant to Executive Order 12580. The Forest Service role at NPL mine sites is usually determined through a written agreement between the agencies. If the mine site is located entirely on NFS land and is not an NPL site, then USDA Forest Service will serve as the lead agency and will exercise its delegated CERCLA authorities to investigate and, if necessary, clean up the mine site, pursuant to the same Executive Order. If the site is a mixed-ownership site, located partially on NFS land and partially on state or private land, then the Forest Service and EPA coordinate pursuant to the "Statement of Principles for Collaborative Decision Making at Mixed Ownership Sites." The Statement of Principles were agreed upon by USDA, the U.S. Department of the Interior, and EPA to increase efficiency and effectiveness of CERCLA response actions at mixed-ownership sites, including mixed-ownership abandoned hardrock mines.

Question 6b. Does EPA use Superfund monies on these sites, or does the money come from the Forest Service's budget?

Answer. Both EPA and USDA seek first to have Potentially Responsible Parties (PRPs), if any, pay for the cleanup of abandoned hardrock mine sites. If no PRP exists, then the Forest Service seeks funding from the USDA Hazardous Materials Management Appropriation or internal Forest Service funds to accomplish CERCLA response actions at these sites. USDA does not have access to the Superfund and EPA does not spend Superfund monies for CERCLA response actions on National Forest System land.

Question 7. Does the Forest Service impose any additional or different standards on uranium mining operations located on Forest Service lands than for other types of hardrock minerals?

Answer. No. All hard rock mining reclamation plans are developed to comply with the environmental protection requirements described at 36 CFR 228.8(g). However, each reclamation plan is based on site-specific conditions such as the specific minerals present and the presence of other affected resources.

Question 8. What is the Forest Service's current policy regarding approvals required prior to the transfer, assignment or sale of a mining claim or millsite or plan of operations?

Answer. The Forest Service has no authority to approve transfers, assignments of mining claims or millsites. The Bureau of Land Management is charged with these types of administrative actions. A mining claim with an approved plan of operation can be sold; however, the approved plan of operation does not automatically transfer to the new owner(s). The new operator must agree to the terms and conditions of the previously approved plan of operation and provide an appropriate financial assurance for the reclamation plan before they can begin to operate.

RESPONSES OF TONY L. FERGUSON TO QUESTIONS FROM SENATOR DOMENICI

Question 1. We had Mike Dombeck before this Committee in January, and in his answers to questions we asked at that hearing, he stated that the mechanism for land withdrawals is "far too cumbersome to work well." In Montana, Rocky Mountain Front withdrawals began in 1999—can you tell us how long they took to complete? Did they include withdrawal from location and entry under the 1872 Mining Law?

Answer. The Rocky Mountain Front Mineral withdrawal was initiated with the publication of the Notice of Proposed Withdrawal in the Federal Register on February 3, 1999. The land identified for withdrawal was segregated for two years to allow the Forest Service to complete the necessary documentation for a withdrawal. The Forest Service prepared an EIS to evaluate and disclose the effects of the withdrawal. The Notice of Availability for the Final Environmental Impact Statement was published in the Federal Register on December 15, 2000 and the Record of Decision was signed by the Secretary of Agriculture on December 20, 2000. Public Land Order No. 7480 was published in the Federal Register on January 22, 2001, by the BLM. This Public Land Order formally withdrew the Rocky Mountain Front from the staking of claims under the 1872 Mining Law, as amended.

Question 2. Is the reclamation of uranium mines unique in any respect?

Answer. Each mine reclamation plan is unique and is based on site-specific conditions such as the specific minerals present and the presence of other affected resources. Uranium is usually mined with conventional underground or surface mining techniques and reclaimed with conventional reclamation methods. Some mine waste piles may be capped with soil and an impermeable clay layer to prevent radon gas releases. This same technique is used to prevent water infiltration and toxic

metal migration at other mines. All hard rock mining reclamation plans are developed to comply with the environmental protection requirements described at 36 CFR 228.8, regardless of the potential toxic materials involved.

RESPONSES OF BILL BRANCARD TO QUESTIONS FROM SENATOR BINGAMAN

Question 1a. Turning now to the Mining Law Reform legislation, there seems to be consensus that a new hardrock AML program should be enacted. Does it make sense to pattern this after the Surface Mining Act coal AML program?

Answer. The Surface Mining Control and Reclamation Act (SMCRA) provides a useful model of a single federal agency that administers the funding of state and tribal AML programs that have eligible AML programs. This provides for oversight, consistency and effective spending of funds.

Question 1b. Should we allow states and tribes to have primacy to administer the program?

Answer. States and tribes should be allowed an opportunity to obtain primacy to administer the program within their jurisdictions. First, there are a number of existing state and tribal AML programs that have the expertise and experience to efficiently administer the hard rock program. Second, states and tribes know where the AML problems are located and can prioritize the projects. Finally, the experience of states and tribes will allow for the most effective and appropriate remedies to be chosen for the variety of hard rock AML problems.

Question 1c. What role do you believe historic mining should play in the allocation of AML funds among states? What role should current mining play?

Answer. Funds should be allocated to address the AML problems. Because a significant number of hard rock AML problems are located in mining districts that played out decades (or centuries) ago, historic mining rather than current mining may be a better measure for allocation.

Question 2. How do you think the scope of the hardrock AML problem compares to the coal AML problem?

Answer. The absence of precise inventory data makes this question difficult, but I believe that, on a national scale, the hard rock AML problem is at least as large as the coal AML problem. Certainly in the Western U.S., the quantity and cost of the hard rock AML problems dwarf those of the coal AML problems. In New Mexico, we estimate that well over 90% of our 15,000 abandoned mine hazards are abandoned hard rock mines.

Question 3. How does the State of New Mexico fund its AML work?

Answer. New Mexico's AML program is funded by an annual grant from the Department of the Interior under SMCRA Title IV. That amount has been around $1.5 million a year. As a result of legislation passed by Congress in 2006, the grant will increase this year to approximately $4 million. However, because of the Department of the Interior's interpretation of the new law, at least 75% of that grant can only be spent on coal AML projects. Previously, New Mexico had the flexibility to apply the grant to the state's highest priority needs, coal or non-coal.

Question 4. Your testimony states that most hardrock AML problems are on non-federal land. I take it that you think any AML program should allow funds to be expended on federal, state, tribal and private lands, correct?

Answer. Yes. Not only are most hard rock AML problems are on non-federal land, but many of the federal AML areas also overlap onto adjacent non-federal lands. Currently, New Mexico conducts AML projects on federal, state and private, but not tribal, lands.

Question 5. Does the reclamation of abandoned uranium mine sites involve any unique concerns or additional action or expense compared to the reclamation of other hardrock mine sites?

Answer. Yes. Unreclaimed areas of abandoned uranium mines, including mine waste piles, structures, equipment, trash, etc., often emit radiological contaminants and can create public health risks and contribute to contamination of ground and surface water. Reclamation of uranium mines generally involves the removal or burial of significant amounts of material, often at considerable cost. At other, older hard rock mine sites, many of these waste piles do not pose a threat to health, safety or the environment and can be left untouched and, in fact, are often retained for their historic value.

In New Mexico, a large percentage of abandoned uranium mines are located in areas with checker boarded land ownership and split estates which create additional concerns of jurisdiction over, and access to, these sites.

Question 6a. What funding source would be appropriate for a hardrock AML program? Does the State of New Mexico charge a royalty on hardrock minerals pro-

duced from state lands? At what rate? Are any of these revenues used for reclamation?

Answer. The New Mexico Commissioner of Public Lands sets a royalty on hard rock minerals produced from state trust lands at the time a mineral lease is offered for auction. The royalty is a minimum of 2% of gross returns less the actual and reasonable transportation and smelting or reduction costs up to fifty percent of the gross returns. For "special minerals" (uranium, precious and semi-precious stones, rare earth minerals, etc.), the royalty is 5% of gross returns less deductions. See Part 19.2.2 NMAC. The royalties are deposited in the Land Grant Permanent Fund which is distributed to beneficiaries named in the New Mexico Constitution and Enabling Act.

Question 6b. Is there a state severance tax? Please describe?

Answer. New Mexico charges a severance tax and a "resource excise tax" on the extraction of hard rock minerals. The amounts vary by commodity. Both are based on gross returns, but the severance tax has significant adjustments to gross value. For instance, a copper producer pays a ½% severance tax on 66 2/3 % of gross value with a further 50% reduction for expenses. See NMSA 1978, Sections 7-26-1 et seq. A copper producer also pays a resource excise tax of ¾% of gross value with deductions only for any state or federal royalties. See NMSA 1978, Sections 7-25-1 et seq.

Question 6c. Are fees charged for the use of state lands by hardrock mining operations?

Answer. The holder of a mineral lease for state trust lands will pay an annual rental (based on a per acre charge) and will pay any bonus that was offered to win the mineral lease at auction.

Question 6d. Is there any kind of reclamation fee charged for mining?

Answer. No. Hard rock mining operations are required to post financial assurance to cover the cost of reclaiming their disturbances but no fee for other reclamation is charged.

Question 7. Do you think a federal nationwide AML fee charged on all hardrock production similar to the AML fee charged for coal makes sense?

Answer. From my perspective, an AML fee on all hard rock production has several advantages. It should be a more robust and consistent funding source than relying solely on royalties. It is also more equitable, both within the industry and in comparison to coal AML funding. It is also consistent with the need to use hard rock AML funding for projects on both federal and non-federal land.

RESPONSES OF DEBRA STRUHSACKER TO QUESTIONS FROM SENATOR DOMENICI

Question 1. You argue that Good Samaritan liability relief is one element that is missing from the AML "tool kit." Certainly, supporting private acts in the public good is a laudable goal, but I am curious about the nature of these organizations. Can you give some examples of organizations that would undertake the cleanup of an AML site for public benefit? Tony Ferguson gave several examples of public/private partnerships. How significant a role do you think that type of arrangement can play in AML clean-up?

Answer. In the short time available to prepare our testimony and respond to these follow-up questions, NWMA was able to identify the public-private partnerships listed in Table 2 and described below. We are confident that additional research would likely reveal other examples of public-private partnerships involving a diverse group of stakeholders that have come together to achieve the mutually beneficial objective of improving public safety and the environment by reclaiming AMLs.

Case histories of recent and past AML cleanup efforts clearly reveal a wide range of entities have undertaken AML reclamation projects for public benefit. These entities include hardrock mining and exploration companies, private companies outside of the mining sector, conservation groups, foundations, and nearby communities. As discussed below, at some sites, diverse stakeholder groups have formed coalitions that have engaged in AML reclamation activities to benefit the public.

Based on the data collected to date, NWMA believes that public-private partnerships could play an important role addressing the AML problem. As seen from the examples described below and shown in Table 2 of our testimony, these partnerships harness the financial and creative resources of a group of diverse public-and private-sector stakeholders. Many of these partnerships have a proven track record of success in finding ways to overcome the serious liability barriers to voluntary cleanups. The dogged determination evident in the several examples of public-private partnerships described herein suggests to NWMA that enactment of Good Samaritan liability relief, coupled with measures to encourage future public-private partnerships, will certainly help accelerate the pace of progress in reclaiming AMLs.

As the Committee contemplates policies to address the AML issue, we are reminded of that memorable moment in the movie Field of Dreams when Kevin Costner says "Build it and they will come." NWMA believes this is an appropriate motto and mindset for future AML programs. Judging from the public-private AML reclamation partnership efforts identified to date, NWMA is confident that policies to encourage future public-private partnerships will pay dividends by leveraging private-sector dollars and accelerating the pace of AML reclamation progress.

PRIVATE-AND PUBLIC-SECTOR ENTITIES AND PARTNERSHIPS INVOLVED WITH AML RECLAMATION

Mining companies have played the largest private-sector role in reclaiming abandoned and inactive mines. Some of the mining company-funded projects have focused on improving old mine sites near or adjacent to the companies' active mining operations. These proximal cleanup efforts have capitalized upon the synergy of having a nearby active mining operation with trained reclamation specialists, heavy equipment operators, and available earth-moving equipment.

Forty-nine (51 percent) of the 83 AML reclamation case histories in the 1998 National Mining Association study entitled "Reclaiming Inactive and Abandoned Mine Lands—What is Really Happening" (which is included as an attachment to our written testimony) involved mining company-funded reclamation projects. It should be noted that when this report was written ten years ago, avoiding Clean Water Act liability was already a widespread concern—just as it is today for would be Good Samaritans. Most of the reclamation projects described in the 1998 report occurred at sites at which there was minimal CWA liability exposure. The 1998 report describes concerns about potential exposure to CERCLA and CWA liability at AML sites with drainage from underground workings as the major impediment to voluntary (i.e., Good Samaritan) AML cleanups at these types of sites.

It should be emphasized that mining companies are not the only private-sector entity with an interest in reclaiming AMLs. Some of the AML reclamation projects listed in Table 2 of NWMA's testimony involve public-private partnerships at which some of the private-sector participants were not mining companies. The examples presented below describe several other public-private partnerships involving companies outside of the mining sector.

For example, the Virginia Canyon AML reclamation project in Colorado, has involved the Clear Creek Watershed Association. Working under a Memorandum of Understanding, this broad-based private-public partnership is comprised of the towns of Black Hawk, Idaho Springs, Golden, Central City, Empire, Georgetown, and Silver Plume; the Central Clear Creek Sanitation District; the Black Hawk/Central City Sanitation District; and the St. Mary's Glacier Water and Sanitation District; Clear Creek County; Gilpin County; and Jefferson County; Clear Creek Skiing Corporation; Climax Molybdenum Company; Molson Coors Brewing Company; and Schwayder Camp.

The AML reclamation effort at the Doctor Mine in Clear Creek County, Colorado demonstrates how a public-private partnership found a way to address the private-sector participant's CWA liability concerns. The Clear Creek Watershed Association used funds from the Clear Creek Watershed Foundation to evaluate numerous historic mine and mill sites both within and outside of the Clear Creek CERCLA boundaries. One such site located outside the boundaries was the Doctor Mine. This mine is located on USFS-administered lands in an area of high recreational use adjacent to Climax Molybdenum Company's Henderson Operations (Henderson), a large, underground molybdenum mine. The Doctor Mine—which Henderson never owned or operated—was discharging mine drainage into the headwaters of upper Clear Creek.

The Clear Creek Watershed Foundation contacted the USFS and Henderson regarding closure of the site. The mining company was interested in reclaiming this site as a "good neighbor" participant. However, due to the lack of a Good Samaritan provision in the CWA for voluntary AML reclamation projects, Henderson was hesitant to become directly involved, fearing that reclaiming this site would expose the company to CWA liability.

The Clear Creek Watershed Foundation played a pivotal role in solving this liability concern by acting as a funding clearinghouse, funneling funds from Henderson to the USFS. Working together as partners, Henderson and the USFS agreed to split the reclamation costs. The partnership in conjunction with attorneys from EPA Region 8 and attorneys from the USFS and Henderson negotiated a "comfort agreement" that eliminated Henderson's liability concerns. It should be noted that EPA did not provide a formal "Comfort Letter" as allowed under CERCLA 107(d). The USFS designed and contracted the project, and work was completed in late 2006.

Although significantly complicated by the lack of Good Samaritan liability relief provisions, the work was successfully completed in an efficient and effective manner that minimized taxpayer costs through the cost-sharing arrangement with Henderson.

Trout Unlimited is an example of a conservation group with an exceptional track record of facilitating successful AML reclamation efforts at projects with liability concerns. The AML reclamation effort at the Pacific Mine in the American Fork Canyon between Salt Lake City and Provo, Utah is a very interesting example of a public-private partnership that found a creative way to fund the reclamation effort and to solve the liability exposure issue. As described in the 2007 US BLM/USFS report entitled "A Decade of Progress Reclaiming Abandoned Mines"[1], the parties involved with this site included Trout Unlimited, Snowbird Ski and Summer Resort (which is a nearby landowner), Tiffany & Co., EPA, USFS, and the State of Utah. Tiffany & Co. provided significant funding through a grant to Trout Unlimited to perform the cleanup work at this site. Through negotiations with EPA, Trout Unlimited obtained an Administrative Order of Consent that limited long-term liability and provided the legal authorization for cleanup work on private land. Both EPA and the State of Utah have recognized the successful reclamation effort at this site.

The willingness of Tiffany & Co. to provide funding for this reclamation effort is especially notable. Unlike many of the participants in the ongoing debate about amending the Mining Law and the problems associated with AMLs, Tiffany & Company has found a constructive way to participate in reclaiming an AML site. It is hoped that other groups will follow Tiffany & Co.'s leadership and step up to the plate by contributing funds to help reclaim AML sites.

Trout Unlimited's involvement with the Pennsylvania mine and mill in Summit County, CO is another example of how this conservation group is taking a key leadership role in finding innovative ways to address the CWA liability impediment to voluntary AML cleanups. The Pennsylvania mine and mill is a large historic gold and silver operation that has been the focus of planned closure and clean-up activities by the State of Colorado and various Summit County interest groups for nearly 20 years. Drainage from this USFS-owned mine site has polluted Peru Creek for decades. The Colorado Division of Minerals and Geology (now Division of Reclamation, Mining, and Safety) and the Colorado Water Quality Control Division initiated a series of remediation projects at the mine mouth in the early 1990s, spending more than $170,000 to construct water treatment facilities. These initial efforts failed. When the courts ruled in 1993 that mine discharges were a point-source under the CWA requiring an NPDES permit, the state determined to take no further action at the site that might make them liable. The upper Peru Creek area was added to the EPA's Brownfield sites list in the early 2000s, but remediation of the Pennsylvania AML site still was not undertaken due to liability issues, much to the frustration of Summit County.

Trout Unlimited has worked with Summit County and various stakeholders in an attempt to correct the situation and clean up the site. These attempts were thwarted when the Salazar-Allard Good Samaritan bill, which Trout Unlimited strongly supported, failed to pass in 2006. The ongoing lack of Good Samaritan provisions for voluntary AML reclamation efforts has led Trout Unlimited to search for creative ways to overcome the liability impediment. Trout Unlimited and other stakeholders are creating the nonprofit Snake River Water Foundation that may be involved with the clean up project and might assume long-term operations and maintenance at the site. The liability avoidance strategy at this site is based on the concept that this Foundation would have such limited assets that they would not be an attractive target for a CWA liability lawsuit. The Foundation has helped persuade the Colorado Department of Public Health and Environment and EPA to fund a treatment design and characterization study under a recently approved AOC.

The Santa Fe New Mexico Chapter of Trout Unlimited is partnering with the NGO, Amigos Bravos, to close and clean up five AML sites on private land in New Mexico during 2008 and 2009. The USFS has agreed to provide cost and design estimates, and the Trout Unlimited—Amigos Bravos partnership will raise the funds for completion. Attorneys with EPA Region 6 also are working with the partnership to provide a degree of "comfort" relative to liability reduction.

Another interesting example of a public-private sector partnership in New Mexico is the Cerrillos Park Coalition. This Coalition which has reclaimed the Cerrillos Mine Project in Santa Fe County (see Table 2 of NWMA's testimony) was formed to manage and maintain the Cerrillos Hills Historic Park. The park had AML sites that needed to be closed to eliminate public safety hazards. This coalition is a

[1] The Committee is urged to look at the many other examples of the public-private partnership efforts to reclaim AML sites that are desribed in this BLM/USFS report.

501(c)(3) corporation that includes the following members and benefactors: BLM, National Park Service, several private native plant nurseries, several Santa Fe area banks, Eastman Kodak, Los Alamos National Lab, the local Sierra Club chapter, and several private individuals representing small businesses.

RESPONSES OF DEBRA STRUHSACKER TO QUESTIONS FROM SENATOR WYDEN

Question 1. Ms. Struhsacker in your testimony you stated that existing environmental regulations are adequate to protect human health and the environment. However, there are still cases where existing hardrock mining activities and abandoned mines continue to negatively impact human health and the environment. For instance, in my own state of Oregon, the Formosa Mine in Douglas County is a copper and zinc mine that operated in the early 1900s, then reopened in 1989 and operated until 1993. Acid mine drainage and metal contamination has eliminated about 18-stream miles of prime habitat for the threatened Oregon Coast coho salmon and steelhead. It seems to me that EPA, the BLM and other responsible regulatory agencies are failing to enforce existing mining and environmental regulations.

Can you please explain why you think existing environmental regulations are adequate when addressing the negative public health and environmental impacts resulting from hardrock mining activities?

Answer. The answer to this question is identical to the discussion on pages 3 and 4 of NWMA's written testimony entitled "Modern Bankrupt Mines Should Not be Confused with Historic AMLs" and my response to a similar question from Senator Tester during the hearing regarding the Zortman-Landusky mines in Montana. The Formosa Mine is another example of a mine like Zortman-Landusky, which was permitted during the earlier years of the state and federal regulatory and bonding requirements for hardrock mines. The environmental analysis and bonding requirements in those earlier years bear little resemblance to current requirements.

Today, federal land management agencies require much more detailed environmental and engineering studies compared to what was standard practice 20 years ago. Consequently, BLM, the Forest Service, mine operators, and the public know a great deal more about the potential environmental impacts associated with a proposed mine. Additionally, the bonding requirements for mines today are much more comprehensive and stringent than 1980s- and 1990s-vintage bonds.

In order to respond with some level of specificity to this question about the Formosa Mine, NWMA contacted the Oregon Department of Geology and Mineral Industries (DOGAMI) to learn more about the Formosa Mine. According to DOGAMI, the Formosa Mine site covers about 76 acres on Silver Butte in Douglas County near Riddle, Oregon. It was first operated as a copper-zinc mine from 1910-1937 after which it was abandoned and became the source of contaminated waters that discharged into Middle Creek and the South Fork of Riddle Creek (the headwaters of the Umpqua River). Mine drainage adversely affects some 13 to 18 miles.

In 1984, a Canadian mining entrepreneur consolidated the patented and unpatented claims and some fee lands and initiated exploration activities. Access to the main portal was on BLM land, but no permit was required at this stage. Based on favorable exploration results, Formosa Exploration, Inc. (FEI) decided in 1989 to mine and mill copper, zinc, and thorium ores at a rate of around 400 ton per day.

FEI secured the necessary permits from DOGAMI to build and operate the mine and mill. The company obtained a state approved reclamation and closure plan, and provided a $500,000 bond to the State. Although access to the main portal was across BLM land, BLM did not require any federal permits. The reclamation plan filed with and approved by DOGAMI included removal of waste from the creek, encapsulation of waste materials on-site, backfilling of openings with mine waste, and adit bulkheads. DOGAMI strongly believed this plan would work. FEI was very willing to accommodate DOGAMI's desires to address pre-existing environmental problems at this old mine site.

In late 1992, state inspectors discovered that FEI was not following its mine plan, was producing more than permitted, and had dumped waste materials into the creek. DOGAMI issued a Cease and Desist order, closed the operation, and required the company to increase the reclamation bond to $1 million. Reclamation began in 1994. When it was evident that the closure plan was not working, FEI liquidated, leaving the state and BLM with the closure and remediation.

A great deal has changed since this scenario unfolded. Back when the Formosa Mine secured its operating permit from the State of Oregon and provided the reclamation bond, DOGAMI's regulations capped reclamation bonding requirements at $10,000 per acre. Today reclamation bonds for operations that do not use cyanide are capped at $100,000 per acre and DOGAMI is in the process of trying to remove this cap and change the regulations to require bonding for actual calculated costs.

Oregon has additional bonding requirements for operations that use cyanide in their processing circuits.

The problems that occurred at the Formosa Mine were due to shortcomings in the State's regulatory and bonding requirements in the late 1980s when the permit applications for this project were submitted, evaluated, and approved. The State of Oregon has eliminated these shortcomings and is in the process of increasing its bonding authority for projects that do not use cyanide.

Because the mining activities at the Formosa Mine did not take place on public lands, it is not appropriate to extrapolate the facts at this site to mining projects on federal lands. However, NWMA's testimony describes examples of similarly under-bonded sites on public lands that were permitted in the 1980s and 1990s at which taxpayer dollars are being used to reclaim the sites and remediate environmental problems.

As discussed in NWMA's testimony, federal regulations and bonding requirements have changed substantially since these mines were permitted. Table 1 presents a partial list of the environmental analysis and bonding requirements applicable today to proposed mining operations on public lands. These current requirements subject mining proposals to a much more rigorous analysis and much higher financial assurance requirements than the State of Oregon required back in the late 1980s when the Formosa Mine was permitted or in the late 1970s—early 1980s when the State of Montana and BLM initially permitted the Zortman Landusky Mine.

In evaluating the question of whether a situation like the Formosa Mine or Zortman-Landusky could happen again, it is important to realize that the substantial changes made to the reclamation bonding requirements were designed specifically to eliminate the problems and shortfalls that occurred at mines where the operator either went bankrupt or abandoned the site. Thus, bonds today include a surcharge of roughly 40 percent to provide sufficient resources for state and/or federal agencies to implement the reclamation plan and hire third-party contractors to perform the reclamation work. Additionally, federal regulators now have the authority to require trust funds or other funding for long-term water quality monitoring and site management to ensure that there will be funding for both expected and unknown future site requirements.

As a result of these much stricter requirements, NWMA is confident that a different outcome would result at the Formosa Mine if this mine proposal were being evaluated and permitted today. Similarly, had these requirements been in place many of the water quality problems that have developed at some 1970s-and 1980s-vintage mines would not have occurred because BLM and the Forest Service would have required dramatically different mine waste testing and management programs than were the norm 20 or 30 years ago.

Given the substantial differences between today's environmental analysis and bonding requirements compared to those in the 1980s and 1990s, NWMA strongly believes that the current regulatory and bonding framework for hardrock mining on public lands does a good job of protecting public health and safety. Furthermore, we wish to emphasize that problems resulting from mines permitted and developed in the 1980s—1990s timeframe—which is early in the development of the regulatory and bonding requirements for mining—should not be viewed as models of what will happen at mines today or in the future. Many of the problems at these older sites developed due to shortcomings in the regulatory and bonding programs. As discussed above, state and federal regulators have corrected these shortcomings.

TABLE 1

PARTIAL LIST OF THE CURRENT ENVIRONMENTAL ANALYSIS AND FINANCIAL ASSURANCE REQUIREMENTS FOR PROPOSED MINING OPERATIONS ON PUBLIC LANDS

ENVIRONMENTAL ANALYSIS AND PROTECTION REQUIREMENTS

- Detailed waste characterization tests are now required to assess the potential for acid generation and metals leaching from the materials to be mined.
  - —Mined materials with the potential to generate acid or leach metals must be managed in ways to eliminate or reduce potential acid generation and metals leaching.
  - —Mine waste storage facilities (i.e., waste rock and tailings storage areas) must be designed to manage seepage from acid generating or metals leaching mine wastes to prevent environmental degradation.
- Detailed hydrogeological and predictive modeling studies are now required to assess the potential for impacts to ground water and surface water resources.

—Adequate baseline studies are required to identify pre-project surface water and groundwater quality conditions against which project impacts can be measured.
—Detailed monitoring and reporting requirements must be designed to verify the mine is performing in compliance with all project permits.
—Operators must update the project plan to reflect on-the-ground conditions and/or to make any substantial changes from the original project.

- Operators must provide additional mitigation, financial assurance, or both in the event that project plan is modified.
- The regulations now specify a minimum frequency of site inspections and provide additional enforcement mechanisms.

FINANCIAL ASSURANCE REQUIREMENTS

- Bonds are now based on detailed reclamation cost calculations that use third-party contractor costs based on Davis-Bacon wage rates;
- Bonds now include up to a 40 percent surcharge for agency costs to manage the reclamation effort;
- Bonds for some mines now include long-term financial assurance if site-specific conditions suggest that long-term maintenance or monitoring may be needed;
- Bonds now include costs to manage the process fluid inventory (i.e., fluids in ponds and tailings impoundments) that must be dealt with before a site can be closed and reclaimed; and
- Bond amounts are reviewed on a regular basis and adjusted as necessary to reflect inflation and site conditions.

Question 2. Royalties on existing and new hardrock mining activities as well as the percentage and type (e.g., net smelter, net or gross production) of royalty were discussed in the hearing. A royalty will produce real revenue for the Treasury, to repair some of the costs and damage left by past hardrock mining activities and/or to reduce the deficit. Under the 1872 Mining Law, billions of dollars in hardrock minerals have been mined on more than 350 million acres of public lands. This industry owns gold, silver, and other precious metals and minerals beneath an estimated 191,391 acres of U.S. public land in Oregon that's about the size of Crater Lake National Park. These resources are worth millions of dollars a year and have been acquired for very little money and there is no reimbursement or royalties paid to the federal government for gold, silver and other precious metals taken from public. It is time for the mining industry to start paying their fair-share for the use of our public lands.

Can you please explain why you support a royalty on only new mines and not those that are already existing?

Answer. NWMA has supported a net royalty on production from post-enactment claims (i.e., claims located and developed after a new Mining Law bill with a royalty is enacted) for many years. There are two reasons why the royalty must be prospective and not retroactive: First, a retroactive royalty like the royalty proposed in H.R. 2262 would impose new and substantial costs on existing mines that would likely render many currently operating mines uneconomic, forcing them to close prematurely. Secondly, imposing a royalty on existing operations would expose the federal government to substantial takings claims. These two problems with a retroactive royalty are discussed below. We conclude by explaining why H.R. 2262 is counterproductive to the goal of creating a royalty-funded AML reclamation fund and why this fund does not need to be built instantaneously.

Premature Mine Closures

Most hardrock mining operations have historically operated with low margins. Currently, operating costs are at an all-time high due largely to soaring fuel and energy costs. Thus, even though mineral commodity prices are high, the operating margin for most hardrock mines remains small. Adding another substantial cost—like a four percent gross royalty—will make many currently operating mines unprofitable. Unlike coal and vertically integrated oil and gas producers, hardrock mineral producers cannot pass increased costs on to mineral consumers, whether the new costs are associated with rising fuel and energy costs or a new royalty. Those mines rendered unprofitable due to the imposition of a federal royalty will have to close prematurely.

Premature mine closures are not in the public's best interest for several reasons: First, closing a mine before the orebody is depleted leaves minerals in the ground and wastes valuable mineral resources. Because the demand for minerals will likely remain the same (and probably will increase), other sources of these minerals—including foreign sources—will have to supply the needed minerals. Increasing the

Nation's reliance on foreign minerals is not good public policy. It will weaken our economy and threaten our national security.

Secondly, premature mine closures may result in unnecessary environmental impacts if new mines have to be developed to supply the minerals that could otherwise have been produced at mines that could operate at a profit prior to imposition of a retroactive royalty. Another environmental impact associated with obtaining minerals from foreign sources is that more hydrocarbon-based fuels will have to be consumed to ship the foreign minerals to the U.S. These foreign-mined minerals will have a significantly larger carbon footprint than minerals produced from U.S. mines. They may also be produced from mines with lower environmental and health and safety standards compared to U.S. mining operations.

Finally, high-paying jobs are lost when a mine closes prematurely due to imposition of a cost that renders the mine unprofitable. This is likely to happen if a royalty is imposed on many currently operating low-margin mines. The resulting loss of mining jobs and the closing of businesses that supply goods and services to the mines will have far-reaching ramifications in mining states and communities where mining-driven economic engines will slowly grind to a halt as mining jobs and dollars disappear. The imposition of a retroactive royalty will cause dramatic socioeconomic hardships in rural mining communities—but the adverse effects will not be confined to rural mining areas. Mining states will soon feel the impact of the job and revenue losses as local communities are no longer self sufficient and must look to state coffers for financial support.

Takings Exposure

Imposing a royalty on existing mines will expose the federal government to takings lawsuits. Last November the Bush Administration issued a Statement of Administration Policy (see Exhibit A) that clearly opposes the retroactive royalty scheme proposed in H.R. 2262 because it is unconstitutional and will create compensable takings claims:

> While the Administration supports the establishment of a production payment system, the Administration has serious concerns about the royalty structure provided in Title I of the bill. The royalty structure in H.R. 2262 will likely generate Takings Clause challenges because it fails to take into consideration property rights relating to properly maintained claims established prior to enactment of the bill. For any claimant who has a vested property interest prior to production, application of a royalty on production could result in a claim for a compensable taking under the Constitution." (November 1, 2007 Statement of Administration Policy.)

NWMA appreciates and agrees with the Administration's position and believes that an amended Mining Law should minimize future takings claim which would potentially be very costly for U.S. taxpayers

Last year, NWMA sought a legal opinion from the Washington, DC office of Beveridge & Diamond to analyze whether the retroactive royalty scheme in H.R. 2262 to apply a new royalty on existing valid mining claims constitutes an unlawful taking of the mining claimants' property interests in violation of the Fifth Amendment to the Constitution, or raises any other constitutional infirmity. This opinion, henceforth referred to as the "Takings Opinion" which is attached as Exhibit B, clearly concludes that several legal claims would be available to any plaintiff desiring to challenge a retroactive royalty, like the scheme proposed in H.R. 2262:

> Congress cannot, on a whim, constitutionally create and appropriate to itself a royalty interest in valid mining claims that it freely granted away under the mining laws specifically without reserving such a right. Since H.R. 2262 would accomplish precisely this objective, it will likely not withstand a court challenge to its constitutionality." (Takings Opinion, page 20.)

The Takings Opinion presents a detailed analysis of the property rights appurtenant to unpatented mining claims with a discovery of a valuable mineral resource (i.e., valid claims). The Takings Opinion also discusses takings case law and demonstrates how government-sponsored actions that disrupt investment-backed expectations expose that government to takings claims. In the case of existing mines, imposition of a retroactive royalty would clearly upset the mine plan and other business and economic parameters that the operator used to determine the mine could be developed and operated profitably.

Key findings discussed in the Takings Opinion are summarized below:

- Congress unquestionably has the right to condition future grants of property interests on the public lands for mining claims located after a new law is enacted, if it decides that such a royalty obligation is warranted.

—However, H.R. 2262 also imposes this new royalty obligation on production from existing mining claims that are valid on the date of enactment, including in particular producing mining claims with approved operations permits—this is a legislative/regulatory taking.

- A valid mining claim under the Mining Law of 1872 creates property rights for the claim holder. Best v. Humboldt Placer Mining Co., 371 U.S. 334, 336 (1963).

—The courts have recognized that valid unpatented mining claims are exclusive possessory interests in federal land for mining purposes which entitle claim holders to extract and sell minerals "without paying any royalty to the United States as owner." Union Oil Co. v. Smith, 249 U.S. 337, 348-349 (1919).

—As recently as 1996, the Federal Circuit reached the same conclusion, stating further that "[e]ven though title to the fee estate remains in the United States, these unpatented mining claims are themselves property protected by the Fifth Amendment against uncompensated takings." Kunkes v. United States, 78 F.3d 1549, 1551 (Fed. Cir. 1996).

- Under existing law, the claimant of a valid unpatented mining claim has a protected property right in the full value of the minerals it extracts from its mining claim.

—A royalty interest, which is commonly defined as a right to a fractional share of the minerals produced from the land, also is a property interest. Shell Oil Co. v. Babbitt, 920 F. Supp. 559, 564-65 (D. Del. 1996).

- The requirement in H.R. 2262 to pay the U. S. a 4% or 8% royalty on the gross value of the minerals produced from existing valid unpatented mining claims is clearly a direct legislative/regulatory taking of that property interest from the mining claimant without compensation in violation of the Fifth Amendment. Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992); Penn Central Transp. Co. v. New York City, 438 U.S. 104 (1978).

—The royalty burden proposed in H.R. 2262 also may render some existing valid mining claims uneconomic or cause operations to terminate prematurely because of the additional cost burden.

- The retroactive imposition of the H.R. 2262 royalty obligation on valid mining claims that exist on the date of enactment would deprive mining claimants of their due process rights under the Fifth Amendment. Landgraf v. Usi Film Prods., 511 U.S. 244 (1944).

The arbitrary imposition of significantly different royalty rates on existing valid mining claims depending upon whether operations on a claim are permitted and producing commercial quantities on the date of enactment is a denial of Equal Protection for those mining claimants required to pay a higher royalty than their competitors.

—As a general rule, Congress may not treat similarly situated persons differently. Romer v. Evans, 517 U.S. 620, 631 (1996).

The AML Reclamation Fund Does Not Need to Be Built Instantaneously

As discussed in NWMA's testimony, the AML reclamation glass is not empty. Good progress is being made in reclaiming AMLs despite the lack of a royalty-funded AML reclamation program. To be sure, more progress could be made more quickly with additional funding, but AML reclamation progress will continue to be made during the several years following enactment of a prospective royalty as new mines are developed and begin to generate royalties to help fund AML reclamation. Although it will take several years before new mines will start to generate royalties, in the interim, the current pace of AML reclamation progress described in NWMA's testimony and in statements from other witnesses at the hearing is likely to continue.

A fundamental point that must be clearly understood is that Congress cannot enact a Mining Law bill like H.R. 2262 which contains many onerous provisions, uncertainties, and disincentives and at the same time expect that new mines will be developed and will generate royalties to fund AML reclamation. H.R. 2262 and a royalty-funded AML reclamation program are mutually exclusive.

An amended Mining Law that fosters a stable business climate and encourages responsible mineral exploration and development is essential to creating a royalty-funded AML reclamation program. This is the only way in which an amended Mining Law will generate significant royalties in the future.

The best way to accelerate the pace of AML reclamation progress during the interim between enactment of an amended Mining Law and bringing new royalty-pay-

ing mines on line, would be to also enact Good Samaritan liability relief for entities that undertake voluntary AML cleanup efforts. As explained in NWMA's written and verbal testimony, providing Good Samaritan liability relief is critical to accelerating the pace of AML reclamation progress. Therefore, enactment of a Mining Law bill that includes Good Samaritan liability relief will likely jumpstart a number of AML cleanup efforts that can be ongoing while royalty revenues are building the AML reclamation fund.

It will also take the state and federal AML programs a couple of years to ramp up in order to be able to plan for and efficiently use increased AML reclamation funds. Additional staff will need to be hired and more AML contractors will need to be identified and retained.

Thus, the AML fund does not have to be funded instantaneously in order to continue to make AML cleanup progress. It can be funded incrementally through royalty contributions from new mines. While the fund is growing, existing AML cleanup programs will continue to achieve substantial progress.

Given the public policy benefits of minimizing future takings lawsuits and the fact that AML reclamation progress will continue without having an instantly available federal reclamation fund, NWMA supports a prospective net royalty on new mines and opposes any royalty scheme that would jeopardize the economic viability of existing mines or expose the federal government to takings lawsuit

Potential Oregon Mine Land Data Discrepancy

Finally, NWMA wishes to point out that Senator Wyden's office may have some inaccurate information about the number and acreage of mining claims in Oregon. Specifically, we are confused about the following statement in Senator Wyden's second question" "This industry owns gold, silver, and other precious metals and minerals beneath an estimated 191,391 acres of U.S. public land in Oregon that's about the size of Crater Lake National Park."

Because there is relatively little hardrock mining activity in Oregon, this acreage strikes us as possibly being too large. To help address our confusion, we obtained the information shown in Table 2 (see the following page) about the number of active mining claims and acreage of patented lands in Oregon from the Environmental Working Group's (EWG's) website (www.ewg.org).

To add to our confusion, NWMA is unaware that anyone has discovered "gold, silver, and other precious metals and minerals beneath an estimated 191,391 acres of U.S. public land in Oregon." If this were the case, it is highly likely that there would be hardrock mining in Oregon. As shown in Table 2, Oregon has no producing hardrock mines.

Finally, the statement "billions of dollars in hardrock minerals have been mined on more than 350 million acres of public lands," is also confusing. According to the Minerals Information Institute, only approximately 6 million acres of land in the U.S., both public and private lands, (not 350 million acres)have been used for mining.

Table 2 Environmental Working Group's Statistics About Oregon Mining and Mining Claims	
Parameter	**Statistic**
Mining and Exploration Statistics	
Number of operating mines	0
Number of Plans of Operations	37
Number of Notices	312
Estimated acreage of Plans and Notices	11,767
Claim Statistics	
Number of active mining claims on public lands	6,121
Estimated acreage of claimed public land	162,751
Number of claimants	3,037
Patented Mining Claim Statistics	
Total acres of patented mining claims	69,711
Acres patented in the 2000s	62
Acres patented in the 1990s	207
Acres patented in the 1980s	1,772
Acres patented in the 1970s	275
Acres patented in the 1960s	2,019
Acres patented in the 1950s	6,234
Acres patented in the 1940s	834
Acres patented in the 1930s	4,128
Acres patented in the 1920s	8,991
Acres patented in the 1910s	11,669
Acres patented in the 1900s	16,138
Acres patented in the 1890s	10,759
Acres patented in the 1880s	1,959
Acres patented in the 1870s	4,656

EXHIBIT A—STATEMENT OF ADMINISTRATION POLICY, NOVEMBER 2007

H.R. 2262—HARDROCK MINING AND RECLAMATION ACT OF 2007

(REP. RAHALL (D) WV AND 62 COSPONSORS)

The Administration supports the environmentally responsible development of hardrock minerals on public lands and would like to work with Congress to update the Mining Law, including the authorization of production payments and administrative penalties. The Administration also believes that any legislative solution must be accomplished in a way that provides a reasonable level of certainty to the industry while pursuing goals to protect our environment. The Administration believes that royalty provisions should be prospective, should avoid constitutional concerns, and should be set at a level that does not threaten the continued, reliable domestic mineral production on which this Nation relies.

The Administration strongly opposes H.R. 2262 because the bill imposes a royalty on claims where property rights already have been vested, could reduce the continued domestic production of hardrock minerals, restates and expands some environmental standards and permitting requirements that are unnecessary and redundant, and establishes new public participation standards rather than utilizing existing and well-established processes to engage the public. If H.R. 2262 were presented to the President in its current form, his senior advisors would recommend he veto the bill.

While the Administration supports the establishment of a production payment system, the Administration has serious concerns about the royalty structure provided in Title I of the bill. The royalty structure in H.R. 2262 will likely generate Takings Clause challenges because it fails to take into consideration property rights relating to properly maintained claims established prior to enactment of the bill. For any claimant who has a vested property interest prior to production, application of a royalty on production could result in a claim for a compensable taking under the Constitution.

In addition, Title I eliminates the issuance of patents for applications filed after September 30, 1994. Eliminating patenting authority has the potential to expand Federal liability by requiring that the Federal government retain ownership of all lands mined under the bill.

Title III restates and expands existing environmental standards and permitting requirements. The Administration finds some of these provisions unnecessary and redundant. For example, the non-impairment standard in Section 309 greatly expands the scope of existing environmental requirements and could result in an increase in litigation. Hardrock mining operators on public lands already are required to comply with a number of state and Federal statutes including the Clean Water Act, Clean Air Act, Endangered Species Act, Federal Land Policy and Management Act (FLPMA), National Environmental Policy Act (NEPA), and National Historic Preservation Act. The Administration believes that existing statutes and related regulations provide sufficient authority to regulate mining operations.

Through NEPA, FLPMA, and other land management statutes, Congress also established a role for members of the public and structured a process by which the public could provide input about proposed governmental actions. This structured process has served the government and the public well. Section 504 in Title V of H.R. 2262, by contrast, would give an individual the ability to unduly block Federal actions outside these well established public participation processes.

Finally, Section 506 should be revised to give the Department of the Interior and Department of Justice sufficient authority and flexibility to properly enforce the law.

The Administration looks forward to working with the Congress to address these and other concerns as the legislative process moves forward.

EXHIBIT B—BEVERIDGE & DIAMOND OCTOBER 2007 LEGAL OPINION ON TAKINGS TO NWMA

WHETHER H.R. 2262'S IMPOSITION OF A ROYALTY ON MINERAL PRODUCTION FROM EXISTING VALID UNPATENTED MINING CLAIMS IS UNCONSTITUTIONAL

MEMORANDUM

I. Introduction and Summary

On October 23, 2007, the Committee on Natural Resources of the House of Representatives reported H.R. 2262, entitled the "Hardrock Mining and Reclamation Act of 2007."[2] If enacted, this legislation would significantly modify many of the provisions and principles of the Mining Law of 1872, 30 U.S.C. §21 et seq., under which citizens may enter upon the public lands to locate mining claims and produce minerals such as gold, silver, copper, and gypsum. For over 135 years, this law has not required the owner of a valid unpatented mining claim to pay any royalty to the United States for the right to possess and use the land for mining purposes or to extract and sell minerals therefrom. H.R. 2262 would change that long-established standard by imposing a royalty on production from mining claims.

For mining claims located after the new law's enactment, Congress unquestionably has the right to condition future grants of property interests on the public lands if it decides that such a royalty obligation is warranted. However, H.R. 2262 also would impose this new royalty obligation on production from existing mining claims that are valid on the date of enactment, including in particular those mining claims with approved operations permits that currently are in production.

You have asked for our analysis whether H.R. 2262's retroactive application of a new royalty burden on existing valid mining claims constitutes an unlawful taking of the mining claimants' property interests in violation of the Fifth Amendment to the Constitution, or raises any other constitutional infirmity. We have reviewed cases construing the rights of a mining claimant under the Mining Law (including some that date back to the late 1800s, and that are still good law!). For the reasons explained herein, we believe courts with jurisdiction over these issues will conclude that H.R. 2262's new royalty obligation on existing mining claims for which validity can be established on the date of enactment constitutes a taking of those mining claimants' property rights in violation of the Fifth Amendment. We also think that the retroactive imposition of a royalty on existing valid mining claims is a denial of due process. Further, we believe that the disparate royalty rates imposed on existing valid mining claims, depending on whether there is a currently permitted mining operation on the claim, constitutes a denial of the constitutional right to Equal Protection.

[2] Our references to H.R. 2262 (which currently has no legal effect) are meant to be to whatever version of this bill eventually may be enacted following consideration by Congress.

A valid mining claim under the Mining Law of 1872 creates property rights for the claim holder. Best v. Humboldt Placer Mining Co., 371 U.S. 334, 336 (1963). The courts have recognized that valid unpatented mining claims are exclusive possessory interests in federal land for mining purposes which entitle claim holders to extract and sell minerals without paying any royalties to the Government. Union Oil Co. v. Smith, 249 U.S. 337, 348-349 (1919) ("If he locates, marks, and records his claim in accordance with [the Mining Law] and the pertinent local laws and regulations, he has . . . an exclusive right of possession to the extent of his claim as located, with the right to extract the minerals, even to exhaustion, without paying any royalty to the United States as owner, and without ever applying for a patent or seeking to obtain title to the fee . . . ") (emphasis added). The Federal Circuit has reached the same conclusion, and stated further that "[e]ven though title to the fee estate remains in the United States, these unpatented mining claims are themselves property protected by the Fifth Amendment against uncompensated takings." Kunkes v. United States, 78 F.3d 1549, 1551 (Fed. Cir. 1996).

Therefore, under existing law, the claimant of a valid unpatented mining claim has a protected property right in the full value of the minerals it extracts from its mining claim. A royalty interest, which is commonly defined as a right to a fractional share of the minerals produced from the land, also is a property interest. Shell Oil Co. v. Babbitt, 920 F. Supp. 559, 564-65 (D. Del. 1996). Thus, by requiring a claimant to pay the United States a royalty of between 4% and 8% of the gross value of the minerals produced from an existing valid unpatented mining claim, H.R. 2262 plainly and directly effects a legislative/regulatory taking of that property interest from the mining claimant without compensation in violation of the Fifth Amendment. Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992); Penn Central Transp. Co. v. New York City, 438 U.S. 104 (1978). Further, because the imposition of the royalty obligation is on mining claims that already are in existence on the date H.R. 2262 is enacted, the effect of the new law would be retroactive, depriving the mining claimants of their due process rights under the Fifth Amendment. Landgraf v. Usi Film Prods., 511 U.S. 244 (1944). Finally, because H.R. 2262 arbitrarily imposes significantly different royalty rates on the class of existing valid mining claims depending upon whether operations on a claim are permitted and producing commercial quantities on the date of enactment, it amounts to a denial of Equal Protection for those mining claimants required to pay a higher royalty than their competitors. As a general rule, Congress may not treat similarly situated persons differently. Romer v. Evans, 517 U.S. 620, 631 (1996).

Because of your urgent need for this Memorandum, our legal analysis of the constitutional issues at this time is necessarily abbreviated. We also provide only enough background on the operation of the Mining Law of 1872, and the property interests created thereunder, to sufficiently put the current issues into proper perspective.

II. Background

A. The Mining Law of 1872

The Mining Law of 1872 is unlike other more recent federal mineral disposition statutes, such as the Mineral Leasing Act of 1920, 30 U.S.C. § 181 et seq., where Congress authorizes issuance of leases to the highest bidder and conditions the lease at the time of issuance with the obligation to pay a royalty to the United States based on the value of the minerals produced under that lease. Instead, to encourage mineral development, the Mining Law is uniquely self-executing in that a citizen may enter upon much of the public lands and explore for minerals. 30 U.S.C. §22. Very briefly, if a person finds a mineral deposit on public lands open to location, the person may "locate" a mining claim by following prescribed procedures. If the locator then "discovers" a "valuable" mineral deposit,[3] then the mining claimant has a valid mining claim which it can maintain by paying an annual maintenance fee and complying with other procedural requirements. Under the Mining Law the claimant also could obtain a patent (fee simple title) to its valid mining claim by

[3] In Castle v. Womble, 19 L.D. 455, 457 (1894), the Department of the Interior declared that a mining claimant meets the discovery requirements of the Mining Law when that person finds minerals and the mineral evidence would justify a person of ordinary prudence in expending additional labor and means and would give the claimant a reasonable prospect of success in developing a valuable mine. The Department's language in Castle, commonly referred to as the prudent person test, was quoted with approval by the Supreme Court in Chrisman v. Miller, 197 U.S. 313, 322–23 (1905), and has since been accepted as the standard for determining whether there has been a discovery of a valuable mineral deposit. This test has been refined to require the claimant to show that as a present fact, considering historical price and cost factors and assuming they will continue, there is a reasonable probability that the mineral can be extracted and marketed at a profit. U.S. v. Coleman, 390 U.S. 599, 602–03 (1968).

meeting additional procedural requirements and paying a per acre fee, in which case any remaining United States ownership interest in the property within the mining claim would end. 30 U.S.C. §29. However, it is unnecessary for a claimant to apply for a patent in order to preserve its rights to a claim; it may continue to extract locatable minerals until the claim is exhausted without ever having obtained full legal title from the United States. Union Oil Co., 249 U.S. at 348–349. Since 1994, Congress has enacted moratoria on the Department of the Interior's acceptance of new patent applications, and Section 101 of H.R. 2262 would permanently end that practice under the Mining Law.

While the legal issues surrounding the concepts of location, discovery and patenting are complex and would require extensive analysis, those issues are not relevant here. For purposes of this Memorandum, we will only consider the legal impacts of H.R. 2262's imposition of a royalty on existing unpatented mining claims that are valid as of the date of enactment, which include many mining claims subject to an existing plan of operations, because such claims are the property of the claimant in the "fullest" sense of that term. Wilbur v. United States, 280 U.S. 306, 316 (1930). However, many existing valid mining claims are not currently subject to production.[4]

B. H.R. 2262

H.R. 2262, if enacted, would change many of the principles, practices, and provisions of law related to the Mining Law of 1872. Many of the new provisions would simply codify existing requirements. However, several of the new provisions are very controversial because of the burdens they would impose on mining claimants.

One major impetus for Congress to adopt changes to the Mining Law is to impose a royalty on production of locatable minerals from mining claims. Virtually all other minerals produced from public lands, including oil, gas, coal, geothermal resources, and mineral materials, are subject to the requirement that the producer/lessee pay the federal government a royalty based on the value of the production. See 30 U.S.C. §§207, 226; 43 U.S.C. §1337; 30 U.S.C. § 1001 et seq. However, since 1872, locatable minerals are not subject to a royalty.

Under Section 102(a)(1) of H.R. 2262, production of all locatable minerals from any mining claim "shall be subject to a royalty of 8 percent of the gross income from mining." However, under Section 102(a)(2), the royalty is only 4 percent for any federal land that—

> (A) is subject to an operations permit on the date of the enactment of this Act; and
>
> (B) produces valuable locatable minerals in commercial quantities on the date of enactment of this Act.

This Memorandum does not address issues regarding the merits of the royalty provisions in H.R. 2262 as compared to other potential royalty options. Also, the standards established in paragraph (B), such as the concept of "commercial quantities," raise many questions that we are not addressing at this time. We will proceed with our analysis on the basis that H.R. 2262 imposes a significant new royalty obligation on existing mining claimants and that it provides a lower royalty rate for production from certain permitted, ongoing mining operations.

The royalty requirement imposed by Section 102 applies to all mining claims following enactment. Therefore, it applies to new mining claims located after the date of enactment of H.R. 2262, as well as mining claims that were located and valid, including those with ongoing operations, as of the date of enactment. Because well over a billion dollars in minerals are produced annually from existing unpatented mining claims in Nevada alone, the revenues that H.R. 2262 potentially could exact are significant.[5]

---

[4] This Memorandum's focus on mining claims for which validity can be established on the date of enactment is not meant to suggest that the same legal/constitutional infirmities analyzed herein do not also apply to mining claims whose validity cannot be established as of that date. If necessary, we will provide that analysis at a later date. We note, however, that if there is a difference in enforceability of the royalty obligations of H.R. 2262 based on the date a mining claim's validity can be established, it raises serious concerns about the potential need for validity determinations for thousands of mining claims to determine their status for royalty payment purposes. The limited scope of this analysis also is not intended to suggest that there are no other legal or constitutional issues associated with H.R. 2262's various provisions regarding patenting and other matters.

[5] See Nevada Division of Minerals, Nevada Gold and Silver Production: Impact to Revenue from the Nevada Net Proceeds of Mineral Tax from a Federal Royalty on Gold/Silver Produced

Continued

III. Significant Legal Issues Presented by H.R. 2262

The unprecedented imposition of royalty obligations upon owners of existing mining claims under Section 102 of H.R. 2262 runs afoul of the United States Constitution. While Congress undisputedly may assess such obligations prospectively against newly located mining claims, H.R. 2262's inclusion of existing claims, both with and without active production, presents at least three constitutional infirmities. First, Section 102 constitutes a Fifth Amendment taking without payment of just compensation by allocating to the government a cost-free share of production and extinguishing the claimant's unencumbered, exclusive property right to possess and enjoy its mining claims. Second, retroactive application of the royalty to existing mining claims imposes unique and unfair burdens that may violate due process. Finally, the different royalty rates applicable to claim owners based on the mere existence of mining operations and production violates Equal Protection of the laws.

A. Owners of Existing Valid Mining Claims Possess and Enjoy Valuable, Exclusive, and Royalty-Free Property Rights Therein

The General Mining Law of 1872, the "cornerstone of federal legislation dealing with mineral lands," opened up public lands for private prospecting of valuable mineral deposits. 30 U.S.C. § 22;[6] United States v. Coleman, 390 U.S. 599, 601 n.1 (1968); Union Oil Co. v. Smith, 249 U.S. 337, 346-47 (1919) (mining law "extends an express invitation"). Upon entry, by taking the proper steps required by federal and state law to "locate" and actively pursue their claim, persons gain exclusive rights against third parties, other than the United States. 30 U.S.C. § 28; Union Oil, 249 U.S. at 346–47 (explaining pedis possessio interest). The "discovery" of valuable mineral upon a properly located claim rewards the locator with "the exclusive right of possession and enjoyment," even against the United States, of the on-site minerals and surface rights necessary to extract such minerals. 30 U.S.C. §§26, 28; Union Oil, 249 U.S. at 348–49; Gwillim v. Donnellan, 115 U.S. 45, 49 (1885). Discovery may exist without an operating mine as long as the discovered deposits warrant further effort by a "prudent-man" to develop a valuable mine and are projected to be profitable. Coleman, 390 U.S. at 602–03.

Over the more than 135 years of the Mining Law, courts have unanimously held that a mining claim validly supported by discovery is "property in the fullest sense of that term." Wilbur v. United States, 280 U.S. 306, 316 (1930). The law effectively "severs the right of possession and enjoyment from the title," granting the former to the claim owner. O'Connell v. Pinnacle Gold Mines, 131 F. 106, 110 (U.S. Court of Appeals 1904); Forbes v. Gracey, 94 U.S. 762, 765–66 (1877). Such rights may be transferred, sold, devised, mortgaged, or subjected to state taxes, either in whole or in part. Union Oil, 249 U.S. at 349; Wilbur, 280 U.S. at 316–17. They extend into perpetuity as long as there remains a valuable mineral deposit and annual work is performed to maintain the claim. 30 U.S.C. §§ 28, 28(f); Union Oil, 249 U.S. at 349–50; Freese v. United States, 639 F.2d 754, 755 (Ct. Cl. 1981).[7]

In light of H.R. 2262, two aspects of the property rights inherent in mining claims bear particular mention. First, courts have specifically recognized that the United States extends these property rights to valid locators royalty-free. As the Supreme Court has stated:

> [A locator, upon discovery, has] an exclusive right of possession to the extent of his claim as located, with the right to extract the minerals, even to exhaustion, without paying any royalty to the United States as owner, and without ever applying for a patent or seeking to obtain title to the fee; subject, however, to the performance of the annual labor specified . . .

Union Oil, 249 U.S. at 348–49 (emphasis added). Other cases have reaffirmed this same basic determination that the United States does not retain any royalty interest in validly located mining claims or the minerals extracted and sold therefrom.[8]

---

from Public Lands, Oct. 25, 2007 (documenting 2006 gross proceeds of gold and silver production on Nevada federal public lands in excess of $1.37 billion).

[6] The statute provides, in pertinent part: "All valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase . . . " Id.

[7] Section 103 of H.R. 2262 seeks to make permanent (and increase) the 1992 statutory substitution of a cash payment to BLM in lieu of the $100 annual on-site assessment work originally prescribed by the statute. See Kunkes v. United States, 78 F.3d 1549, 1550 (1996).

[8] See, e.g., Forbes, 94 U.S. at 766 (minerals "free from any lien, claim, or title of the United States"); Cole v. Ralph, 252 U.S. 286, 294 (1920) (no "rent or royalty"); United States v. Locke, 471 U.S. 84, 86 (1985); Kunkes, 78 F.3d at 1551; Skaw v. United States, 740 F.2d 932, 940 (Fed. Cir. 1984); Independence Min. Co. v. Babbitt, 885 F. Supp. 1356, 1357 (D. Nev. 1995) (citation omitted); O'Connell, 131 F. at 109 (no "rendering any account to the government").

Second, it is well-settled that a locator's rights qualify as property protected by the Takings Clause of the Fifth Amendment, and hence cannot be taken by the government without payment of just compensation.[9]

Finally, it should be noted that the United States' retention of the formal title to the land, hollow as to any mineral possession rights, does not diminish the rights of a valid claim owner. On one hand, "[i]f not content to rest upon" his existing rights, the locator has the further option of obtaining fee title from the United States via a "patent." 30 U.S.C. §§ 22, 29; Union Oil, 249 U.S. at 349.[10] On the other hand, if the owner is willing and able to annually maintain his claim, the additional step of obtaining a patent is unnecessary, since the owner's "possessory right, for all practical purposes of ownership, is as good as though secured by patent." Wilbur, 280 U.S. at 317. Indeed, the patent "does nothing to enlarge or diminish the claimant's right to its locatable mineral resources." Kosanke, 12 IBLA at 290–91.[11] In the end, the United States only retains a reversionary interest in its granted away valuable rights, triggered by the owner's "abandonment" of his claim. Union Oil, 249 U.S. at 349.

B. H.R. 2262's Creation of a Royalty on Existing Mining Claims Constitutes an Impermissible and Unlawful Taking of Property Rights

As discussed above, H.R. 2262 creates out of thin air a royalty interest accruing to the United States and assesses this new financial obligation upon existing mining claims where over 100 years of case law has confirmed that no such obligation existed before. In effect, this significant new burden pulls back the royalty property interest conveyed to claim owners pursuant to the 1872 General Mining Law, wherein the United States reserved no such interest. That is, what was previously freely granted to and vested in claim owners is now being taken back by H.R. 2262. This qualifies as an unconstitutional legislative taking without just compensation.

The Fifth Amendment provides, in pertinent part, "nor shall private property be taken for public use, without just compensation." U.S. Const. amend. V. To succeed on a takings claim a plaintiff must establish (a) the existence of a protected property interest, and (b) that a compensable taking of that interest has occurred. Maritrans, Inc. v. United States, 342 F.3d 1344, 1351 (Fed. Cir. 2003). As explained above, there is no doubt that the rights in a properly maintained, valid mining claim are protected property in the fullest sense, on par with a taking of the land itself. Even if labeled as personal rather than real property, a taking could still occur. Adams v. United States, 391 F.3d 1212, 1224 (Fed. Cir. 2004); Maritrans, 342 F.3d at 1352–53.

To then determine whether a taking occurred, courts generally engage in one of three types of takings analyses; here, a regulatory (or legislative) taking likely occurred given H.R. 2262's restrictions on property use. See Lingle v. Chevron U.S.A. Inc., 544 U.S. 528, 548 (2005).[12] This analysis essentially looks to whether government regulation goes "too far" and constitutes a taking. See Pa. Coal v. Mahon, 260 U.S. 393, 415 (1922). Courts analyzing regulatory takings have utilized a two-tiered approach known as the Lucas/Penn Central test. Under Lucas v. S.C. Coastal Council, a government regulation that completely eliminates the economic use and value of property is a per se taking. 505 U.S. 1003 (1992). If there is less than a total taking, courts instead employ the multifactor balancing approach in Penn Central Transp. Co. v. New York City, 438 U.S. 104 (1978). As applied to different types

[9] See United States v. Kosanke Sand Corp., 12 IBLA 282, 289, 296 (1973) (citations omitted); Best v. Humboldt Placer Mining Co., 371 U.S. 334, 337-38 (1963); Locke, 471 U.S. at 107; Kunkes, 78 F.3d at 1551; Skaw, 740 F.2d at 936; United States v. Bagwell, 961 F.2d 1450, 1456 (9th Cir. 1992); United States v. Barrows, 404 F. 2d 749, 752 (9th Cir. 1968).

[10] Section 101 of H.R. 2262 also seeks to make permanent the 1994 statutory moratorium on patent applications (filed after September 30, 1994). See R.T. Vanderbilt Co. v. Babbitt, 113 F.3d 1061, 1064 (9th Cir. 1997). However, as discussed in the text, deprivation of the right to seek patents does nothing to diminish the significant property interests held in a valid mining claim which H.R. 2262's royalty provisions impermissibly offend.

[11] Several other points highlight the United States' lack of retained rights following location of a valid mining claim: the owner of a valid claim has an "absolute right to a patent," 30 U.S.C. § 29, Kosanke, 12 IBLA at 289–90 (citations omitted); development of a mining claim and the grant of a patent is not a federal action subject to NEPA, id. at 298, S.D. v. Andrus, 614 F.2d 1190, 1193–95 (8th Cir. 1980); and the United States is not an "owner" of mining claim land for purposes of CERCLA liability, United States v. Friedland, 152 F. Supp. 2d 1234, 1246 (D. Colo. 2001), U.S. v. Newmont, 2007 U.S. Dist. LEXIS 61308 at *27-29, 52-54 (E.D. Wash. Aug. 21, 2007).

[12] Neither physical takings, which challenge a physical invasion of property by the government, nor exaction takings, which challenge conditions on development approvals taking the form of physical dedications or monetary impact fees, likely apply here. See id. The legislative taking effected through H.R. 2262 is a form of regulatory taking for takings analysis purposes.

of claim owners, H.R. 2262 fails either or both prongs of the regulatory takings scrutiny.

At the outset, it is worth defining the nature of the royalty imposed by H.R. 2262. The offensiveness of H.R. 2262 is not only the sum of money that it exacts from valid mining claims, but also the bill's take-back of a specific property right, namely the royalty interest. A "royalty," typically reserved for lease contexts such as oil and gas, is a property interest that may be (but is not always) reserved by the government when it conveys a right to prospect for and produce natural resources on public lands. Shell Oil Co. v. Babbitt, 920 F. Supp. 559, 564–65 (D. Del. 1996). As the owner of federal lands open to prospecting under the General Mining Law, the government undoubtedly could prospectively impose royalties or other conditions on newly located claims on federal lands. However, as to valid existing claims, the United States has already ceded to valid claim owners any royalty interest in the mining claim or locatable minerals. These owners now have settled expectations regarding the scope of their property interests vis-a-vis the United States, and have made investments on their lands accordingly. That Congress now believes it was unwise policy to grant away its royalty interest does not enable Congress to take it back, without just compensation. Cf. Adams v. U.S., 391 F.3d at 1218 (looking to whether government action at issue took a "stick" in the bundle of property rights); accord Mobil Oil Exploration & Producing SE, Inc. v. United States, 530 U.S. 604, 624 (2000) (finding lease contract with government limited later imposition of different statutory requirements that would upset lessees' bargain and investment).

Analyzing H.R. 2262's assessed royalties first under Lucas, H.R. 2262 would arguably constitute a total, per se taking of the royalty interest already conveyed to valid mining claimants upon discovery. As outlined above, as part of the General Mining Law's scheme to promote mineral prospecting and development, location of a valid claim has the effect of the United States severing from the land and transferring to the claim owner a royalty-free property right to possess and enjoy the mineral production from his claim. Union Oil, 249 U.S. at 349. Having done so, the government cannot merely change its mind at a later date. Yet this is exactly H.R. 2262's function, as it would take away in its entirety, without compensation, the royalty interest in the production of minerals that the United States granted to, and is now vested in, mining claim owners. This meets the test for a per se taking. See also Maritrans, 342 F.3d at 1352–53.

Even if H.R. 2262 failed to effect a total taking, it could still be construed as an unlawful taking under the Penn Central balancing test. Under this test the government action must be examined as to (1) economic impact on the property owner; (2) degree of interference with the owner's reasonable investment-backed expectations, and (3) its character. 438 U.S. at 124. First, there is no prescribed amount of economic impact that necessarily constitutes or bars a taking. Id. (dispensing with any "set formula"); Cienega Gardens v. U.S., 331 F.3d 1319, 1345 (Fed. Cir. 2003) (eschewing any "automatic numerical barrier"). Yet courts have suggested that the impact must be severe. See, e.g., Tahoe-Sierra Pres. Council v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 322 n. 17 (2002). H.R. 2262's severity cannot be doubted given that, as pointed out by congressmen and stakeholders, it would burden claim owners with hundreds of millions of dollars in royalties and other novel obligations, as well as potentially curb minerals production.[13]

Second, reasonable investment-backed expectations clearly exist here. The General Mining Law has been in effect for over one hundred and thirty-five years. Aside from minor changes in annual maintenance obligations and permit requirements to actually operate mines (distinguished below), the regime has operated fairly consistently, and always without financial obligation to the government. Reasonable expectations of persons who have properly located and maintained claims throughout that time period should be judged by looking to the legal regime in effect at the time that the location was made. See Appolo Fuels v. United States, 381 F.3d 1338, 1349–50. This is not a case where rights were acquired following the passage of a law and thus a person could be charged with knowledge of it. See Cane Tenn., Inc. v. United States, 63 Fed. Cl. 715, 727–31 (2005) (citations omitted). Rather, H.R. 2262's unanticipated royalty provisions abruptly and substantially upset the current reasonable investment-backed understanding and expectations of property rights in existing, royalty-free mining claims.

As to the third "character" factor, courts often examine the asserted public benefit of the government action against the burden on the property owner. The burden on

[13] See House panel approves hard rock bill with gross royalty, Public Lands News, Oct. 26, 2007, at 3 (Statement of Rep. Don Young); Legislative Hearing on H.R. 2262—Royalties and Abandoned Mine Reclamation: Hearing Before the H. Subcomm. on Energy and Mineral Resources, 110th Cong.(2007) (statement of James F. Cress); see also supra n.4.

existing mining claim owners has already been shown to be severe. Meanwhile, though the royalty funds are earmarked for abandoned mine reclamation and community impact assistance (see Title IV of H.R. 2262), this salutary purpose does not fit within the interests that courts have found worthy to avoid a taking, such as measures to address war, emergencies, or national security. See, e.g., United States v. Central Eureka Mining Co., 357 U.S. 155, 168 (1958) (finding temporary wartime shutdown of gold mines not a taking, since war "demands the strict regulation of nearly all resources"). On balance, these reasons suggest that a court would likely find a legislative taking here under Penn Central.

Alternately, a regulatory taking may be found under the Lucas/Penn Central approach if the imposition of a royalty renders production unprofitable and forces the forfeiture of a mining claim. That is, both for small miners and those who mine lower grade deposits, H.R. 2262's significant royalty, on gross income no less, could completely change a miner's profit calculus and force a decision to temporarily or even permanently cease production earlier than would have occurred had there been no royalty obligation. In turn, this could precipitate abandonment and perhaps even loss of the mining claim for lack of a profitable mining interest. Such an "ouster" could constitute a total, per se taking of property rights under Lucas. See Lingle, 544 U.S. at 537. Actual or threatened forfeiture of a claim obviously also bears on the Penn Central factors, such as disturbing reasonable investment-backed expectations. The likelihood that H.R. 2262 could effect such a regulatory taking is only increased given that, unlike for the claim maintenance fee in Section 103, there exists no corresponding small miner exemption with respect to royalty obligations.[14]

Tellingly, H.R. 2262 itself recognizes takings concerns and the importance of "valid existing rights," but only selectively. As with royalties, Congress is free to prospectively decide that certain of its public lands and resources should be withdrawn from mineral entry under the Mining Law. See Lockhart v. Johnson, 181 U.S. 516, 520–21 (1901); U.S. v. Almgren, 17 IBLA 295, 299 (1974). However, Congress has typically avoided takings issues by exempting existing property interests, such as when it enacted the Mineral Leasing Act of 1920, 30 U.S.C. § 193 (subjecting oil and gas resources to a separate leasing regime "except as to valid claims existent on February 20, 1920, and thereafter maintained in compliance with the laws under which initiated . . . ").[15] Similarly, Section 201(b) of H.R. 2262 withdraws certain mining lands but only "subject to valid existing rights." However, it omits such necessary language in Section 102's royalty provisions (as well as in the definition of "valid existing rights" in Section 2(b)(1)). Congress thus ignores the fact that the royalty imposition presents the same potential takings infirmities for valid existing rights as withdrawal of lands. See also, Freese, 639 F.2d at 757–58.

As a final point, H.R. 2262 is starkly different from situations where minor burdens or regulatory changes impacting mining operations on existing valid claims were upheld. Specifically, in United States v. Locke, the Supreme Court held that FLPMA's imposed annual recording system for mining claims was not a Fifth Amendment taking of claimants' lost mining claims where they missed the filing deadline. 471 U.S. at 104–08. Locke primarily reasoned that the loss of the claims was the sole fault of the claimants, and that only the "most minimal" burdens were imposed, i.e., "fil[ing] a paper once a year" with BLM. Id. Similarly, in Kunkes v. United States, relying on Locke, the conversion of the $100 annual assessment work requirement into a cash fee payable to BLM (proposed to be codified in Section 103 of H.R. 2262) was found not to be a taking. 78 F.3d 1549, 1556 (Fed. Cir. 1996). The new fee "differed only in nature, not in value, from the prior assessment work requirements" and was minimal compared to the value of the mineral claims themselves. Id. at 1555. In contrast, the royalty provisions in H.R. 2262 are substantial, unprecedented, and imposed through no fault of owners of mining claims. Most significantly, as noted above, both Locke and Kunkes would certainly not sanction H.R. 2262 given that both courts recognized that mining claims are exclusive royalty-free property rights! Locke, at 471 U.S. at 86; Kunkes, 78 F.3d at 1551.

C. H.R. 2262 Retroactively Imposes Unfair Burdens That Offend Due Process

H.R. 2262, by encompassing existing valid mining claims, retroactively imposes royalty obligations on those owners' property rights that currently exist without royalty. While royalties are technically imposed going forward, H.R. 2262 reaches back in time and impacts the mining claims themselves, disturbing the right to their roy-

[14] We leave to a future analysis a more in-depth discussion of whether and how the royalty rate may interact with the preliminary economic determination of whether a person has located a profitable claim supporting discovery.

[15] See also Skaw, 740 F.2d at 934 (discussing Wild and Scenic Rivers Act); Kosanke, 12 IBLA at 294 n.9, 310 (discussing withdrawal under Recreation and Public Purposes Act).

alty-free possession and enjoyment conveyed by the United States when the claims became valid upon discovery of a valuable mineral deposit.

The law is clear that "retroactivity is not favored" and may violate due process. Landgraf v. Usi Film Prods., 511 U.S. 244, 264 (1994). Because it disturbs "legitimate expectations and settled transactions," courts will find that "retroactive legislation violates the Fifth Amendment unless it is justified as a rational measure." Seariver Mar. Fin. Holdings v. Mineta, 309 F.3d 662, 678 (9th Cir. 2002) (citing Usery v. Turner Elkhorn Mining, 428 U.S. 1, 17 (1976)). While Congress may allocate economic rights and burdens generally, "[i]t does not follow, however, that what Congress can legislate prospectively it can legislate retrospectively. The retrospective aspects of legislation, as well as the prospective aspects, must meet the test of due process, and the justifications for the latter may not suffice for the former." Id.

In analyzing retroactive statutes, courts consider "(1) whether Congress clearly expressed its intent that the statute apply retroactively, and if so, (2) whether the statute is justified by a rational legislative purpose." Seariver, 309 F.3d at 678 (citations omitted). As explained above, the first question here is clearly answered in the affirmative. While the second question is a deferential inquiry, courts may more closely scrutinize retroactive legislation, especially where obligations are imposed "automatically on a legislatively defined class of persons. See Pension Ben. Guar. Corp. v. R.A. Gray & Co., 467 U.S. 717, 730 (1984); United States v. Monsanto, 858 F.2d 160, 175 (4th Cir. 1988). As described in the takings context above, contrary to the "minimal" burden of filing a paper in Locke, 471 U.S. at 106, H.R. 2262 imposes an enormous burden on the class of existing claim owners, with no other seeming motivation except to extinguish their previously granted royalty-free property interest. Moreover, Congress does not have the power to "arbitrarily dispossess" claimants of their property rights; this violates due process of law. See Cameron v. United States, 252 U.S. 450, 460 (1920); Kosanke, 12 IBLA at 296; Oil Shale Corp. v. Morton, 370 F. Supp. 108, 124 (D. Colo. 1973) (mining claim cannot be dissolved "at whim"). Therefore, a court likely would find that H.R. 2262 violates due process.

D. Assessment of Arbitrarily and Significantly Different Royalty Rates Against Similarly Situated Mining Claim Owners May Violate Equal Protection

Even if an imposition of royalties on existing mining claims was permissible, which as amply demonstrated above it is not, H.R. 2262 also fails constitutional scrutiny under the Equal Protection Clause. Congress may not treat similarly situated persons differently, unless "it bears a rational relation to some legitimate end." Romer v. Evans, 517 U.S. 620, 631 (1996); Village of Willowbrook v. Olech, 528 U.S. 562, 564 (2000).[16] Courts always examine the connection between Congress' classification and its purported goals. Romer, 517 U.S. at 632–33; Department of Agriculture v. Moreno, 413 U.S. 528, 534. Courts have specifically held that Congress may not impose unique burdens upon some persons while others practicing the same business or calling are exempt. See, e.g., Mayflower Farms v. Ten Eyck, 297 U.S. 266, 273–74 (1936); Metro Life Ins. Co. v. Ward, 470 U.S. 869, 875 (1985).

Section 102(a)(2) reduces the royalty on gross income from mineral production from the generally applicable 8% rate to a 4% rate for "any Federal land" subject to an operations permit and currently producing locatable minerals in commercial quantities as of the date of H.R. 2262's enactment. As an initial matter, this seeming attempt to avoid or mitigate H.R. 2262's takings and due process infirmities is unsuccessful, given that existing mining claims are still deprived of their property interests through the retroactive creation and imposition of a new royalty, even at the reduced rate. Nonetheless, the Section's focus on existing production engenders an additional Equal Protection problem by arbitrarily imposing disparate rates among the class of similarly situated existing valid claim owners.

Not all existing valid mining claims are currently in production, nor need they be. As explained above, the prudent person/marketability test for a valid discovery of a valuable mineral deposit, as well as the required annual effort to maintain the claim, do not require actual production, but rather only continued efforts to work toward production. Coleman, 390 U.S. at 602–03. Moreover, actual and continuous occupation of a valid mining claim is unnecessary to preserve it and all of the rights inherent therein. Union Oil, 249 U.S. at 349. Accordingly, different mining claims across the country, with equal royalty-free property rights against the United States, are in different stages of minerals development or production.

[16] While the guaranty of equal protection is set forth in the Fourteenth Amendment, for federal legislation it operates through the due process guaranty of the Fifth Amendment. As a result, the analysis is the same under retroactivity and equal protection in determining whether the law at issue is rationally related to a legitimate governmental interest. See Valot v. SE Local Sch. Dist. Bd. of Educ., 107 F.3d 1220 (6th Cir. 1997).

Yet, H.R. 2262 ignores this reality and imposes different burdens among the holders of identical property rights in their mining claims. Namely, H.R. 2262 doubles the royalties due from claims without current operations on the date of the legislation's enactment, relative to those with operations. The result is a significant competitive disadvantage whereby 4% more royalties on future mineral production must be paid from the former claims. H.R. 2262 also imposes the same 4% royalty penalty upon those claim holders that to date, for whatever reason and perhaps through no fault of their own, could not obtain an operations permit. Finally, H.R. 2262 provides no basis for the distinction between existing and planned mining production on valid mining claims nor a legitimate government objective to which it could be rationally related. Nor could it reasonably do so, as holders of identical rights are generally entitled to the same uses of those rights. H.R. 2262 creates the essence of an Equal Protection violation.

IV. Conclusion

This initial analysis of H.R. 2262 demonstrates that several legal claims are available to any plaintiff desiring to challenge the law if enacted as currently written (or with substantially similar language). Congress cannot, on a whim, constitutionally create and appropriate to itself a royalty interest in valid mining claims that it freely granted away under the mining laws specifically without reserving such a right. Since H.R. 2262 would accomplish precisely this objective, it will likely not withstand a court challenge to its constitutionality.

RESPONSES OF BENJAMIN H. GRUMBLES TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. I am interested in how any AML program that we would enact should interface with the Superfund program. If a mine site is on the National Priority List, should funds under the hardrock AML program be used for remediation? Do you care to comment on that?

Answer. As currently drafted, HR 2262 indicates royalty payments would be distributed by the Secretary of the Department of the Interior [sections 411(a) and (b)]. In addition, according to section 412, funds from the "Hardrock Reclamation Account" (Subtitle B of HR 2262) could only be used at Abandoned Mine Lands (AML) on Federal lands, Indian lands, or water resources that traverse, or are contiguous to Federal lands or Indian lands and affected by past mineral activities.

As you are aware, many AMLs in the western part of the US are "mixed ownership" sites where the AML is composed of both public and private lands. If the AMLs present significant public health or environmental concern and EPA's Superfund program cannot identify a PRP, we use appropriated funds from the Superfund Trust Fund to address contamination at AMLs located on private lands . As discussed in the response to Question 2 below, EPA may use its Superfund removal authorities on public lands, but must seek reimbursement to the Trust Fund of its costs from the federal agency that owns the land . Allowing funds from the "Hardrock Reclamation Account" to be used for the cleanup of "orphan" NPL sites, regardless of whether they are on public or private lands, would allow the Superfund program to focus its resources on other sites that pose a significant risk to human health and the environment.

Question 2. Are Superfund monies available for use on mine sites located on federal lands? Do the land management agencies expend funds for cleanup of the sites on the lands that they administer?

Answer. Under section 111(e)(3) of CERCLA, Superfund monies are generally not available for remedial actions "with respect to federally owned facilities," Therefore, to the extent mine sites on federal lands are "federally-owned facilities," EPA cannot use the Superfund for remedial actions to address releases of hazardous substances from those facilities. Further, under CERCLA section 120 and Executive Order (E.O.) 12580, the responsibility for non-emergency cleanup of these sites falls to the given federal land management agency. EPA does provide technical assistance to these cleanups where requested.

To address emergency situations, EPA has discretion under E .O. 12580, §9(i), to use Superfund money to pay for removal actions at sites under the jurisdiction, custody, or control of another federal executive agency. E.O, 12580 requires that these funds be reimbursed to the Superfund Trust Fund by the agency with jurisdiction, custody, or control.

Finally, yes, the land management agencies expend their appropriated funding for the cleanup of sites on the lands they administer .

Question 3. What water quality issues are posed by a uranium in-situ leach recovery facility? What regulations apply?

Answer. Possible water quality impacts from uranium in-situ leach (ISL) mining operations are primarily to ground water at the facility, although contamination of soil, surface water and air also may occur. Ground water contamination from uranium ISL mining can occur in three ways: (1) through unavoidable contamination of the exempted portion of the aquifer in which the uranium deposit is localized, (2) through unintentional contamination due to contaminants moving outside of the exempted aquifer area, and (3) as a result of facility structural failure and surface spills.

Examples of ground water excursions and contamination at ISL sites with references to various other studies, compiled by the United States Geological Survey and others organizations, are included in Appendix III of the report "Technologically Enhanced Naturally Occurring Radioactive Materials from Uranium Mining, Volume 2: Investigation of Potential Health, Geographic, and Environmental Impacts of Abandoned Uranium Mines", which is available through the EPA website at: http://www.epa.gov/radiation/docs/tenorm/volume-ii/402-r-05-007.pdf.

Regarding applicable water quality regulations, uranium ISL operators are required to comply with radiation, environmental and ground water protection standards developed by EPA, in accordance with Uranium Mill Tailings Radiation Control Act (UMTRCA). These standards are set out in 40 CFR Part 192. The Nuclear Regulatory Commission (NRC) and its Agreement States enforce these radiation, environmental protection, ground water protection and restoration regulations (NRC Regulations at 10 CFR Part 40). The licensing agency also must enforce all other applicable environmental laws, and the operator must comply with orders from the licensing agency for any required site cleanup.

EPA has authority to oversee remediation should the NRC or the Agreement State fail to achieve appropriate remediation or environmental law compliance under the Clean Water Act, Safe Drinking Water Act, Clean Air Act, Resource Conservation and Recovery Act (RCRA), or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

EPA has authority under the Safe Drinking Water Act to regulate the injection of the fluids at these sites. Consequently, prior to any ISL mining at these sites, a mine owner/operator must receive a license from the NRC or NRC Agreement State as well as receive an Underground Injection Control Program (UIC) Class III permit provided by either EPA or a State with UIC primary enforcement authority. The relevant UIC requirements for Class III wells are found in 40 CFR Part 144 and 146.

Under regulations promulgated pursuant to the Clean Water Act at 40 CFR 440 Subpart C, new source discharge of process wastewater to navigable waters is generally not allowed from mills using acid leach, alkaline leach, or combined acid and alkaline leach process for the extraction of uranium or from mines and mills using ISL methods. The only exception occurs if annual precipitation falling on the treatment facility and the drainage area, contributing surface runoff to the treatment facility, exceeds the annual evaporation. In such cases, the volume of water exceeding annual evaporation may be discharged subject to numerical limitations for uranium, radium, and other listed pollutants.

Question 4. What steps does EPA plan to take under the draft five-year plan to address the concerns regarding past uranium mining on Navajo Nation lands?

Answer. EPA and its federal agency partners have developed a program of assistance to mitigate the health and environmental impacts of uranium contamination in the Navajo Nation. As part of this plan, EPA has agreed to lead and support a series of specific actions that are outlined in detail in the plan that was submitted to the House Government Reform and Investigations Committee on March 3, 2008, titled "Health and Environmental Impacts of Uranium Contamination in the Navajo Nation : Five-Year Plan". The plan may be accessed on the internet at: http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/63d4ce17a198b2e3882573c5007fae76/bf9a1608e7578ba388257405000499f8!OpenDocument

The plan includes EPA participation in the following activities:

EPA Led Activities:

- Assess and Remediate Contaminated Structures
- Assess Potentially Contaminated Water Sources and Assist Affected Residents
- Assess and Require Cleanup of Abandoned Uranium Mines
- Clean up the Highest-Priority Mine Site: Northeast Church Rock

Activities Involving EPA:

- Characterize the Highway 160 Site
- Assess the Tuba City Dump

Question 5a. In 2004, the EPA Inspector General identified 63 hardrock mining sites on the Superfund National Priority List, and another 93 sites that could be added-with potential cleanup costs ranging between $7 billion and $24 billion. The IG estimated EPA's maximum costs for these cleanups as approximately $15 billion. Your testimony today suggests there were, through FY 2007, 84 hardrock miningrelated sites on the NPL, indicating the list is getting longer. Are all of the hardrock mining sites on this National Priority List now confined to nonfederal land?

Answer. Through 2007, most AML sites on the NPL are primarily located on private land, though there are some mixed ownership sites. EPA estimates that about 25% of the AML NPL sites are located on mixed ownership (private and public) lands, with larger portions being on the private lands.

Question 5b. Is it possible to assess the number of these nonfederal sites on the NPL list that have resulted from operations on previously-federal lands, patented before Congress established the existing moratorium?

Answer. EPA does not have the information needed to directly assess the number of non-federal sites on the NPL that resulted from operations on previously-federal lands, patented before Congress established the existing moratorium. This assessment may be possible but would require substantial involvement and leadership by the involved federal land management agencies.

Question 6a. Previous GAO reports have suggested EPA consider the hardrock mining industry "a high priority" in developing financial assurance regulations mandated under the Superfund law-since the mining industry "presents taxpayers with an especially serious risk of having to pay cleanup costs for thousands of abandoned, inactive, and operating mines in the U.S." What is the current status of EPA's efforts to develop such regulations?

Answer. EPA is currently analyzing whether financial assurance requirements under CERCLA section 108(b) may be needed for certain classes of facilities in light of modern waste management regulations and practices. No final decisions have been made yet regarding the timing and scope of any action that we may take under CERCLA section 108(b).

Question 6b. We have heard testimony before this Committee noting that modern mining operations may occur on a combination of private, state and federal lands. In your view, would the EPA's authority to require financial assurances under current Superfund laws extend to operations that span categories of land ownership?

Answer. CERCLA section 108(b) authorizes the promulgation of requirements for classes of facilities to establish and maintain evidence of financial responsibility consistent with the degree and duration of risk associated with the production, transportation, treatment, storage, or disposal of hazardous substances and does not differentiate between public or private land ownership.

EPA has not made a decision on what classes or sectors, if any, may be included under regulations pursuant to CERCLA section 108(b). In making that determination, EPA would take into account existing financial assurance under other federal laws.

EPA does have some options in dealing with existing Superfund sites. Under the principal of "Enforcement First," EPA negotiates settlements with Potentially Responsible Parties (PRPs) where the parties enter into a consent decree to cleanup hazardous substances at Superfund sites. EPA's model consent decree includes a financial assurance provision where the private PRP ensures they have adequate financial resources to conduct the cleanup . These agreements are developed on a case by case basis.

Question 7. Under a "Good Samaritan" provision, waivers need to be granted under what environmental laws in order for the provision to be effective? Why?

Answer. Under EPA's Good Samaritan Initiative, the CERCLA administrative tools issued in June 2007 do not involve the waiver of environmental laws. The administrative tools are based on CERCLA and its regulations. In order to get the protections afforded by the administrative tools, Good Samaritans must describe how the proposed cleanup project will be consistent with the National Contingency Plan (NCP). The Administration is working with key stakeholders, such as the Western Governors' Association, individual Governors, and watershed organizations, to enact targeted bipartisan legislation to remove remaining clean water liability roadblocks and obstacles deterring volunteer Good Samaritans from cleaning abandoned hardrock mines.

Question 7a. Please describe the administrative steps taken by EPA to facilitate Good Samaritan work at abandoned mine sites.

Answer. The Good Samaritan administrative CERCLA tools were published on June 6, 2007 and are posted on EPA's website at http://www.epa.gov/ow/goodsamaritan/. The tools include a model comfort letter, a model settlement agree-

ment (an administrative order on consent or "AOC"), and other information to assist potential Good Samaritans.

Question 8. Does the reclamation of abandoned uranium mine sites involve any unique concerns or additional action or expense compared to the reclamation of other hardrock mine sites?

Answer. First, it is important to point out that "reclamation" generally means restoration of mined land to original contour, use, or condition. However, in the event of a release of hazardous constituents to the environment, EPA would be involved in the "remediation" of the hazardous constituents found in all media of concern, including soils, sediments, and ground and surface water.

Because of the dangers of radiation, both reclamation and remediation at abandoned uranium mine sites generally may present unique concerns and require additional action and expense relative to hardrock mine sites. The presence of radionuclides in the waste found at abandoned uranium mine sites, in general, requires specialized laboratory analyses and field instrumentation. Health and safety precautions as well as risk assessments need to take into consideration that radionuclides may also pose risks from gamma radiation, even when there is no physical contact with the contaminants. In addition, radioactive decontamination of equipment used in site cleanup or the disposal of radioactive materials can also present some unique issues and additional cost. We have also found a particular secondary concern exists where abandoned uranium mine wastes have been used to construct buildings. Such buildings can pose significant radiation health hazards to the residents, and may require a separate cleanup action at remote distances from the mine itself. Finally, the generation of dangerous radon gas from ore and waste rock also poses unique challenges and expenses.

RESPONSE OF BENJAMIN H. GRUMBLES TO QUESTION FROM SENATOR DOMENICI

Question 1. It is my understanding that the geologic layers in which I-S-L is undertaken need to be exempted before operations commence. What does that mean exactly—is the water in those areas potable prior to the siting of an I-S-L operations facility?

Answer. It is correct that under the Safe Drinking Water Act neither EPA nor a State with primary enforcement authority or "primacy" for the Underground Injection Control Program (UIC) will permit in-situ leach mining for uranium at a site unless an aquifer, or portion of an aquifer, which is an underground source of drinking water (USDW), is exempted . A USDW is defined at 40 CFR 144.3 as "an aquifer or its portion : (1) which supplies any public water system or which contains a sufficient quantity of ground water to supply a public water system; and (2) currently supplies drinking water for human consumption or contains fewer than 10,000 mg/1 total dissolved solids and which is not an exempted aquifer."

While an exempted area within the aquifer may be potable prior to mining, in many situations, the naturally occurring ground water associated with uranium deposits, while technically a USDW prior to exemption, is not potable due to dissolved uranium species and degradation products. Nevertheless, an aquifer or portion of an aquifer may be exempted if it meets at least the federal minimum requirements set in 40 CFR 146.4.

The regulations allow an exemption if the aquifer does not currently serve as a source of drinking water; and it cannot now, and will not in the future, serve as a source of drinking water because it is: (1) mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a U IC Class II (oil and gas field) or III (solution mining) operation to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible; or (2) situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical; or (3) so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or (4) located over a UIC Class III well mining area subject to subsidence or catastrophic collapse. An aquifer can also be exempted if it has a total dissolved solids content of the ground water that is more than 3,000 and less than 10,000 mgll and it is not reasonably expected to supply a public water system.

Exempting an aquifer or a portion of an aquifer means that protection of that aquifer, or portion, is excluded from protection that ensures nonendangerment of an USDW. Essentially, the exempted aquifer or portion thereof is therefore not a USDW in perpetuity. However, federal or state UIC regulations (e.g., construction, monitoring, reporting, mechanical integrity tests) still apply to the injection wells and the injection processes themselves to ensure protection from endangerment of contiguous USDWs.

RESPONSE OF BENJAMIN H. GRUMBLES TO A QUESTION FROM SENATOR WYDEN

Question 1. Ms. Struhsacker from the Northwest Mining Association stated in her testimony that existing environmental regulations are adequate to protect human health and the environment.

Mr. Bisson and Mr. Grumbles, as representative of BLM and EPA, respectively, do you agree with Ms. Struhsacker's assessment? Or is the problem that existing regulations such as the Surfacing Mining Rule and the Clean Water Act are not adequate to manage hard rock mining activities and any subsequent environmental damage? Or is the problem this Administration's lack of enforcement of environmental laws?

Answer. EPA agrees that there are a wide range of current regulations that govern mining operations, including those promulgated under the Surface Mining Control and Reclamation Act and the Clean Water Act. In addition, it is important to note that states also regulate the environmental impact of mining under a variety of state laws and programs. Finally, the National Research Council generated a report entitled "Hardrock Mining on Federal Lands" in 1999, at the request of Congress, in order to assess the adequacy of the regulatory framework for hardrock mining on federal lands . The report identified what the Council saw as inadequacies in the regulatory framework at that time. This report can be found at: http://books.nap.edu/htm/hardrock_fed_lands/index.html

EPA supports the appropriate use of state and federal enforcement to assure that those regulations are being complied with . For example, EPA's Office of Enforcement and Compliance Assurance (OECA) has a national enforcement priority for FY 08—FY 10 on mineral processing and mining operations. This initiative is described at: http://www.epa.gov/Compliance/resources/publications/data/planning/priorities/fy2008priorityrcra.pdf.

Finally, regarding the question of whether there is a problem with the lack of enforcement of environmental laws, it is important to recognize that recent pollution control and cleanup commitments achieved through EPA's enforcement program is evidence of EPA's strong commitment to the enforcement of environmental laws. For example, in FY 07 alone, the program obtained commitments from industry, governments and other regulated entities to reduce pollution by nearly 900 million pounds. Through EPA's Superfund enforcement actions in FY 07, parties held responsible for pollution will invest $688 million to clean up sites and will reimburse $252 million to the Superfund, the highest total since 2001.

RESPONSES OF BENJAMIN H. GRUMBLES TO QUESTIONS FROM SENATOR SALAZAR

Question 1. With regards to in situ leach extraction uranium mining, what are the criteria that the EPA uses to define the baseline level of water quality of the aquifer before mining operations begin?

Answer. As noted in a previous answer, the Nuclear Regulatory Commission (NRC) licenses uranium mills and ISL facilities under the authority of the Atomic Energy Act. NRC regulates all site operations including the injection of fluids using environmental and ground water protection standards developed by EPA in accordance with the Uranium Mill Tailings Radiation Control Act (UMTRCA).

In accordance with UMTRCA, in setting out standards in 40 CFR Part 192, which must be utilized by the NRC or its Agreement States in their own regulations and licenses for uranium extraction facilities, EPA utilized the regulatory requirements developed [(under what is now the Resource Conservation and Recovery Act (RCRA)] for hazardous waste facilities. The requirements are that the license permit establishes the baseline ground water concentration limits for hazardous constituents during processing operations and prior to closure. The concentration limits, in accordance with RCRA regulatory requirements, are either the existing background levels, or the EPA drinking water Maximum Contaminant Levels (MCLs) set under the Safe Drinking Water Act (plus a standard for molybdenum), whichever are higher. The EPA regulations also require the establishment of a point of compliance, ground water monitoring, and corrective actions.

The NRC's extensive application requirements for establishing existing ground water conditions in order to obtain a uranium source materials license are listed in 10 CFR Part 40, and its associated Appendix A, as well as NRC's guidance documents for approving ISL license applications. We are working closely with the NRC as they develop revisions, specifically for ISL facilities, to their existing ground water regulations to ensure that they incorporate EPA regulatory requirements developed under UMTRCA and are consistent with EPA regulations for UIC Class III injection wells.

Question 2. To what condition does the EPA require the aquifer be remediated and how is this condition verified?

Answer. EPA's regulations implementing UMTRCA in 40 CFR Part 192, require hazardous ground water contaminants to be restored to background or MCLs (plus a separate standard for molybdenum), whichever is higher. This standard is applied to the underground extraction area, regardless of whether or not it is or has been determined to be an exempted aquifer under the SDWA. If achieving these standards are deemed impossible or impractical after demonstrated restoration efforts by the ISL facility license operator, that operator can apply to the NRC, or Agreement State, for use of "Alternate Concentration Limit (ACL)" determinations for a contaminant.

The NRC or Agreement State can approve the application if they can determine that the ACL is as low as reasonably achievable, after considering practicable corrective actions, and that it will not pose a substantial present or potential hazard to human health or the environment, as long as the alternate concentration limit is not exceeded. Acceptance of an ACL can only be agreed to after a rigorous 19 criteria review by NRC or the Agreement State (under RCRA regulations for hazardous waste facilities) is applied.

Under UMTRCA, the NRC (and its Agreement States), not EPA, is responsible for oversight and verification of the license restoration effort. Verification of the restoration by the ISL facility operator is based on the requirements in EPA regulations that a rigorous detection monitoring and reporting program must be established in accordance with 40 CFR 264.97 and 264 .98 which were established under RCRA. The NRC has adopted these standards and requirements in its current 10 CFR Part 40 regulations . The facility operator must determine whether there is statistically significant evidence of contamination for any chemical parameter or hazardous constituent using the frequency of monitoring specified in the permit (license). Should contamination be found, NRC or an Agreement State requires detailed action for further restoration and compliance.

Question 3. Is the remediation condition codified in statute?

Under UMTRCA, the Atomic Energy Act (AEA), Section 83 (Ownership And Custody of Certain Byproduct Material and Disposable Sites) was amended to state that the Nuclear Regulatory Commission is responsible " . . . for any activity which results in the production of any byproduct material . . . shall contain terms and conditions as the Commission determines to be necessary to assure that, prior to termination of such license-(I) the licensee will comply with decontamination, decommissioning, and reclamation standards prescribed by the Commission for sites (A) at which ores were processed primarily for their source material content and (B) at which such byproduct materials deposited . . . "

Under UMTRCA, the AEA, Section 84 (Authorities of Commission Respecting Certain Byproduct Material) was also amended to state that "[t]he Commission shall insure that the management of any byproduct material . . . , is carried out in such manner as-(1) the Commission deems appropriate to protect the public health and safety and the environment from radiological and nonradiological hazards associated with the processing and with the possession and transfer of such material, (2) conforms with applicable general standards promulgated by the Administrator of the Environmental Protection Agency under section 275, and (3) conforms to general requirements established by the Commission, with the concurrence of the Administrator, which are, to the maximum extent practicable, at least comparable to requirements applicable to the possession, transfer, and disposal of similar hazardous material regulated by the Administrator under the Solid Waste Disposal Act, as amended."

UMTRCA further amended the AEA by inserting a new section 275 "Health And Environmental Standards For Uranium Mill Tailings." That section required EPA to develop, for these facilities, the environmental protection standards which are now embodied in 40 CFR Part 192, and incorporate to the maximum extent possible, the requirements developed by the Agency under the Solid Waste Disposal Act (now RCRA). These standards include the requirements for site and ground water remediation.

RESPONSES OF DAVID W. GEISER TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. I am interested in how any new hardrock AML program should interface with the uranium mill tailings program under the Uranium Mill Tailings Radiation Control Act (UMTRCA). Are any of the sites covered under the UMTRCA program in proximity to abandoned uranium mines that could be eligible for reclamation under a new hardrock AML program? If so, should funds under a new hardrock AML program be used for remediation of the uranium mine site or the uranium processing site? Are UMTRCA funds currently applied to abandoned uranium mines

when they are in proximity to sites with uranium mill tailings. How would the agencies coordinate their efforts?

Answer. There are a number of UMTRCA sites in proximity to abandoned uranium mines. Some of these sites include the Monument Valley, Arizona site (Title I); the Northeast Church Rock, New Mexico site (Title II), and the Shirley Basin South and the Pathfinder sites (Title II) in Wyoming. The Title II sites identified above are under remediation by the current landowner and may be transferred to the Department of Energy, Office of Legacy Management for long-term surveillance and maintenance after reclamation is complete.

Other Federal agencies have ongoing AML programs, and we defer to them on the authorization or expansion of these existing programs. As such, DOE does not currently have a position on whether or how reclamation of either the mines sites or processing sites should be included under Abandoned Mine Lands (AML) programs. However, we assume that the intent of any new AML legislation is to address priority abandoned sites, and funds should not be authorized to cover the cleanup of sites where another party may still be responsible for funding the cleanup. We note that cleanup of existing uranium milling sites are currently covered under the Uranium Mill Tailings Radiation Control Act (UMTRCA) under Title II.

UMTRCA funds are not authorized for use in the cleanup of abandoned uranium mine sites. DOE used funds provided under the authority of the Atomic Energy Act of 1954, as amended, for the reclamation of legacy (prior to 1974) mines on the lease tracts that are covered under the Department's Uranium Leasing Program. Since 1974 all Uranium Leasing has included a requirement for the lease holder to reclaim any disturbance and to post a performance reclamation bond so DOE could perform the work if the lessee is unable to reclaim the mine.

DOE's authority for the surface cleanup of mill related wastes under Title I of UMTRCA expired in 1998. Groundwater cleanup under Title I of UMTRCA continues indefinitely. The cleanup of mill related wastes under Title II by private licensees is ongoing, but does not involve DOE action until after cleanup is completed. There is no regulating authority for DOE to affect a mine site cleanup other than mines associated with the Department's Uranium Leasing Program. Any future coordination effort involving DOE and other Federal agencies would be determined by the authorities and actions planned by those agencies.

Question 2. Does the reclamation of abandoned uranium mine sites involve any unique concerns or additional action or expense compared to the reclamation of other hardrock mine sites?

Answer. DOE has very limited knowledge of the reclamation of non-uranium hard rock mines; DOE expertise is limited to the uranium mines covered under the Department's uranium leasing program. DOE has reclaimed all of its legacy uranium mines on the withdrawn public land. DOE requirements for reclamation of the current uranium mines include: returning all stockpiled ore and waste piles to the mine; closure of the mine openings; and, compliance with all environmental laws and regulations for the individual lease tract including revegetation with native plants. The requirements are provided in the attached sample lease.

Question 3a. I am interested in the DOE-administered leasing program for uranium. Is there any reason that uranium shouldn't be leaseable as are other energy minerals, as opposed to locatable under the Mining Law of 1872?

Answer. DOE is authorized to utilize withdrawn public lands and conduct the uranium leasing program under Section 67 of the Atomic Energy Act (10 CFR Part 760). This legislation sets forth the parameters for the DOE uranium leasing program. DOE has very limited knowledge of the 1872 Mining Law and is not able to comment on whether or not certain minerals should be declared leaseable or locatable.

Question 3b. What royalty rates are paid on the uranium produced from federal lands under this program?

Answer. The DOE lessees pay a base royalty that is determined based on the size of the lease tract and the estimated quantity of the uranium ore reserves. In addition, the lessees pay a production royalty on the dry ore tonnage extracted for uranium and vanadium and this royalty payment is further determined using a weighted average of the spot market and long-term contract prices for uranium and the quarterly average for vanadium. Historic lease rates have ranged between 4 and 37%. DOE has 19 lease tracts being solicited for mining at this time. We expect the bids to be similar to the historical range.

Question 3c. What rentals are required?

Answer. No rental is included in the DOE Uranium Leasing Program. DOE leases include charges for base and production royalties.

Question 3d. Please describe the type and level of financial assurances required.

Answer. DOE evaluates the scope and cost of all reclamation needed to close a mine and reclaim the surface disturbance. The lessee is required to post a performance reclamation bond so DOE could perform the work if the lessee is unable to reclaim the mine. Part of the due diligence of the initial bid evaluation is that DOE requests a statement of financial surity, showing the ability of the bidder to perform under the provisions of the lease contract.

Question 3e. How many years is the lease term?

Answer. The lease term is for ten years.

Question 3f. Please provide a copy of a standard uranium lease for the record

Answer. The lease template is attached for your use. Specific environmental stipulations from the Programmatic Environmental Assessment are added to the individual lease tracts where they apply.

RESPONSE OF DAVID W. GEISER TO QUESTION FROM SENATOR DOMENICI

Question 1. Your testimony discusses a massive exploration program that was undertaken to identify mineral deposits on 460,000 acres of land that were withdrawn for Atomic Energy Commission lease sales. Only 27,000 of the 460,000 acres were ultimately retained for this program.

As hardrock exploration has traditionally been an activity undertaken by private companies, I would like to know how much, in 2008 dollars, that federally-run exploration program cost.

Can you describe how important those federally-run exploration activities were to the Department's ability to carry out an effective leasing program?

Answer. This extensive exploration program was a joint effort using appropriated dollars in the 1940s and 1950s to identify those areas on public lands that had potential for domestic uranium production. After evaluation, only 27,000 acres were retained for the actual uranium leasing program, and all other lands were relinquished back to the public domain. This was done at the time the original Public Land Orders were withdrawn by the Bureau of Land Management for the 27,000 acres, which occurred in the March 25, 1948, to December 12, 1951, time frame.

We do not have accurate information related to the costs associated with the exploration program. Most of the activities were performed by U. S. Geological Survey, and this activity occurred in the 1940s and 1950s.

The information from that original exploration program was used in the past, and is used today, to estimate the quantity of ore reserves in the lease tracts. This information is used in determining the base royalty for the individual lease tracts, and also aids the bidders and the program in the end as the bidders offer a higher royalty percentage on those tracts with higher estimated ore reserves.

RESPONSES OF DAVID ULIBARRI TO QUESTIONS FROM SENATOR DOMENICI

Question 1. As a State Senator for New Mexico, you are clearly aware of the potential economic benefits of uranium mining for your constituents. For example, you have told this committee that uranium mining accounted for 44 percent of the income and gross receipts taxes in Cibola and McKinley Counties during 1979. How does the impact of current plans for New Mexico uranium production compare to the impact in 1979?

Answer. The impact of current plans for New Mexico uranium production will compare very favorably to the positive economic benefits the Grants Mineral Belt experienced through the 1970s. Current plans call for at least 10,000 tons per day milling capacity which would conservatively result in over 14 million pounds of annual uranium production in New Mexico. This amount of production will require between 2000-3000 direct employees. These employees will include mine engineers, geologists, lab technicians, welders, heavy equipment operators and other trained high-paying jobs. As was the case in 1979, indirect employment should exceed the direct employment created by the uranium industry.

I reasonably expect that the gross receipts taxes and total severance, resource, excise, and conservation taxes created from this industry will provide substantial revenues to McKinley, Cibola, and Sandoval Counties and the State of New Mexico. This is especially important for the state, as oil and gas revenues are beginning to decline. The total infrastructure investment in building mines and mills will certainly exceed $1 Billion. The direct employee payroll should easily exceed $250 million on an annual basis. These types of economic benefits will provide our area an economic resurgence that can promote the health, education and welfare of our citizens.

At the request of New Mexico State officials, the New Mexico operators have commissioned a study from the Arrowhead Center at New Mexico State University on

the economic impacts that planned uranium production will have in our area. This study should be available in mid-April and I will see that a copy is sent to you.

Question 2. Your AML bill was vetoed by Governor Richardson. Are you aware of any similar legislation being considered by other states in the Four Corners or greater Rocky Mountain region?

Answer. The AML bill that I proposed was in direct response to the New Mexico uranium operators' willingness to step up to address the legacy issue of abandoned uranium mines and sites. I am not aware of any similar legislation being considered by other states in the Four Corners or greater Rocky Mountain region. However, I understand Colorado has a state program to reclaim former uranium sites on the Colorado Plateau and Wyoming has used federal money to accomplish abandoned uranium mine reclamation.

I believe the federal government has a definite responsibility to assist in the reclamation of the legacy sites. These mines and small operator operations were developed in response to the Atomic Energy Commission's efforts to obtain uranium for America's defense program. These mines and operations were operated before the regulation, closure and bonding requirements of modern mining were practiced. While future uranium operators are not responsible for the past abandoned mines, in New Mexico they have expressed agreement to assist in funding the reclamation of these sites. I believe a combination of federal and state funding (assisted by future producers) is necessary to successfully address this issue.

Question 3. Do you plan to reintroduce your legislation in the future, perhaps after the completion of the New Mexico Mining and Minerals Division study?

Answer. I will work with the Governor's Office to determine whether the timing is right to reintroduce my legislation next year. I am hopeful that once Governor Richardson understands the willingness of New Mexico's current uranium operators to assist in reclaiming the impacts of past uranium mining—impacts which these modern day companies did not create—the Governor will get behind this bill. The New Mexico Milling and Minerals Division study will produce valuable information on the scope of the abandoned uranium mines issue and I am pleased to have been the catalyst for this study.

While the New Mexico Legislature overwhelmingly approved my legislation with bipartisan support, those opposing the resumption of uranium milling advanced a campaign that the surtax on future production was not large enough. I do not agree with this assertion because, (1) it was never my intention that future production be solely responsible for all abandoned mine cleanup; and, (2) I believed that the proposed surtax and use of one-half of the resource excise tax would produce a significant amount of money to address the abandoned mine issue in the state. For example, the Navajo Nation reclaimed 917 out of 1,036 abandoned mines on the reservation for approximately $23 Million.[1] My legislation would produce approximately $8 Million annually based upon production of 10 million pounds of uranium per year. The funds derived from my proposed legislation can make substantial headway towards reclaiming the abandoned uranium sites in New Mexico.

As I listened to the abandoned mines panel at the Senate hearing, it became obvious to me that finding, a fair way to pay for abandoned mine reclamation is a very challenging issue. It is unfair to unduly burden today's mining companies with a punitive abandoned mine reclamation funding scheme. On the other hand, it seems clear to me that mining today can and should play a role in addressing the abandoned mines issue. I would like to commend Senators Bingaman and Domenici for their introduction of S. 2779 to assist in obtaining federal abandoned mines payments that should be available to the state. This combination of federal money and a modest surtax on future uranium production could provide sufficient funding to solve the abandoned uranium mine problem in New Mexico. I look forward to working with you to achieve this solution.

RESPONSES OF CHARLES L. MILLER TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. Please describe the process by which the Commission coordinates with BLM (or other federal land management agencies) in licensing uranium recovery and processing facilities on federal lands.

Answer. The Nuclear Regulatory Commission (NRC) staff recognizes the importance of early consultation and coordination with the applicable Federal agencies so that each agency can meet its regulatory responsibilities while minimizing, to the extent possible, any duplication of effort. When considering license applications for

[1] See Office of Surface Mining Reclamation and Enforcement Annual Evaluation Report, Navajo Nation Abandoned Mined Lands Reclamation Program, June 2005.

uranium recovery and processing facilities on Federal land, the NRC primarily uses our environmental review process to coordinate with other applicable Federal agencies. This environmental review process is carried out in accordance with NRC's regulations under 10 CFR Part 51 that implement the requirements of the National Environmental Policy Act (NEPA), as amended. As part of its NEPA reviews for site-specific licensing actions, the NRC conducts the consultation required under the National Historic Preservation Act, the Endangered Species Act, and other applicable acts. NRC engages the Bureau of Land Management (BLM) and/or other relevant Federal agencies in this process when the proposed facility involves Federal land.

Specific examples of NRC's coordination with other Federal agencies on uranium recovery applications include: (1) the 1997 Environmental Impact Statement (EIS) for the Crownpoint, New Mexico, in situ leach (ISL) project; and (2) a 2003 Programmatic Agreement (PA) for the Gas Hills ISL project site. The Bureau of Land Management (BLM) and the Bureau of Indian Affairs were Cooperating Agencies [Cooperating Agencies are those with jurisdiction by law or having special expertise (40 CFR 1501.6).] with the NRC in the preparation of the Crownpoint EIS with respect to any environmental issue which should be addressed. For the Gas Hills project, the NRC and the BLM developed the PA to address the management of cultural resources at the project in accordance with the Section 106 of the National Historic Preservation Act. The NRC staff has initiated early discussions with BLM staff regarding the coordination that will be necessary for future uranium recovery sites.

ISL OPERATIONS

Question 2. Please describe in-situ leaching (ISL) operations. How many acres of land do these operations cover? What facilities are typically part of these operations?

Answer. ISLs extract uranium by drilling wells into and around an ore body. Some of the wells are used to inject a liquid solution that dissolves the uranium (barren), while other wells extract the solution containing uranium (pregnant). Additionally, monitoring wells are placed to detect any underground excursions of solution away from the production zone.

The barren solution consists of native groundwater that is usually fortified with oxygen and sodium bicarbonate. This solution dissolves uranium from the ore. Dissolved uranium remains in solution while it is extracted and conveyed to the processing plant. After uranium is removed from the pregnant solution, the barren solution is refortified and re-injected into the subsurface, except for a small portion called the bleed.

The bleed is approximately one to three percent of the groundwater that is diverted and is usually disposed of in a deep injection well or evaporation pond. The bleed serves to ensure that the extraction flow is greater than the injection flow. This induces a net flow of groundwater towards the ore body and helps preclude solution from migrating away.

Once pregnant solution is extracted from the ore body, it is conveyed to a processing plant. Processing includes stripping the uranium from the solution using ion exchange columns that concentrate the uranium on resin beads, stripping the uranium from the resin, precipitating the uranium, and drying it to form yellowcake, the final step in the process. At some sites, only a portion of the processing chain may be performed. For example, some ISL operations may only concentrate the uranium on resin beads, then transport the loaded ion exchange columns to a central processing plant for final processing into yellowcake.

SIZE OF ISLS

The major factor governing the size of the facility is the size and extent of the ore body. Overall business and financial strategies of the ISL owner could also contribute to facility size. The NRC-licensed areas vary in size from 5,000 acres to over 50,000 acres.

FACILITIES

Typical equipment found in an ISL processing plant includes: ion exchange columns with resin, precipitation tanks, precipitate thickeners, vacuum dryers, and various chemical storage tanks. Typical chemicals stored at ISLs include oxygen, carbon dioxide, hydrogen peroxide, sodium chloride (salt), sodium hydroxide, hydrochloric acid, and sodium bicarbonate. Other areas in the plant include offices, a laboratory, and a control room.

Outside the processing plant, the major facilities are the well houses that are used to control flows in individual wells, evaporation ponds, and maintenance buildings. Some ISLs may also construct ancillary treatment units outside the main plant to treat water as part of the well field restoration process.

Question 3. How many in-situ leach (ISL) operations has your agency permitted on federal lands? How many applications do you expect on federal lands? Please provide a list for the record.

Answer. Of the four ISLs currently licensed by NRC, three are, at least partially, on Federal lands. They are:

- Hydro Resources, Inc. in McKinley County, New Mexico
- Cogema Mining, Inc. in Johnson and Campbell Counties, Wyoming
- Power Resources, Inc. (PRI) in Wyoming

The PRI license includes the following ISL facilities and satellites, all of which are, at least partially, on Federal lands:

- Smith Ranch-Highland in Converse County, Wyoming
- Ruth in Johnson County, Wyoming
- North Butte in Campbell County, Wyoming
- Gas Hills in Fremont and Natrona Counties, Wyoming
- Reynolds Ranch in Converse County, Wyoming

To date, NRC has received three applications for new ISLs, all of which are, at least partially, on Federal lands:

- UR-Energy Corp's Lost Creek site in Sweetwater County, Wyoming
- Uranerz Energy Corp's Nichols Ranch and Hank sites in Johnson and Campbell Counties, Wyoming
- Energy Metals Corp's Moore Ranch site in Campbell County, Wyoming

NRC staff is currently aware of six potential applications for ISLs that are, at least partially, on Federal lands:

- UR-Energy Corp's Lost Soldier site in Sweetwater County, Wyoming
- Energy Metals Corp's JAB and Antelope sites in Sweetwater County, Wyoming
- Wildhorse Energy's Sweetwater site in Sweetwater County, Wyoming
- Wildhorse Energy's West Alkali Creek site in Fremont County, Wyoming
- Strathmore Minerals' Sky site in Fremont County, Wyoming
- Uranerz Energy Corp's Collins Draw site in Johnson and Campbell Counties, Wyoming

Additionally, Strathmore Minerals has informed the NRC of its intent to submit an application for a conventional mill or heap leach facility at its Gas Hills site in Fremont County, Wyoming, that is partially on Federal land. Heap leaching is a method of extracting uranium from ore using a leaching solution. Ore, reduced to gravel size, is placed in a pile on an impervious material (e.g., plastic, clay, asphalt) with perforated pipes under the pile. Acidic solution (generally sulfuric acid) is then either sprayed or dripped over the ore, dissolving the uranium, which is collected in the perforated pipes. The uranium in solution is, subsequently, transferred to an ion-exchange system that strips the uranium from the solution.

Currently, the only Agreement State with licensed ISL sites is Texas. The Texas licensees are all located on private lands. The potential applicants for in-situ facilities in Texas would also be located on private lands. The only other potential in-situ application in an Agreement State would be in Colorado, mainly located on private land with some fringe areas located on State land.

Question 3a. Will these facilities be located on uranium mining claims and millsites?

Answer. The NRC cannot say whether or not ISL facilities will always be located on mining claims because the NRC does not have authority to grant mining claims. However, the NRC views any ISL facility processing uranium ore primarily for its source material content as a uranium mill; therefore, such facilities will always be on mill sites. Occasionally an ISL facility could be developed near or associated with a conventional milling facility. However, this has only occurred once in the recent past (Highland uranium in-situ and mill in Wyoming). As indicated in Response 4 below, uranium milling typically occurs in close proximity to uranium mining.

Question 4. What factors go into the siting of these facilities generally? What are the NRC's considerations in determining whether to approve the siting of a proposed in-situ leaching facility or processing facility?

Answer. The siting of an ISL is dependent on the location of the ore body to be processed. The well fields must follow the ore body in order to extract uranium. The central processing plant is usually located nearby. The primary siting consideration

in NRC's licensing review is whether the extraction zone can be isolated from aquifers above, below, and adjacent to it. Surface characteristics are also considered in both the safety review (e.g., to ensure that facilities are adequately protected from natural phenomena and that effluent releases will be protective of the public) and the environmental review (e.g., to ensure that endangered species are not adversely impacted or that historical artifacts are not disturbed).

Conventional mills are sited near mining areas to reduce the costs of hauling the ore. NRC considers surface characteristics similar to those discussed above for ISLs. In addition, NRC must be assured that tailings impoundments can be safely built on the proposed site. This involves detailed reviews of site hydrology (both surface and groundwater), geology, seismology, and meteorology.

Question 4a. Has the NRC ever denied a license for an ISL facility? For a conventional processing facility?

Answer. No. The NRC has not received a conventional mill application within the last 20 years. During this same period of time, NRC has not denied a license for an ISL. However, a number of license applications for ISL have needed to be significantly modified during the licensing process to be acceptable.

Question 5. I am interested in how any new hardrock AML program should interface with the uranium mill tailings program under the Uranium Mill Tailings Radiation Control Act (UMTRCA), Are any of the sites covered under the UMTRCA program in proximity to abandoned uranium mines that could be eligible for reclamation under a new hardrock AML program? If so, should funds under a new hardrock AML program be used for remediation of the uranium mine site or the uranium processing site? Are UMTRCA funds currently applied to abandoned uranium mines when they are in proximity to sites with uranium mill tailings? How would the agencies coordinate their efforts?

Answer. NRC does not regulate hardrock uranium mines. However, the following information may be helpful to understand the NRC's role:

The UMTRCA Title I program to remediate abandoned uranium mills is being implemented by the Department of Energy (DOE). Surface reclamation has been completed at all Title I sites except for the former Atlas Corporation mill near Moab, Utah, that was added to the program in 2001. NRC is currently reviewing DOE's proposed remedial action plan for that site. Additionally, DOE is implementing groundwater cleanup activities at most of the Title I sites.

Under the UMTRCA Title II program, NRC or Agreement State licensees are responsible for remediating the sites after termination of uranium milling operations. Several of those sites may be near abandoned uranium mines.

Responsibility for the remediation of the American Nuclear Corporation (ANC) Gas Hills site in Fremont County, Wyoming, was assumed by the State after ANC declared that it was unable to do so and forfeited its surety bond to the State. The State has used the funds to remediate a portion of the site but the funds remaining may not be sufficient to complete the remediation. There are several abandoned uranium mines adjacent to this mill site.

NRC will continue its role in coordination with other Federal agencies under UMTRCA for the affected sites.

Question 6. What concerns must be addressed regarding water quality impacts prior to the issuance of a license for an ISL or conventional processing facility? What regulations are currently in place that address this? Please provide citations.

Answer. An applicant for a license to construct and operate an ISL must address water quality impacts associated with actual operations and the restoration of water quality after uranium recovery. Regarding operational water quality, impacts could occur due to migration of contaminated groundwater away from the recovery zone or leaks in wells and pipes.

As indicated in Response 2 above, applicants address the potential for groundwater migration with excursion monitoring networks. Applicants propose monitoring well networks near the ore zone and in aquifers above and below the ore zone. Wells in these networks are sampled to detect excursions in the earliest stages. Applicants must also describe methods that will be used to correct the situation if an excursion is detected.

NRC performs an independent review and analysis of each applicant's proposed ISL to ensure that the regulations (identified at the end of this response) are met. The NRC review and analysis are documented in a Safety Evaluation Report (SER).

The potential for system leaks and failures are addressed through various means, such as periodic mechanical integrity tests of wells, production line sensors, and sampling shallow monitoring wells. Sensors in production lines alert operators to the potential for leaks, and sampling shallow monitoring wells serve to detect major surface or shallow subsurface leaks.

ISL operators must restore groundwater in a well field after the ore body is depleted. The NRC restoration regulations conform to the standards developed by the Environmental Protection Agency (EPA) as required by UMTRCA of 1978. An applicant for an ISL license, therefore, must present the restoration methods it plans to employ, estimates of the duration of restoration, and the quantity of water required for restoration.

Additionally, in order to construct and operate an ISL, a permit must first be obtained from EPA or an EPA-authorized State, under the underground injection control program.

At conventional mills, the primary water quality concern is the potential for contaminated water to seep from the tailings impoundment to the uppermost aquifer. Additionally, other areas of the mill have the potential to contaminate groundwater. An applicant for a license to construct and operate a conventional mill must address the potential for contamination of groundwater through the design of the mill and tailings impoundment, operating procedures, and monitoring programs. For example, tailings impoundments must be designed with liners to prevent contamination from seeping into the groundwater and may include leachate collection and leak detection systems. An applicant must also propose detection monitoring well networks designed to determine if seepage from the tailings impoundments or other mill operations has gotten into the groundwater. Additionally, applicants must describe the covers that will be placed over tailings impoundments to control infiltration of precipitation after closure to prevent contaminants seeping into the groundwater in the future, and the equipment and systems to prevent and detect spills and releases before groundwater pollution occurs. Similar to the case for an ISL, NRC performs an independent review and analysis of a proposed conventional mill and documents it in an SER.

Requirements for protecting groundwater at conventional mills and ISLs are found in 10 CFR Part 40, Appendix A. The following list presents specific regulations for the protection of groundwater:

Criterion 5—Groundwater Protection Standards
Criteria 5A(1) and (2)—Impoundment Liner Requirements
Criteria 5A(4) and (5)—Impoundment Operation Requirements
Criterion 5B(1)—Requirement to Prevent Groundwater Contamination
Criterion 5B(2)—Designation of Hazardous Constituents
Criterion 5B(5)—Groundwater Protection Standards
Criterion 5D—Corrective Action Program Requirements
Criterion 5E—Need to Consider Leak Detection, Mill Processes, Tailings Dewatering
Criterion 5F—Requirement to Alleviate Seepage at Contaminated Sites
Criterion 7—Preoperational Baseline Monitoring Requirements
Criterion 7A—Detection Monitoring Requirements

Question 7. What type and level of financial assurances does the NRC require for in-situ leaching operations? For traditional uranium milling facilities?

Answer. For both ISLs and conventional mills, NRC requires financial surety. This requirement appears in Criterion 9 of 10 CFR Part 40, Appendix A. The amount of the surety must be sufficient to allow an independent contractor to remediate the facility and site to NRC standards in the event that the licensee is unable to do so. Acceptable financial surety arrangements include surety bonds, cash deposits, certificates of deposit, deposits of government securities, and irrevocable letters or lines of credit.

For conventional mills, the main components of the cost estimate for the surety are decontamination and/or decommissioning of buildings and soils, reclamation of the tailings impoundments, and cleanup of groundwater. For ISLs, the primary component of the surety cost estimate is restoration of groundwater quality in the mining zone.

Additionally, criterion 10 of 10 CFR Part 40, Appendix A, requires that prior to license termination, the licensee pay a charge to cover the costs of long-term surveillance by the government long-term custodian. Criterion 9 requires that this charge be included in the financial surety.

RESPONSE OF CHARLES L. MILLER TO QUESTION FROM SENATOR DOMENICI

Question 7. If a uranium mining claim is located on federal lands and the plan of operations includes a proposal to build a mill site on the property that does not meet NRC standards, can your agency intervene and say "no" to the construction of such a facility?

Answer. Under the circumstances you describe, there is no need for NRC to seek intervention. If a commercial entity seeks to build a uranium mill in the United States on Federal, State, or private land, it must obtain approval from either an appropriate Agreement State or the NRC before any site work is authorized. In order to build a mill in the United States, a license from NRC or an Agreement State is needed. The NRC requirements for issuance of a license applicable to uranium milling include those set forth in 10 CFR 40.32. These requirements authorize NRC to deny any request for a uranium mill license if the applicant begins constructing its facility before the NRC makes a licensing determination. Agreement States must regulate uranium mills in accordance with State standards that conform to NRC standards. Both NRC and Agreement States would license the construction of a uranium mill by evaluating the license application against these standards as well as additional site specific standards in the form of license conditions.

RESPONSES OF ROBIN M. NAZZARO TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. Your testimony lists the estimated number of sites with environmental degradation. How did you define "environmental degradation?"

Answer. We defined sites with environmental degradation as those with features (such as shafts, open pits, waste rock piles, or tailings ponds) leading to air, water, or ground pollution. We developed this definition by working with officials with the National Association of Abandoned Mine Land Programs, the Interstate Mining Compact Commission, and the Colorado State Department of Natural Resources.

Question 2. What percentage of abandoned hardrock mine sites are on federal lands?

Answer. Because of limitations in the available data, we are unable to determine the percentage of abandoned hardrock mines that are on federal lands. The Bureau of Land Management (BLM) and the Forest Service estimates of the number of abandoned hardrock mines on the lands they manage include some non-hardrock mines, such as coal, and some mines that may not be on federal lands. Similarly, the states' estimates often cover all of the mines within their borders regardless of land ownership, and as such, include mines on federal, state, and private lands. Consequently, because of these limitations, including the overlap in these existing estimates, determining the percentage of abandoned hardrock mines on federal lands is problematic.

Question 2a. Are clean-up efforts on federal lands adequately funded?

Answer. We have not evaluated the extent to which the clean-up of abandoned hardrock mines on federal lands are adequately funded.

Question 3. The AML program for coal currently receives approximately $300 million per year in fee collections. Most of these funds are expended for coal AML work. Do you have a sense of the magnitude of the hardrock AML problem relative to the coal AML problem?

Answer. We have not compared the magnitude of the hardrock abandoned mine problem with the magnitude of the coal abandoned mine problem. Such a comparison would be difficult because reliable data are not readily available on the number and characteristics of abandoned hardrock mines. In contrast, through the Office of Surface Mining Reclamation and Enforcement's Surface Mining Control and Reclamation Act (SMCRA) program, states have systematically inventoried and characterized their abandoned coal mines.

Question 3a. What is an appropriate level of funding for the hardrock AML program?

Answer. We have not conducted the work necessary to answer this question.

Question 4. Your testimony indicates that current financial assurances for hardrock mines on BLM lands are sometimes inadequate—and that operators on BLM lands currently have about $61 million less in financial assurances than needed to cover estimated reclamation costs.

How do you explain this?

Answer. BLM officials told us that financial assurances can be listed as inadequate in their Bond Review Report for a variety of reasons, such as administrative delays in updating case records in BLM's LR2000 database. For example, a delay may occur when BLM increases its estimate of reclamation costs and there is a delay between when BLM enters the new estimate into LR2000 and when the operator provides the additional amount. We did not obtain and analyze data to determine the reason why BLM's current financial assurances are sometimes inadequate.

In addition, as we reported in 2005, some existing hardrock operations on BLM land do not have financial assurances, and some have no or outdated reclamation

plans and/or cost estimates, on which financial assurances should be based.[1] Furthermore, financial assurances may be inadequate because the mining operator has failed to provide the required amount of financial assurances or the bonding company has declared bankruptcy. In our 2005 report, since BLM began requiring financial assurance, it had identified 48 operations on BLM land that had ceased operations and not been reclaimed by operators.

Question 5. In reviewing the adequacy of financial assurances in place for mining operations on BLM and Forest Service lands, did you also review the accuracy of the agencies' reclamation cost estimates?

Answer. No, we did not attempt to independently review the accuracy of the agencies' reclamation cost estimates as part of this review.

Question 5a. Does the BLM or the Forest Service make any independent judgment regarding the level of financial assurances necessary or do they defer to the industry on the estimated costs of reclamation.

Answer. Although the operators themselves generally make the initial estimate of the reclamation costs, BLM and the Forest Service review the operator's estimate and can require a greater amount before approving the plan of operation. In addition, as part of the National Environmental Policy Act (NEPA) process, EPA reviews the operator's estimate and offers an opinion on whether it will be sufficient to reclaim the site. EPA officials have told us that there have been instances where they found the amount of financial assurances BLM required would be insufficient to fully reclaim the site and that BLM did not increase the amount of financial assurances in response to EPA's concerns.

Question 6. You also indicate that the Forest Service regulations do not require the posting of financial assurances but that as a matter of policy, financial assurances are often required. In what circumstances are financial assurances required?

Answer. According to a Forest Service official, operators on Forest Service land must provide financial assurances whenever the Forest Service determines that the mining operation will cause a significant disturbance of surface resources.

Question 6a. Does the Forest Service have written guidance that spells out this policy?

Answer. According to Forest Service officials, although these requirements are not part of the Forest Service's regulations, they are spelled out in the Forest Service Manual (FSM 6561.4)

Question 6b. Do you have information on the amount of financial assurances posted in Forest Service lands?

Answer. No, the Forest Service was unable to readily provide us with this information because it does not currently track or record the information in a central location. Forest Service officials told us that they are currently working on developing a database, similar in purpose to BLM's LR2000 system, that will centrally track and record information on mining operations on lands managed by the Forest Service, such as the type and amount of mineral production, the type of financial assurance in place and the amount required, and location and land ownership. They expect to complete this system in summer 2008.

Question 7. Of all the federal agencies, your testimony suggests EPA has by far spent the most money on abandoned mine cleanup over the past 10 years ($2.2 billion of $2.6 billion expended)—and that these funds are "generally" spent on nonfederal lands.

Are there circumstances in which EPA has expended funds for abandoned mine cleanup on federal lands? If so, what were these circumstances?

Answer. We do not know the full extent of these circumstances, except to note that EPA officials have told us that some cleanup efforts are very large and complex and may involve funding and work from multiple federal agencies and nonfederal groups and cover sites that stretch across both federal and nonfederal land. Generally EPA funds cleanup on nonfederal land and delegates authority to other federal agencies to take responsibility for cleanups on federal lands. However, these officials told us that in some circumstances involving these large and complex cleanup efforts, it is likely that some EPA funds have cleaned up contamination on federal land.

In our 2005 report, as of July 2004, BLM reported that funds to reclaim the Zortman and Landusky mining operation came from other sources, including EPA.[2] EPA provided $340, 000 in grant funds, primarily to prepare a supplemental environmental impact statement. The Zortman and Landusky gold mine is located in north-central Montana on about 1,200 acres, half of which are on BLM land. BLM

[1] GAO, Hardrock Mining: BLM Needs to Better Manage Financial Assurances to Guarantee Coverage of Reclamation Costs, GAO-05-377 (Washington, D.C.: June 20, 2005.)

[2] See GAO-05-377.

provided $5,594,500, mostly from its Abandoned Mine Land Program, to help pay for reclamation of this mining operation after Pegasus Gold, the parent company, went bankrupt and did not complete the reclamation as required. In this case, BLM reported that the amount of financial assurances in place for this operation ($57.8 million) was significantly less than the cost estimate prepared after the operation ceased ($85.2 million).

RESPONSES OF ROBIN M. NAZZARO TO QUESTIONS FROM SENATOR DOMENICI

Question 1. Your testimony discusses a $61 million shortfall in financial assurances for mining operations on BLM lands. Do the BLM and the Forest Service have the authority to adjust financial assurances—up or down—based on new information that becomes available over the life of the mine?

Answer. Yes, both BLM and the Forest Service periodically review ongoing mining operations to determine if the estimate should be updated to reflect any necessary changes in the cost of reclaiming the mine and can require the operator to adjust the amount of financial assurances accordingly.

Question 2. Your testimony provides details on AML spending for four agencies—the Forest Service, BLM, EPA, and OSM. Did you look at how much the Army Corps of Engineers has spent on AML?

Answer. As part of our most current work, we did not review Army Corps ofEngineers' expenditures to clean up abandoned hardrock mines. However, in 2005, we reported that the U.S. Army Corps of Engineers (the Corps) provided about $0.8 million to clean up two mining operations on BLM land in Nevada, where operations had ceased and not been reclaimed by operators since BLM began requiring financial assurances.[3] The Corps provided these funds under its Restoration of Abandoned Mines Sites (RAMS) program, according to BLM.

RESPONSES OF ROBIN M. NAZZARO TO QUESTIONS FROM SENATOR WYDEN

Question 1. Ms. Nazzaro, in 2005 the Government Accountability Office (GAO) conducted a survey of BLM state offices regarding financial assurances to guarantee reclamation costs for existing hardrock operations on BLM land. Surety bonds, letters of credit, and corporate guarantees accounted for most of the assurances' value. Your Office's analysis found that these financial assurances may not fully cover all future reclamation costs for these existing hardrock operations if operators do not complete required reclamation activities. GAO recommended that BLM strengthen its management of financial assurances by requiring its state office directors to develop an action plan to ensure mine operators have adequate financial assurances.

While BLM has taken steps to address some of GAO's recommendations regarding state directors developing action plans for financial assurances; has the BLM fully and adequately addressed GAO's expert analysis regarding strengthening the management of financial assurances?

Answer. While BLM has taken steps to implement our recommendations by creating the Bond Review Report and having state directors' certify the adequacy of their financial assurances, their November 2007 Bond Review Report shows 52 mining operations with inadequate financial assurances. Where the financial assurances are determined to be inadequate, the state directors must report what actions they are taking to address the situation. As part of our most current work, we did not obtain and analyze data to determine why 52 operations on BLM land have financial assurances that are inadequate. Therefore, we do not know if BLM's actions in response to our recommendations ensure that every hardrock mining operation on BLM land has a financial assurance that sufficiently covers the full reclamation if the operator does not complete the reclamation, as required. To determine this, we would have to conduct a more in-depth analysis.

In our testimony, we state that BLM's use of its Bond Review Report to determine the adequacy of financial assurances is not useful because it does not clearly lay out the extent to which financial assurances are inadequate. For example, in California, BLM reports that, statewide, the financial assurances in place are $1.5 million greater than required, suggesting reclamation costs are being more than fully covered. However, according to our analysis of only those California operations with inadequate financial assurances, the financial assurances in place are nearly $440, 000 less than needed to fully cover reclamations costs. BLM officials agreed that it would be valuable for the Bond Review Report to report the dollar value of the difference between financial assurances in place and required for those operations where financial assurances are inadequate and have taken steps to modify LR2000.

[3] See GAO-05-377.

Question 2. Furthermore, the Forest Service claims to require financial assurances for mining activities on the public lands that they manage. Again, in your expert opinion, is the Forest Service doing enough to guarantee reclamation costs for existing hardrock mining operations on Forest Service lands? If no, what are your recommendations?

Answer. Because the Forest Service does not have readily available data on its financial assurances, we were not able to determine the degree to which these assurances adequately cover estimated reclamation costs. To determine the extent of the Forest Service efforts to guarantee reclamation of costs for existing hardrock mining operations on its lands, we would have to conduct an in-depth review, similar to the review we conducted in 2005 of financial assurances in place for hardrock mining operations on BLM land.[4]

[Responses to the following questions were not received at the time the hearing went to press:]

QUESTIONS FOR HENRI BISSON FROM SENATOR BINGAMAN

Question 1. To what extent does the BLM review or independently verify the reclamation cost estimates provided by operating permit applicants?

Question 2a. How reliable are your estimates of the number of abandoned hardrock mine sites are on BLM lands?

Question 2b. How many of these sites present a threat to human health and safety?

Question 2c. How many present environmental problems?

Question 3a. GAO has indicated that BLM's median expenditures on hardrock AML reclamation was $5.1 million per year from 1998 through 2007.

Question 3b. How much would it take per year to really this problem in a meaningful way?

Question 3c. How much funding would it take to address this problem in 10 years?

Question 3d. What is the total estimated cost of addressing all abandoned hardrock sites on BLM lands?

Question 4a. How many of the AML sites are on lands of mixed ownership—a combination of federal, Indian, state or private?

Question 4b. Should this affect the design of a program to address hardrock abandoned mine lands?

Question 5a. How do BLM and EPA collaborate on Superfund sites that involve abandoned hardrock mines on BLM lands?

Question 5b. Does EPA use Superfund monies on these sites, or does the money come from BLM's budget?

Question 6. Does BLM impose any additional or different standards on uranium mining operations located on BLM lands than those applied to other types of hardrock minerals?

Question 7. Does the reclamation of abandoned uranium mine sites involve any unique concerns or additional action or expense compared to the reclamation of other hardrock mine sites?

Question 8a. Are uranium mining interests entitled to millsites on federal lands under the Mining Law of 1872? Can uranium processing facilities be located on such claims? Can in-situ leaching operations be undertaken on mining claims and millsite claims located under the Mining Law of 1872?

Question 8b. What discretion does a federal land manager have to prohibit the siting of these facilities where mining claims and millsites exist?

Question 9. How many uranium mining claims have been located in the past three years?

Question 10. Is there any reason that uranium shouldn't be leaseable as are other energy minerals, as opposed to locatable? Should we make uranium leaseable prospectively?

Question 11a. In previous reports on the Superfund program, GAO has identified instances in which some mine owners have repeatedly defaulted on environmental liabilities associated with their mines. The GAO advocated that EPA take a "risk-based" approach in securing financial assurances, particularly with respect to mine owners who have filed "serial bankruptcies".

Question 11b. Does BLM use a "risk-based" approach in securing financial assurances adequate to cover reclamation costs?

---

[4] See GAO-05-377.

Question 12. Does BLM have the authority to deny a plan of operations, if the Bureau finds that an applicant (or a subsidiary thereof) has failed to provide adequate financial assurances or failed to meet reclamation standards elsewhere on federal lands?

Question 13. Do current financial guarantee requirements permit the BLM to hold on to the assurances posted by an operator, in the event the operator or a corporate subsidiary thereof is delinquent in meeting its clean-up obligations elsewhere on federal lands?

Question 14. What is the BLM's current policyregarding approvals required prior to the transfer, assignment or sale of a mining claim or millsite or plan of operations?

QUESTIONS TO HENRI BISSON FROM SENATOR DOMENICI

Question 1. Ms. Nazzaro testified that 52 mines, out of the 1,463 on BLM lands, have insufficient financial assurances. The GAO valued this shortfall at $61 million. Does the BLM have sufficient authority to adjust the bonding of these operations, up or down?

Question 2. Is the reclamation of uranium mines unique in any respect?

QUESTIONS TO HENRI BISSON FROM SENATOR WYDEN

Question 1. Mr. Bisson, you were a witness at the energy and Natural Resources Committee's January 24, 2008 oversight hearing on reforming the Mining Law of 1872. Ms. Deborah Tschudy of the Mineral Management Service in the Department of Interior; stated in her testimony that the Administration would prefer a hardrock mining royalty program that resembles the program established under the Energy Policy Act of 2005; royalties from hardrock mining activities might be used to clean-up abandoned mine lands.

Given the serious problems identified by the Department of Interior Inspector General with the royalty-in-kind program for oil and gas, do you agree with Ms. Tschudy? Why should the same approach used by this troubled program be used for hardrock minerals? In particular, why should the BLM be given authority to reduce royalties on hardrock minerals given the problems that have arisen with the royalty relief provisions for oil and gas?

Furthermore, at a time when recreational uses of public lands are increasing and the general public is being asked to pay fees to access these lands; isn't it unfair that mining companies can take millions of dollars of valuable minerals from lands owned by the American people without having to pay royalties?

Question 2. Ms. Struhsacker from the Northwest Mining Association stated in her testimony that existing environmental regulations are adequate to protect human health and the environment.

Mr. Bisson and Mr. Grumbles, as representative of BLM and EPA, respectively, do you agree with Ms. Struhsacker's assessment? Or is the problem that existing regulations such as the Surfacing Mining Rule and the Clean Water Act are not adequate to manage hard rock mining activities and any subsequent environmental damage? Or is the problem this Administration's lack of enforcement of environmental laws?

QUESTIONS FOR PAT WILLIAMS FROM SENATOR DOMENICI

Question 1. At our hearing in January, a witness declared that the existing mechanism to withdraw lands is "far too cumbersome to work well" and "virtually useless" as a result. But through that same mechanism, that same witness was able to withdraw nearly 430,000 acres in the Rocky Mountain Front while in charge of the Forest Service. That process began in 1999, just two years after you left the House of Representatives.

Based upon your past experiences with mining law reform—as a legislator and as a Montanan—would you describe the mechanism for withdrawal as ineffective?

Question 2. Your written testimony discusses in great detail the jobs that can be created to clean up abandoned mines. You quote CBO, which has stated that 14 to 33 jobs are created for every $1 million spent on mine cleanup. Where do you believe the money to pay for that clean-up and those jobs should come from?

QUESTIONS FOR JOE SHIRLEY, JR., FROM SENATOR BINGAMAN

Question 1a. Thank you for your testimony about the legacy of uranium mining on the lands of the Navajo Nation. What assistance are you currently getting from the Federal Government with respect to addressing the problems created by uranium mining?

Question 1b. How can that be improved?

Question 1c. How can the federal response be better coordinated?

Question 2. The Navajo Nation currently receives some funding under the Surface Mining Act AML program. Are you able to use these funds for uranium site remediation?

Question 3. What is the estimated cost of remediation on Navajo lands?

Question 4. How many abandoned uranium mines are there on Navajo lands?

QUESTIONS FOR JOE SHIRLEY, JR., FROM SENATOR DOMENICI

Question 1. According to the Navajo Nation's Division of Natural Resources website, 913 of the 1,032 total abandoned uranium mines on Navajo lands have been reclaimed. Is this correct, that 88% of the abandoned uranium mines on Navajo lands have been reclaimed?

Question 2. In your testimony you described the ongoing health problems in the Navajo Nation that you see as a legacy of uranium mining. The New Mexico Tumor Registry, however, suggests that cancer mortality for American Indians is lower than that of non-American Indian populations in San Juan and McKinley County. Can you provide this committee with citations that quantify the health problems that you referred to in your testimony?

APPENDIX II

Additional Material Submitted for the Record

STATEMENTS OF LAURA SKAER, EXECUTIVE DIRECTOR, NORTHWEST MINING ASSOCIATION, SPOKANE, WA

OPPORTUNITIES FOR GOOD SAMARITAN CLEANUP OF HARDROCK ABANDONED MINE LANDS

JULY 13, 2006

INTRODUCTION

My name is Laura Skaer. I am the Executive Director of the Northwest Mining Association, a 112 year old non-profit mining industry trade association. Our offices are located in Spokane, Washington. NWMA has more than 1,300 members residing in 31 states and 6 Canadian provinces. Our members are actively involved in exploration, mining and reclamation operations on BLM and USFS administered land in every western state, in addition to private land. Our membership represents every facet of the mining industry, including geology, exploration, mining, reclamation, engineering, equipment manufacturing, technical services, and sales of equipment and supplies. Our broad-based membership includes many small miners and exploration geologists, as well as junior and large mining companies. More than 90% of our members are small businesses or work for small businesses. Our members have extensive first-hand experience with reclaiming active and inactive mine sites and remediating a variety of environmental conditions and safety issues at these sites.

Our members also have extensive knowledge of Abandoned Mine Lands (AMLs) in the U.S. Two of our members, Debra W. Struhsacker and Jeff W. Todd, researched and authored a study published in 1998 by the National Mining Association entitled "Reclaiming Inactive and Abandoned Mine Lands—What Really is Happening." (A copy of this study is being included in the record). This study documents that the mining industry has spent tens of millions of dollars to cleanup numerous AMLs throughout the west. As evidenced by this report, the mining industry is ready, willing and able to play a significant role in cleaning up abandoned and inactive mines. We are here today to ask Congress to do its part and enact Good Samaritan legislation that will remove the legal liability hurdles and provide incentives for a variety of persons and entities to remediate and reclaim AMLs throughout the West.

Unfortunately, the number one impediment to voluntarily Good Samaritan cleanup of abandoned mine lands is the potential liability imposed by existing federal and state environmental laws, in particular the Clean Water Act (CWA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (commonly known as Superfund), the Resource Conservation & Recovery Act (RCRA), and the Federal Toxic Substances Act. Under these laws and others, a mining company, individuals, or other entities that begin to voluntarily remediate an abandoned mine site could potentially incur "cradle-to-grave" liability under the CWA, CERCLA, and other environmental laws, even though it did not cause or contribute to the environmental condition at the abandoned mine land site.

Furthermore, they could be required under the CWA to prevent discharges to surface waters from the AML in perpetuity, unless those discharges meet strict effluent limitations and do not result in exceedences of stringent water quality standards, something that may not be possible; and in any event, may be so expensive that no company, individual, or other entity would undertake a voluntary cleanup.

Virtually everyone who has looked at the AML issue in the west has recognized and documented the legal impediments to voluntary cleanup of AMLs and have urged that those impediments be eliminated. These groups include the Western

Governors Association, the National Academy of Sciences, and the Center for the American West.

The time has come for Congress to pass effective Good Samaritan legislation that will create a framework, with incentives and liability protection for numerous entities, including mining companies, local, state and federal agencies, NGO's, and tribes to voluntarily remediate of environmental problems caused by others at abandoned hardrock mine sites in the U.S.

ELEMENTS OF EFFECTIVE GOOD SAMARITAN LEGISLATION

To be effective, Good Samaritan legislation must embody the following key provisions:

1. Mining companies that did not create environmental problems at an AML must qualify as Good Samaritans.—No one knows more about reclaiming and remediating mine sites than the mining industry. The mining industry has the desire, the resources, expertise, experience, and technology to effectively and efficiently assess the environmental and safety issues present at an AML and to properly remediate, reclaim and secure those sites. This often can be done in conjunction with reclamation activities at nearby active mines which the company operates, resulting in an efficient use of resources to improve the environment and enhance public safety.

For example, Teck Cominco American Incorporated purchased the Pend Oreille Mine in Pend Oreille County, Washington in 1996 and brought it back into production in 2004. It is located in a setting where a substantial amount of historical mining took place before there were environmental laws and regulations and modern mining practices. There are many abandoned mine sites in the area of the Pend Oreille Mine. In working with the local community, Teck Cominco determined that many of the old mine openings presented a potential hazard to public safety. Those that did not involve environmental issues were voluntarily closed through the installation of bulkheads in several of the openings.

Teck Cominco has been approached by state and federal agencies to see if it could process some of the historic waste rock piles, ore piles and concentrate accumulations in the area. In each and every case, the company chose not to undertake this cleanup effort due to the strict nature of its Clean Water Act authorization that prohibits any tailings other than those generated from the Pend Oreille Mine to be placed in the lined and approved tailings disposal facility. Furthermore, the company is reluctant to undertake cleanup efforts at any of these old sites for fear of being deemed an operator and incurring cradle-to-grave liability for the site under a variety of federal and state environmental laws.

All mines run out of ore and towards the end of production may look for additional sources of mineralized material to process. Having the ability to augment or extend the productive life of the mine benefits the mining company, the community and the nation. It also benefits the environment through metal source reduction as more metal will ultimately be recovered from the AML sites and the resulting tailings are placed in a regulated, engineered and permitted containment structure. This promotes conservation of the resource and sustainable development with a net improvement in the environment.

This is but one of many, many examples of sites throughout North America where existing mines are located adjacent to abandoned historical mines. Another example from the Northwest is Meridian Gold Company's Beartrack Mine near Salmon, Idaho. Deposits from historic mining were included on the mine property. As a result, Napias Creek no longer supported salmon habitat. Meridian used the equipment and personnel that were on-site at Beartrack to remove the tailings and waste rock piles from Napias Creek and fully remediate the site and restore the streambed to salmon habitat. The company won several environmental awards for their work. The mine was able to process tailings and waste rock materials from historic mining located on the mine property (emphasis added), at the Beartrack Mine, increase the ultimate recovery of metals from the mine and improve the environment. A scenario where everyone wins.

I have emphasized located on the mine property to highlight the important distinction between the Pend Oreille mine example and the Beartrack example. The Napias Creek tailings and waste rock piles were located on the mine property and covered by Beartrack's operating permits. The lack of effective Good Samaritan legislation has prevented, to date, the same win-win-win result at Pend Oreille.

In Nevada, the mining industry initially expressed interest, as Good Samaritans, in remediating and reclaiming several AMLs. The AML sites included Easy Junior, Elder Creek, Golden Butte, Ward, Mt. Hamilton, Griffon, Aurora Partnership, Kinsley, Norse-Windfall, Arimetco and Gold Bar.

In each case, the potential cradle-to-grave liability exposure under federal environmental laws prevented the mining industry from using its experience, expertise, technology, equipment and capital to remediate and reclaim the AML sites.

Four of the sites (Easy Junior, Golden Butte, Elder Creek and Ward) have been and/or are being remediated under the Army Corps of Engineers Restoration of Abandoned Mine Sites (RAMS) program. Sadly, as good as the RAMS program is, it is not adequately funded to perform complete reclamation to current mining industry standards. If there was effective Good Samaritan legislation in place, then these sites would have been closed by the mining industry, and the final result would have been more than the minimum needed to ensure basic environmental protection.

Some of the other sites have been closed and reclaimed in part using a combination of bond money and federal agency funding. Again, the lack of Good Samaritan legislation prevented industry from participating in the remediation, reclamation and closure of these sites.

2. A potential Good Samaritan must be able to gather the needed site characterization data to develop a technically sound remediation proposal without having to conduct a Potentially Responsible Party (PRP) search or go through a long, complicated and involved permitting process. A Good Samaritan must be able to conduct a site survey without the potential for becoming liable for the site solely by virtue of gathering data.

3. Individual Good Samaritan projects should be subject to review and authorization by the federal government or by an individual state's abandoned mine land program (and/or the environmental permitting authority for those states where EPA has delegated Clean Water Act authority). In addition to providing for review and authorization by EPA, the bill should authorize the Army Corps of Engineers' RAMS program to issue Good Samaritan permits. The chairman will recall that he authored the legislation that created the RAMS program in 1999 as part of that year's Water Resources Development Act (WRDA). Although the RAMS program has not been adequately funded, its stakeholder approach to remediating and restoring abandoned mine sites is a model that is well-suited for Good Samaritan cleanups.

Unfortunately, the RAMS program will sunset at the end of the next fiscal year if it is not reauthorized. The only reason the RAMS program has not been reauthorized is Congress has not passed a WRDA in six years. We urge the Chairman to communicate his support for RAMS to both the House and Senate authorizing committees for WRDA, or find a way to insert reauthorizing language in a bill that will move this year.

4. The Good Samaritan permitting process should include meaningful public input. The permit process also must be simple, straight-forward and understandable. The environmental requirements for a Good Samaritan project should be wrapped into a single permit. The permit should be approved only if the project is technically sound and promises overall improvement to the environment and/or securing of safety hazards.

5. The Good Samaritan must have full legal protection under the permit. That is, a Good Samaritan permit-holder must be able to obtain a specific, concrete list of the federal, state and local environmental laws that would be deemed satisfied by completion of the work authorized under the permit. One of the Good Samaritan bills introduced in the Senate, S. 1848, contains a list of federal environmental laws that is a good starting point.

6. Good Samaritan projects should be allowed as long as they result in an improvement to the environment, even if they will not result in the complete cleanup of all contaminants at an abandoned mine land site or the attainment of all otherwise applicable environmental standards, such as stringent water quality standards. To quote an oft-repeated phrase, "don't let pursuit of the perfect be the enemy of the good." An 85 percent improvement in water quality downstream from an AML site is a far better result than no cleanup due to a Good Samaritan's concerns that their cleanup activities may not be able to achieve water quality standards that would be applicable at a modern mine.

7. The permitting authority must be given discretion under any Good Samaritan legislation to make site-specific adjustments to environmental requirements, standards and liabilities arising under state and federal environmental laws that could otherwise be applicable and prevent Good Samaritans from under-

taking remedial actions. This is not a new concept. The Applicable or Relevant and Appropriate (ARAR) approach under CERCLA might be a reasonable starting point.

The permitting authority also should have the discretion to waive the PRP search requirement. A Good Samaritan that is willing to spend private monies to remediate and reclaim an AML site should not have to spend time and resources conducting and certifying a PRP search. It should not matter whether there might be a PRP. The goal should be environmental improvement, not finding someone to blame.

8. Any Good Samaritan legislation, to be effective and result in actual, on-the-ground cleanup, must allow the reprocessing, remining, and reuse of ores, minerals, waste rock piles and other materials existing at an AML, even if this results in the mining company or other Good Samaritan recovering metals from such materials and making some cost recovery and perhaps a little profit on its Good Samaritan operations. Given the volatility and cyclical nature of metal prices, it is just as likely that the costs of any Good Samaritan project would exceed the revenue generated by removal and reprocessing. In any event, these activities should be allowed as part of a Good Samaritan project only if the overall result would be an improvement in environmental conditions at the site.

In many cases, processing tailings, waste rock piles and other historic mining materials at AML sites may be the most efficient and least costly means of cleaning up a site. The waste from any reprocessing or remining activities would then be disposed in compliance with current environmental standards and practices. The net result would be an efficient use of resources to increase the ultimate recovery of metals the U.S. needs for strategic and economic purposes while improving the environment.

AMLs are generally located in highly mineralized areas. Not only are these highly mineralized areas the location of historic mining, they are likely to be the location for future mines as prices and technology allow. A Good Samarian project could lead to the discovery of a new mine, which would require the full NEPA and mine permitting process, and would be allowed only if the proposed new mine complied with all current standards of environmental protection. The mining industry has no desire to use Good Samaritan legislation to avoid the mine permitting process or the application of current environmental laws and regulations that apply to today's modern mines. The Good Samaritan permitting authority, through permit conditions, can easily prevent the misuse of a Good Samaritan permit.

The Mining and Minerals Policy Act of 1970 (30 U.S.C. § 21(a)), specifically establishes the Congressional intent "to foster and encourage private enterprise in the development of economically sound and stable domestic mining, minerals, metal, and mineral reclamation industries." Including remining and reprocessing authority in Good Samaritan legislation is consistent with and promotes this Congressional intent.

We must ask ourselves what are the goals of Good Samaritan legislation? If a goal is to improve water quality, the environment and public safety by remediating and reclaiming Abandoned Mine Sites, which by definition have no current owner or financially responsible party, then Good Samaritan legislation must encourage and incentivize Good Samaritan cleanups. One way to do this is to allow the Good Samaritan to reprocess and remine.

9. Good Samaritan legislation should allow Good Samaritan actions at AMLs to qualify as off-site mitigation under the CWA for mining companies permitting new mines or expansion of existing mines. This would provide an additional incentive for a mining company to undertake a Good Samaritan cleanup while meeting the permitting requirements at new or expanded mines.

SUPERFUND IS NOT THE ANSWER

Some Members of Congress and anti-mining groups argue that instead of focusing on Good Samaritan legislation, Congress should fund the Superfund program and EPA, under the Superfund program, should address all Abandoned Mine Lands. In our opinion, this is a wrong-headed approach to remediating and reclaiming historic abandoned mine lands.

Superfund does not have a very good track record at mine sites. Superfund was not designed to address natural processes that result in contaminated watersheds at AMLs. The historic mining communities of Aspen and Leadville in Colorado, Butte, Montana, Triumph, Idaho and the Bunker Hill site in northern Idaho's Silver Valley all have experienced first hand the failures of Superfund and the costly results of misguided policies and millions of dollars wasted on legal delays and repet-

itive studies. Of the billions of dollars spent of Superfund efforts, only 12% of those moneys have actually gone into cleaning up the environment while the balance went to legal and consulting fees.

In each of the Superfund sites cited above, the cleanup costs have exceeded reasonable estimates by a magnitude of three to five times. Bunker Hill is a prime example of the waste that occurs when an EPA-led Superfund effort is undertaken at mine sites. This can be demonstrated by comparing Bunker Hill with another example from the Silver Valley in northern Idaho.

Just outside the Bunker Hill Superfund site are many historic mining sites on Nine Mile and Canyon Creeks. Two mining companies working together with the State of Idaho were able to cleanup and remove historic mine wastes, tailings and waste rock piles from Nine Mile and Canyon Creeks, and restore fish habitat on the two creeks at cleanup costs one-fourth to one-fifth the cleanup costs incurred by EPA under Superfund on a per-cubic-yard of material removed basis.

I have visited these sites on at least three occasions and can personally testify to the outstanding remediation and reclamation on Canyon and Nine Mile Creeks, and that there has been substantial improvement in water quality as a result of these efforts. And, the work is done, unlike the work at Superfund sites which seems to never end.

There may be some sites for which Superfund is the appropriate remedy, but let's not limit the tools we have in the toolbox. Thoughtful and effective Good Samaritan legislation that encourages and incentivizes Good Samaritans is an important tool to add to the Abandoned Mine Land remediation and reclamation toolbox.

CURRENT GOOD SAMARITAN PROPOSALS

Our members are familiar with all Good Samaritan legislation that has been drafted and introduced over the past ten years. While we applaud any and all efforts to advance the Good Samaritan concept, our analysis of most Good Samaritan legislation introduced is that it is not intended for use by the mining industry. This is especially true of the Administration's bill. This not only disappoints our members, it would be a huge opportunity lost for the nation and for the environment if mining companies were not allowed to utilize Good Samaritan legislation.

With respect to the two bills that have been introduced in the Senate, the Administration's bill introduced by Chairman Inhofe, and S. 1848 introduced by Senators Salazar and Allard from Colorado, we believe S. 1848 is clearly the better bill and is a good starting point. We also believe that S. 1848 can and should be improved to ensure that it results in on-the-ground Good Samaritan projects at AML sites. S. 1848 already incorporates many of the nine (9) concepts listed above, and could be improved by: 1) providing a mechanism for conducting site investigations without incurring environmental liability and without having to go through the full permitting process; 2) the PRP search should be significantly streamlined and eliminated when only private monies are funding the cleanup; and 3) any restrictions on the ability of a mining company or other Good Samaritan to remine, remove and reprocess ores and other waste materials from a mine site should be eliminated.

The Administration's bill, as currently drafted, is pretty much a non-starter for our members. The major problems our members have with this bill are: 1) the liability relief provision is too restrictive; 2) the PRP search requirements are too cumbersome and costly; 3) the permitting process is too complex and rigid; 4) a full PRP search and certification is required for privately funded cleanups; 5) the definition of a Good Samaritan is too limiting—merely appearing in the chain of title should not disqualify someone; and 6) there are too many restrictions on remining and reprocessing. Significant on-the-ground Good Samaritan activities at AMLs are not going to take place under the Administration's bill without significant changes.

CONCLUSION

Industry wants to see abandoned mines cleaned up. After all, they are our dirty pictures, our Achilles Heel. Mining opponents use pictures of historic, unreclaimed abandoned mines to foment public opposition to new mine proposals. Industry wants to see AMLs remediated and reclaimed as much as anyone, but we need your help. The mining industry has the desire, the experience, the technology, the expertise and the capital to remediate and reclaim AMLs. In fact, the mining industry has more experience and expertise than all other potential Good Samaritans put together. Effective Good Samaritan legislation makes sense and can be a win-win-win-win for the environment, for the Good Samaritan, for the community, and for society. We applaud the Chairman for holding this hearing and look forward to working with him to produce Good Samaritan legislation that will actually result in on-the-ground Good Samaritan cleanups at Abandoned Mine sites.

I will be happy to answer any questions.

ROYALITIES AND ABANDONED MINE RECLAMATION

OCTOBER 2, 2007

INTRODUCTION AND EXECUTIVE SUMMARY

My name is Laura Skaer. I am the Executive Director of the Northwest Mining Association, a 113 year old non-profit mining industry trade association. Our offices are located in Spokane, Washington. NWMA has more than 1,650 members residing in 35 states and 6 Canadian provinces. Our members are actively involved in exploration, mining and reclamation operations on BLM and USFS administered land in every western state, in addition to private land. Our membership represents every facet of the mining industry, including geology, exploration, mining, reclamation, engineering, equipment manufacturing, technical services, and sales of equipment and supplies. Our broad-based membership includes many small miners and exploration geologists, as well as junior and large mining companies. More than 90% of our members are small businesses or work for small businesses. Our members have extensive first-hand experience with reclaiming active and inactive mine sites and remediating a variety of safety issues and environmental conditions at these sites.

Our members also have extensive knowledge of the scope of, and potential dangers posed by, hardrock abandoned mine lands (AMLs), as well as experience and expertise in dealing with those dangers. As I discuss below, AMLs in need of significant remediation are limited in number and not expected to increase. They comprise mines that were developed and abandoned before the advent of modern environmental laws in the 1970s and 1980s, and regulations that were updated as recently as 2001, including current comprehensive regulatory programs at both the federal and state levels that require mining companies to provide financial assurance to ensure that, at the end of exploration and/or mining operations, sufficient funds will be available to reclaim the sites if the operator becomes bankrupt or otherwise is unable to reclaim the sites.

Moreover, the Western Governors Association (WGA), the Bureau of Land Management (BLM), the US forest Service (USFS) and the non-partisan Center of the American West are all agreed that the vast majority of AMLs pose no dangers or, at most, safety rather than significant environmental hazards.

That being said, the mining industry supports the creation of a new federal AML fund, to be financed from royalties owing under any mining law legislation enacted by the Congress, to augment the monies available to State AML funds to address safety and, where needed, environmental hazards at AML sites. The industry also continues to strongly support the enactment of comprehensive Good Samaritan legislation that would allow mining companies with no previous involvement at an AML site to voluntary remediate and reclaim that site, in whole or in part, without the threat of potentially enormous liability under CERCLA, the Clean Water Act, and other federal and state environmental laws.

The mining industry has long been front and center in trying to deal responsibly with AMLs. Some of these efforts are documented in a study researched and authored by two of our members, Debra W. Struhsacker and Jeff W. Todd, and published in 1998 by the National Mining Association entitled "Reclaiming Inactive and Abandoned Mine Lands—What Really is Happening." (A copy of this study is being included in the record and is hereinafter cited as the "NMA Study"). This study presents compelling evidence that given the right opportunity, the mining industry can play a significant role in eliminating the safety hazards and improving the environment at abandoned and inactive mines.

ABANDONED MINE LANDS ARE HISTORIC

It is important to understand that when we talk about hardrock abandoned mine lands we are talking about a problem that was created in the past due to mining practices used at sites that were mined prior to the enactment of modern environmental laws and regulations. Table 1 lists the dates of development of many of the major mining districts in the country compared to the dates of enactment of many of the federal and state environmental laws and regulations that govern hardrock mining activities. As is clearly seen from this table, mining in the U.S. dates back to the 1820s, with significant historic mine development throughout the remainder of the 19th century and into the early part of the 20th century. Many of the AML sites that need attention were created in this timeframe.

It also is important to note during World Wars I and II, the federal government took over operations at many mines to produce the metals and minerals necessary

for the war efforts. The focus was on maximizing production and winning the war—not on using mining methods that were designed to protect the environment. The metals mined from these sites greatly benefited U.S. society by contributing to the country's victories in both wars. What we are left with today, however, are the environmental impacts created by these unregulated mining activities. Some of these war-efforts mines are now abandoned. Because the American public benefited in the past from mining of these sites, we now have a public responsibility to develop policies and funding mechanisms to reclaim these sites.

Modern mining started in the mid-1960s at about the same time that the country was developing an environmental awareness and when Congress was starting to enact environmental laws. Thus, as is readily apparent from Table 1, the U.S. environmental statutory and regulatory framework is a recent development compared to the history of mining in the U.S. Moreover, it is important to recognize that many of the laws and regulations governing hardrock mining are quite new—some are less than 20 years old. For example, Nevada's state reclamation law went into effect in 1990, only 17 years ago. BLM's regulations for hardrock mining, the 43 C.F.R. Subpart 3809 program, went into effect in 1981 and were substantially updated just six years ago in 2001.

The body of federal and state environmental laws and regulations shown in Table 1 has had a significant and positive impact on the way mining is now conducted in the U.S, resulting in a substantial reduction in environmental impacts and dramatic improvements in reclamation. As a result of these laws and regulations, the domestic hardrock mining industry of today is highly regulated and environmentally and socially responsible. Also, because these regulations require exploration and mining companies to provide financial assurance to guarantee reclamation at the end of the project, mines today will not become future AML sites. In the event a company goes bankrupt or defaults on its reclamation obligations, state and federal regulatory agencies will have bond monies that will be available to reclaim the site. Thus, the AML problem is a finite and historical problem and not one that will grow in the future.

As shown in Table 1, the US Forest Service adopted the 36 C.F.R. Part 228A surface management regulations governing hardrock mining operations on National Forest Lands in 1974. Six years later, in 1980, BLM enacted the 43 C.F.R. Subpart 3809 surface management regulations, which were substantially expanded and updated in 2000 and 2001. Both BLM's 3809 regulations and the U.S. Forest Services' 228A regulations require that all exploration and mining activities above casual use provide federal land managers with adequate financial assurance to ensure reclamation after completing the exploration or mining project. Because the underlying purpose of the financial assurance requirement is to ensure reclamation of the site in the event an operator goes bankrupt or fails to reclaim a site for some other reason, the amount of required financial assurance is based on what it would cost BLM or the U.S. Forest Service to reclaim the site using third-party contractors to do the work.

In addition to mandating reclamation and establishing financial assurance requirements, these comprehensive federal regulations also require compliance with all applicable state and federal environmental laws and regulations to protect the environment and to meet all applicable air quality, water quality and other environmental standards.

Additionally, all western public land states have enacted comprehensive regulatory programs that govern hardrock mining operations in their respective state. Like the federal financial assurance requirements, these state regulatory programs require the posting of adequate financial assurance or reclamation bonds in an amount equal to the cost that would be incurred by the government if it had to contract with a third party to remediate and reclaim the site. In many states, federal and state regulators with jurisdiction over mining work together to jointly manage the reclamation bonding programs. For example, in Nevada, the BLM, the U.S. Forest Service and the Nevada Division of Environmental Protection/Bureau of Mining Regulation and Reclamation have entered into a Memorandum of Understanding (MOU) that establishes procedures for coordinating the federal and state regulatory programs for mining. This MOU specifies that the federal and state agencies will work together to review reclamation cost estimates and to agree upon the required bond amount.

Table 1
Chronology of U.S. Mine Development and Enactment of Environmental Regulations

Year	Commencement of Mining Activities	Enactment of State and Federal Environmental Laws Affecting Mining
	Historic Mining	
1825	Upper Mississippi Valley lead mining (Southwestern Wisconsin and adjacent Iowa and Illinois)	
1849	California - gold mining	
1858	Colorado - precious metals mining	
1859	Nevada - Comstock Lode silver and gold mining	
1862	Montana - gold mining	
1863	Utah - copper mining	
late 1860s	Upper Mississippi Valley zinc mining (Southwestern Wisconsin and adjacent Iowa and Illinois)	
1875	South Dakota - Black Hills gold mining	
1877	Colorado - base metal mining	
1877	Arizona - copper mining	
1882	Montana - copper mining	
1906	First gold produced from Round Mountain, NV	
1917	Colorado - molybdenum mining	
	Modern Mining	
1965	Nevada - Carlin-type gold mining started	
1966		National Historic Preservation Act

Table 1
Chronology of U.S. Mine Development and Enactment of Environmental Regulations

Year	Commencement of Mining Activities	Enactment of State and Federal Environmental Laws Affecting Mining
1967		Air Quality Act
1969		National Environmental Policy Act (NEPA)
1970		Occupational Safety and Health Act (OSHA) Clean Air Act
1971		CA Environmental Quality Act (CEQA) MT Metal Mine Reclamation Act MT Environmental Policy Act (MEPA)
1972		Federal Water Pollution Control Act/Clean Water Act
1973		Endangered Species Act
1974	Mining begins at Henderson, CO	U.S. Forest Service Mining Regulations
1975	Modern mining begins at Round Mountain, NV	CA Surface Mined Land Reclamation Act (SMARA)
1976		Federal Land Policy and Management Act (FLPMA) Resource Conservation and Recovery Act (RCRA) Clean Water Act Amendments CO Mined Land Reclamation Act
1977		Mine Safety and Health Act (MSHA) Surface Mining Control and Reclamation Act (SMCRA) WI Metallic Mining Reclamation Act ID Surface Mining Act
1979		Archaeological Resources Protection Act
1980	Mining begins at Jerritt Canyon, NV	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA – Superfund)
1981		U.S. Bureau of Land Management Hardrock Mining Regulations
1982		SD Mined Land Reclamation Act
1984		Hazardous and Solid Waste Amendments
1985	Mining begins at McLaughlin, CA	
1985	Mining begins at Sleeper Mine, NV	

Table 1
Chronology of U.S. Mine Development and Enactment of Environmental Regulations

Year	Commencement of Mining Activities	Enactment of State and Federal Environmental Laws Affecting Mining
1986	Mining begins at Goldstrike Mine, NV	Superfund Amendments and Reauthorization Act
1987	Mining begins at Stillwater Mine, MT	UT Mined Land Reclamation Act
1989		NV Water Pollution Control Law NV Mined Land Reclamation Act
1990 - Present	On going development of Nevada's gold mining industry	Clean Air Act Amendments
2001		Updating of BLM's 43 C.F.R. 3809 regulations to include mandatory bonding requirements for all surface-disturbing activities

In 1999, the National Academy of Sciences National Research Council, in response to a request from Congress to assess the adequacy of the regulatory framework for hardrock mining on federal lands, found that " [t]he overall structure of the federal and state laws and regulations that provide mining-related environmental protection is complicated, but generally effective." Thus, these state and federal comprehensive regulatory programs together with financial assurance requirements work together to ensure that modern mining is environmentally responsible and that today's mines will be reclaimed.

THE VAST MAJORITY OF AML SITED DO NOT POSE SIGNIFICANT ENVIRONMENTAL PROBLEMS

It is important to understand that the vast majority of all hardrock AML sites are not problematic. The 1998 WGA report mentioned above estimated that more than 80% of AML sites create neither environmental nor immediate safety hazards. Where problems do exist, safety hazards are the primary problem although some AML sites have both environmental and safety issues.

The Center of the American West released a study in 2005 entitled "Cleanup of Abandoned Hardrock Mines in the West." The Center, which is affiliated with the University of Colorado, states at page 31 of its report that "only a small fraction of the 500,000 abandoned mines [identified by the Mineral Policy Center] are causing significant problems for water quality."

The 2007 USFS/BLM report cited above estimates that as many as 10% of the AML sites on USFS-or BLM-managed land may include environmental hazards and that the balance, or approximately 90%, are landscape disturbances or safety hazards. The finding that landscape disturbance and safety hazards comprise the bulk of the AML problem is consistent with other reports.

Although much of the public debate about the AML problems typically focuses on environmental issues, it is really safety hazards that deserve our immediate attention. Nearly every year, the country experiences one or more tragic accident or fatality at an AML site where somebody has fallen into or become trapped in an unreclaimed historic mine opening. AML safety hazards pose a far greater risk to the public than AML environmental problems. Therefore, we should focus first-priority AML funds on eliminating safety hazards at abandoned mine sites located near population centers and frequently used recreation areas. The 1998 NMA Study includes a comprehensive discussion of the types of safety hazards and environmental problems that exist at AML sites. Table 2 summarizes this discussion and lists the safety hazards and environmental problems that may occur at AML sites and the techniques used to address these hazards and problems. As stated above, landscape disturbances and safety hazards are the dominant problem at most AML sites. However, some sites may have a combination of landscape disturbance, safety hazards, and environmental problems.

Table 2
Generalized Characterization of Issues at AML Sites

Types of AML Problems	Examples of Typical Response Measures
Landscape Disturbances • Surface Disturbance that detracts from the aesthetic or natural appearance of the site, • Discarded equipment, abandoned buildings in disrepair	• Regrading and recontouring disturbed areas to blend in with the surround topography • Revegetating regraded areas with native species • Removing and properly disposing of discarded materials • Dismantling and disposal of buildings
Safety Hazards • Unrestricted and hazardous openings (shafts, adits, portals, stopes) • subsidence features and exploration excavations • Dangerous highwalls and open pits • Unsafe structures and dilapidated buildings	• Partial or complete backfilling of mine openings • Installation of gates, grates, and doors to impede access into mine openings, • Fencing around mine openings and hazardous highwalls and open pits • Signage to warn the public to avoid dangerous mine openings and highwalls • Removal of unsafe buildings.
Environmental Problems • Erodible waste rock dumps, tailings deposits, and smelter wastes • Acid rock drainage form mine openings, waste rock dumps, and tailings deposits • Blowing dust from tailings piles • Contaminated soils, • Chemical contamination from processing reagents	• Removing mine wastes and contaminated soils and placing in an authorized engineered structure, • Stabilizing the wastes in-situ with engineered covers to prevent wind erosion and to minimize infiltration of precipitation • Rerouting drainages to avoid contact with mine wastes • Installing plugs in portals with drainage

Although many of the above listed measures are expensive—especially those used to remediate environmental problems—they are technically straightforward, well understood, and are generally quite effective in improving environmental conditions at AML sites. The NMA Study identified a number of AML sites with safety hazards and/or environmental problems that were substantially reduced through the use of one or more of the measures listed in Table 2. It is important to understand, however, that each AML site is different. The measures shown in Table 2 to address landscape disturbance, safety hazards, and environmental problems at an AML site must be custom-tailored to fit the site-specific conditions of a particular site. A cookie-cutter, one-size-fits all approach will not achieve optimal results and may even fail to address the problem.

AML policy discussions have had a tendency to focus on the worst and most complex AML sites. This mischaracterization of the global AML problem has probably contributed to the lack of progress in developing federal policies and programs to solve the AML problem. The legislative dialogue about enacting Good Samaritan legislation has perhaps been made more difficult by focusing on sites with very serious or complex environmental and liability issues such as sites with acid drainage from underground mine openings which typically require extensive and costly remediation efforts. Although this type of site is serious and deserving of our immediate attention, it is not representative of the safety and environmental concerns at most AML sites. NWMA urges the Congress to take a closer look at the universe of AML sites in developing a Hardrock AML program and in addressing Good Samaritan legislation. Focusing solely on the most challenging AML sites is likely to produce programs with unwarranted complexity and costs.

HOW MANY AML SITES ARE THERE?

Historic abandoned hardrock mines have long been an issue of concern to industry, government and the public. Nearly everyone—especially the mining industry—agrees that eliminating AML sites is an important public policy objective. Past estimates of the scope of the historic AML problem range considerably, with various state and federal agencies and NGOs, estimating the number of unreclaimed hardrock mining sites. Part of the reason for the apparent disparity in these estimates is that these inventories have defined the term "site" in an inconsistent man-

ner. Some AML inventory efforts have considered a "site" to be any single opening, mining or exploration disturbance or mining related feature. Other state AML programs and the mining industry define "site" to include multiple features that can be addressed with coordinated and consolidated reclamation and remediation measures. Continued debate over a universal definition of AML "site" and development of a comprehensive hardrock AML inventory diverts attention and resources from the real issues that need to be addressed. Moreover, the progress being made in reclaiming AML sites demonstrates that it is not necessary to count every site prior to designing effective programs to address the problem.

In 1998, the Western Governors Association compiled an inventory of hardrock AML sites. This effort confirmed the results of earlier efforts—because each hardrock AML site varies in geology, geography, climate, terrain, hydrology, and types of AML features, and because there are different definitions of what constitutes an AML site, it is very difficult, if not impossible to produce a complete inventory of hardrock AML sites.

The most recent estimate of the number of AML sites is the just released U.S. Forest Service/ BLM report entitled Abandoned Mine Lands: A Decade of Progress Reclaiming Hardrock Mines. This report estimates that there are approximately 47,000 abandoned mine sites on more than 450 million acres of federal land managed by those two agencies.

While the desire to have a complete inventory of hardrock AML sites in the western US was perhaps an appropriate focus ten or fifteen years ago, we believe that enough is now known about the scope of the problem. This knowledge coupled with the fact that on-the-ground progress is being made towards solving the problem suggests to us that inventory efforts have reached a point of diminishing returns—it is time to stop counting sites and to focus all of our energy upon reclaiming them. Further efforts to develop a comprehensive inventory will not add much value or contribute anything new to solving the AML problem. The focus should thus be on-the-ground remediation and reclamation of known hardrock AML sites. We therefore urge this Subcommittee to eliminate or modify the provision in H.R. 2262 Section 403(c) that requires the Secretary to develop another AML inventory.

CURRENT HARDROCK AML PROGRAMS

Every western public land state, the BLM, the Forest Service, and the Army Corps of Engineers have abandoned mine land programs that address abating safety hazards, remediating environmental problems, and reclaiming disturbed landscapes associated with abandoned hardrock mining sites. The 1998 NMA Study cited above found that

> . . . state AML programs and industry-sponsored efforts have abated, reclaimed and remediated a number of high priority AML sites throughout the west. Private funding, equipment and labor for mining companies have been responsible for reclaiming and remediating many AML sites. Mining companies have spent tens of millions of dollars of voluntary on-the-ground cleanups and abatements of AML sites. (NMA Study at ES-2)

The Nevada Division of Minerals Abandoned Mine Lands program is representative of an effective state AML program. Nevada's AML program receives funding from a $1.50 fee on county mining claim filings and a one-time fee of $20 per acre of new permitted mining disturbance. The program is supplemented by small grants from BLM's abandoned mines program. In 2006, Nevada's AML program secured 540 hazards with approximately $350,000 in funding. The bulk of the work includes fencing or closing mine openings on federal public land. Since the inception of the program in 1987, the Nevada Division of Minerals has secured over 9,000 dangerous abandoned mine openings.

The Nevada Division of Minerals also serves as lead coordinator of the Nevada Abandoned Mine Land Environmental Task Force. The task force was formed in 1999 and is comprised of 13 state and federal agencies. The task force has overseen reclamation activities at 21 abandoned mines sites. The Army Corps of Engineers Restoration of Abandoned Mine Sites (RAMS) program has provided $4 million since 2000 to support development of closure plans and small, innovative, on-the-ground demonstration projects related to AML remediation and reclamation.

In addition to these efforts, a partnership, known as the Nevada Mine Backfill Program, between the BLM, the Division, the Nevada Mining Association and member companies, and others has resulted in the backfilling of 265 hazardous mine openings in Clark, Esmeralda, Nye and Washoe counties since 1999. This program received the Northwest Mining Association's Environmental Excellence Award in

2000 for protecting public health, safety and the environment through government/industry cooperation.

As demonstrated by the Nevada AML programs, much progress has been made by existing state AML programs, the BLM, USFS, RAMS and the industry. Mr. Tony Ferguson, Director of Minerals and Geology Management, USFS will be testifying to the excellent progress the BLM and USFS have made over the past decade in remediating and reclaiming abandoned mine sites.

INDUSTRY SUPPORTS CREATING A FEDERAL HARDROCK AML FUND

The mining industry supports creating a federal hardrock AML fund using revenue generated from a net royalty on new claims to support, augment and expand the existing AML programs that have proven to work. The fund also should allow for donations by persons, corporations, associations and foundations, and other monies that are appropriated by the Congress of the United States. These funds should be distributed to the states with hardrock AMLs to be administered by the respective state AML program. States that generate royalty revenues should be the first in line to receive federal AML funds.

While federal oversight might be appropriate, we do not support the establishment of a new, separate federal hardrock AML program or delegating the responsibility for hardrock AML remediation and reclamation to the Office of Surface Mining. This would be an inefficient use of the monies collected and would prevent the maximum amount of money going into on-the-ground remediation and reclamation. Hardrock AML sites are unique in their geology, geography, terrain and climate and a uniform, one-size-fits-all program will not work. The state AML programs are in the best position to prioritize where federal AML funds should be spent within the state and to carry out hardrock AML hazard abatement, remediation and reclamation, in cooperation with the industry and other groups, including NGOs. The NMA Study describes a streamlined interagency regulatory approach that was in place at the time in South Dakota that proved to be particularly effective in facilitating AML cleanup activities by minimizing protracted regulatory reviews and permit requirements and emphasizing on-the-ground measures.

THE NEED FOR GOOD SAMARITAN LEGISLATION

Although, as discussed above, some progress has been made by industry and existing State and federal AML programs in reducing safety hazards and remediating and reclaiming hardrock AMLs, the number one impediment to voluntarily cleanup of hardrock abandoned mine lands is the potential liability imposed by existing federal and state environmental laws, in particular the Clean Water Act (CWA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (commonly known as Superfund), the Resource Conservation & Recovery Act (RCRA), and the Toxic Substances Act. Under these laws, a mining company, state or federal agency, NGOs, individuals or other entities that begin to voluntarily remediate an abandoned mine site could potentially incur "cradle-to-grave" liability under the CWA, CERCLA, and other environmental laws, even though they did not cause or contribute to the environmental condition at the abandoned mine land site.

Furthermore, they could be required under the CWA to prevent discharges to surface waters from the AML in perpetuity, unless those discharges meet strict effluent limitations and do not result in exceedences of stringent water quality standards, something that may not be possible; and in any event, may be so expensive that no company, individual, or other entity would undertake a voluntary cleanup.

Virtually everyone who has looked at the AML issue in the west has recognized and documented the legal impediments to voluntary cleanup of AMLs and have urged that those impediments be eliminated. These groups include the Western Governors Association, the National Academy of Sciences, and the Center for the American West.

The time has come for Congress to adopt the recommendation from the National Academy of Sciences National Research Council's 1999 report to Congress and enact effective Good Samaritan legislation that will create a framework, with incentives and liability protection for numerous entities, including mining companies, local, state and federal agencies, NGOs, and tribes to voluntarily remediate of environmental problems caused by others at abandoned hardrock mine sites in the U.S. Several Good Samaritan bills have been introduced in the past, but only S. 1848, introduced last year by Senators Salazar and Allard, passed out of committee. We strongly supported, and continue to support the Salazar/Allard approach to Good Samaritan legislation.

No one knows more about reclaiming and remediating mine sites than the mining industry. The mining industry has the desire, the resources, expertise, experience,

and technology to effectively and efficiently assess the environmental and safety issues present at an AML and to properly remediate, reclaim and secure those sites. This often can be done in conjunction with reclamation activities at nearby active mines which the company operates, resulting in an efficient use of resources to improve the environment and enhance public safety.

In some cases, processing tailings, waste rock piles and other historic mining materials at AML sites may be the most efficient and least costly means of cleaning up a site. The waste from any reprocessing or remining activities would then be disposed of in a modern engineered facility that complies with current environmental standards and practices. Remining/reprocessing is thus an environmental remedy in the form of resource recovery and source reduction, both of which are EPA-favored responses for environmental cleanups and waste management. The net result would be an efficient use of resources to increase the ultimate recovery of metals the U.S. needs for strategic and economic purposes while improving the environment.

Given the desirability of achieving the resource recovery and source reduction that can result from reprocessing and remining, Good Samaritan legislation should allow the reprocessing, remining, and reuse of ores, minerals, waste rock piles and other materials existing at an AML, even if this results in the mining company or other Good Samaritan recovering metals from such materials and making some cost recovery and perhaps a little profit on its Good Samaritan operations. Given the volatility and cyclical nature of metal prices, it is just as likely that the costs of any Good Samaritan project would exceed the revenue generated by removal and reprocessing. In any event, these activities should be allowed as part of a Good Samaritan project only if the overall result would be an improvement in environmental conditions at the site.

The Mining and Minerals Policy Act of 1970 (30 U.S.C. § 21(a)), specifically establishes the Congressional intent "to foster and encourage private enterprise in the development of economically sound and stable domestic mining, minerals, metal, and mineral reclamation industries." Including remining and reprocessing authority in Good Samaritan legislation is consistent with and promotes this Congressional intent.

SUPERFUND IS NOT THE ANSWER

Some Members of Congress and NGOs argue that instead of enacting Good Samaritan legislation, Congress should fund the Superfund program and EPA, under the Superfund program, should address all hardrock abandoned mine lands. In our opinion, this is an inappropriate, inefficient, and costly approach to remediating and reclaiming historic abandoned mine lands. Moreover, the Superfund program is clearly not designed to address the most pressing and prevalent AML problem—abatement of safety hazards.

Superfund does not have a very good track record at mine sites. Superfund was not designed to address natural processes that result in contaminated watersheds at AMLs. The historic mining communities of Aspen and Leadville in Colorado, Butte, Montana, Triumph, Idaho and the Bunker Hill site in northern Idaho's Silver Valley all have experienced first hand the failures of Superfund and the costly results of misguided policies and millions of dollars wasted on legal delays and repetitive studies. Of the billions of dollars spent of Superfund efforts, only 12% of those moneys have actually gone into cleaning up the environment while the balance went to legal and consulting fees.

In each of the Superfund sites noted above, cleanup has cost three to five times more than reasonable estimates of what it should have cost. Bunker Hill is a prime example of the waste that occurs when an EPA-led Superfund effort is undertaken at mine sites. This can be demonstrated by comparing Bunker Hill with another example from the Silver Valley in northern Idaho.

There are many historic mining sites on Nine Mile and Canyon Creeks just outside the Bunker Hill Superfund site. Two mining companies working together with the State of Idaho were able to cleanup and remove historic mine wastes, tailings and waste rock piles from Nine Mile and Canyon Creeks, and restore fish habitat on the two creeks. This work was accomplished at cleanup costs that were one-fourth to one-fifth of the cleanup costs on a per-cubic-yard of material removed basis compared to EPA's Superfund costs.

I have visited these sites on three occasions and can personally testify to the outstanding remediation and reclamation on Canyon and Nine Mile Creeks, and the substantial improvement in water quality as a result of these efforts. And, the work has been completed, unlike the work at Superfund sites which seems to never end.

Finally, at the risk of stating the obvious, the Superfund legal procedures to identify Potentially Responsible Parties (PRPs), to assign joint and several liability, and

to recover costs are premised on the concept that the site in question has owners who can be identified and compelled to pay for the cleanup. None of these provisions are appropriate for AML sites, which by definition, no longer have an identifiable owner. Thus, the Superfund Program is not an ideal or even applicable template for most AML sites.

There may be some sites for which Superfund is the appropriate remedy, but let's not limit the tools we have in the toolbox. Thoughtful and effective Good Samaritan legislation that encourages and incentivizes Good Samaritans is an important tool to add to the Abandoned Mine Land remediation and reclamation toolbox.

CONCLUSION

Industry wants to see abandoned mines cleaned up. After all, they are our dirty pictures, and an albatross hanging around our neck. Mining opponents use pictures of historic, unreclaimed abandoned mines to foment public opposition to new mine proposals. But it is time for this recrimination and finger pointing to stop and to start working together to solve this problem.

Industry wants to see AMLs remediated and reclaimed as much as anyone, but we need your help. The mining industry has the desire, the experience, the technology, the expertise and the capital to remediate and reclaim AMLs. In fact, the mining industry has more experience and expertise than all other potential Good Samaritans put together. A federal hardrock AML fund using revenue generated from royalties on new claims combined with effective Good Samaritan legislation to encourage private-sector reclamation efforts offers the best opportunity to expedite safety hazard abatement, remediation and reclamation of hardrock AML sites, and create a win-win-win-win for the environment, for the Good Samaritan, for the community, and for society.

We applaud the Chairman for holding this hearing and look forward to working with him to produce constructive amendments to the Mining Law that will provide the certainty, financial and regulatory framework necessary to maintain a prosperous domestic mining industry that will be able to generate revenues from a royalty on new claims to provide an additional funding source to augment existing state, federal and industry AML remediation and reclamation efforts. Good Samaritan legislation is essential if we truly want to address the historic AML problem.

I thank you for this opportunity to testify on this important issue and will be happy to answer any questions.

NEW MEXICO OIL AND GAS ASSOCIATION,
March 7, 2008.

Hon. PETE V. DOMENICI,
328 Hart Senate Office Building, 2nd and C Streets, NE, Washington, DC.

DEAR SENATOR DOMENICI: I am writing to ask for your support in renewing uranium mining in the state of New Mexico. Since 1972, safety regulations and education have made uranium mining no more dangerous than any other kind of extraction industry.

The uranium industry has undergone a dramatic transformation since the last mining cycle ended in the 1980s. These improvements will allow the industry to meet its safety and environmental responsibilities. This should alleviate many of the fears and misconceptions that have plagued the return of uranium mining in western New Mexico.

Today, there are state and federal agencies that regulate and ensure uranium mining is safe for the communities and the environment. These agencies such as the EPA, and Mine Safety and Health Administration, as well as the New Mexico Environment Department and the Energy, Mineral and Natural Resources Department were not in existence during the 1950s. Mining companies are now closely regulated and watched by these agencies, guaranteeing that their operations are safe for the workers and the environment.

New Mexico has a unique opportunity with the return of the uranium industry, in Lea County construction is underway for a uranium enrichment plant, and another facility is being proposed for Eddy County. Also in Southeast New Mexico is the WIPP facility which has an excellent safety record in both the storage and transportation of nuclear waste. It would be unfortunate if those facilities are unable to process uranium that is recovered from the Grants Mineral Belt.

Sincerely,

BOB GALLAGHER.

STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

MODERN MINING NEED A MODERN MINING LAW

Unlike other extractive industries, there is no environmental law written specifically to govern hardrock mining. Instead, a patchwork of federal and state laws and regulations attempts to fill in the holes.

As modern mining problems have demonstrated, the current legal and regulatory system fails to protect western water resources.

MODERN MINING BANKRUPTCIES

The underbonding of current operations is a serious problem, because modern mines regularly go bankrupt. In the past twenty years, at least 16 modern mines have gone bankrupt.

Mine Name	Owner	Location	Year Operation Began	Year Bankruptcy Began
Illinois Creek Mine	USMX/Dakota Mining	Alaska	1997	1999
Summitville Mine	Galactic Resources	Colorado	1986	1992
Black Pine Mine	Pegasus Gold	Idaho	1992	1998
Beal Mountain Mine	Pegasus Gold	Montana	1988	1998
Zortman-Landusky Mine	Pegasus Gold	Montana	1979	1998
Basin Creek Mine	Pegasus Gold	Montana	1988	1998
Paradise Peak Mine	Arimetco International	Nevada	1989	1997
Aurora Partnership Mine	Nevada Goldfields	Nevada	1987	1999
Gold Bar Mine	Atlas Gold Mining	Nevada	1989	1999
Mount Hamilton Mine	Rea Gold Corporation	Nevada	1994	1998
Easy Junior Mine	Alta Gold	Nevada	1994	1999
Kinsley Mountain Mine	Alta Gold	Nevada	1995	1999
Griffon Mine	Alta Gold	Nevada	1997	1999
Olinghouse Mine	Alta Gold	Nevada	1999	1999
Formosa Mine	Formosa Exploration	Oregon	1990	1997
Gilt Edge Mine	Dakota Mining	South Dakota	1986	1999

MODERN MINING GONE AWRY—5 CASE STUDIES

Idaho: Grouse Creek Mine

The Grouse Creek mine, located adjacent to the largest wilderness complex in the lower 48 states, was heralded as a "state-of-the-art" mine when it began operations in 1994. Just three years later, the mine shut its doors—producing no profits and leaving behind a legacy of long-term water pollution. The Grouse Creek mine was permitted as a "zero discharge facility." Yet, soon after mining began, the tailings impoundment began to leak cyanide. As a result of on-going violations, the Forest Service posted signs which warned, "Caution, do not drink this water." In 2003, the Forest Service declared the mine site an "imminent and substantial endangerment." Cleanup activities are on-going.

Oregon: Formosa Mine

In 1991, during a period of high metal prices, Canadian start-up Formosa Exploration Inc. launched a copper zinc mine on 76 acres of federal (BLM) and private land near the town of Riddle in southwest Oregon. The mine folded 2 1/2 years later in 1994 as prices slumped. According to the State of Oregon, the mine has contaminated 18 miles of the Oregon's Umpqua watershed (Middle Creek and South Fork of Middle Creek and Cow Creek)—eliminating prime habitat for the threatened Oregon coast Coho salmon and steelhead. So severe is the pollution that even insect life is gone in the upper reaches of the creeks, along with any chance of supporting fisheries.

Montana: Beal Mountain Mine

The Beal Mountain Mine, located on the Beaverhead Deerlodge National Forest, operated from 1989–998. When the mine was permitted, the Environmental Analysis concluded that the operation of the mine would have no impacts to water quality, because "there will be no discharge of mine or process water to surface waters." The agencies were wrong. Although the mine ceased operating years ago, it has continued to pollute neighboring streams with cyanide, selenium and copper at levels that harm aquatic life. Scientists have also determined that trout in water downstream of the mine are contaminated with harmful amounts of selenium caused by mining activities. Warren McCullough, who is responsible for enforcing state mine permit laws for Montana DEQ, told the Montana Standard in July 2003 that the aftermath of the closed Beal Mountain Mine is "not going to be something that we're ever going to be able to walk away from." The State has determined that contaminated runoff from the mine will have to be treated in perpetuity.

Montana: Kendall Mine

The Kendall Mine, an open pit, cyanide-leach mine located northwest of Lewistown, Montana, was permitted in 1989. The mine caused extensive water quality and quantity problems including numerous cyanide spills. In addition, precipitation flowing through the waste rock piles caused extensive contamination of groundwater and surface water. In 1998, the State of Montana ordered Canyon Resources, the owner of the mine, to pay $300,000 for polluting downstream waters with cyanide, selenium, arsenic and thallium. Canyon Resources claimed it did not have the financial resources to pay the fine. In 2002, Canyon finally paid the State a reduced penalty of $132,000—with only $13,000 in cash and the balance in mineral rights transferred from the company to the state. In October, 2001, six families who live downstream of the mine filed suit against the company for damages to their water supplies and private property. State officials have determined that long-term water treatment will be required at the mine.

Nevada: Jerritt Canyon

Queenstake's Jerritt Canyon Mine in northern Nevada, which was permitted in 1980, has been releasing massive unreported amounts of mercury into the air. Emissions data, obtained from the Nevada Department of Environmental Protection (NDEP) and made public in June of 2007, indicates that the mine may have released as much as 6,000–8,000 pounds of mercury air pollution in 2005 and 2006, yet it reported only 300-400 pounds to state and federal agencies for those years. Gold mines are the fifth largest source of mercury air emissions in the U.S, producing 25% of all the mercury air emissions west of Texas. Yet there are no federal regulations requiring gold mines to control their mercury emissions. Mercury is considered the most dangerous heavy metal because it is toxic to humans and moves freely through the environment.

ASSOCIATION OF COMMERCE AND INDUSTRY,
Albuquerque, NM, March 10, 2008.

Hon. PETE V. DOMENICI,
U.S. Senate, 328 Hart Senate Office Building, Washington, DC.

DEAR SENATOR DOMENICI: Today I am contacting you to ask for your assistance in helping to jump start the New Mexican economy as well as meeting our nation's energy needs. I am speaking about renewed uranium mining in New Mexico and the positive impact it could have on our state's economy.

Now, more than ever, we need our congressional leaders to help remove the road blocks that stand in the way of uranium mining in our state. Bans on mining by the Navajos, increased indifference at the Nuclear Regulatory Commission and administrative and bureaucratic snafus have made it more difficult for this important activity to take place. As our nation continues to depend on energy sources from unstable parts of the world, we need to actively pursue opportunities here in our own backyard.

In closing, we ask that you do everything in your power to bring uranium mining back to New Mexico. It will surely make our state stronger economically and our nation more energy independent.

Thank you for your attention to this matter.

Sincerely,

DR. BEVERLEE J. MCCLURE,
President & CEO.

UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CENTER,
COLLEGE OF PHARMACY,
Albuquerque, NM, March 7, 2008.

Hon. PETE V. DOMENICI,
U.S. Senate, 328 Hart Senate Senate Office Building, Washington, DC.

DEAR SENATOR DOMENICI: I am writing today to express my support for renewed uranium mining in New Mexico and request your assistance in educating the public on the issue of uranium mining as well as supporting legislation that will remove impediments to renewed mining in the state.

Previously, New Mexico served as a top U.S. uranium production area and today the state stands to gain several billions of dollars in royalities and tax revenues, in addition to an estimated 3,000+ direct jobs, from renewed uranium mining.

Uranium mining could also support institutes for research and medicine such as the New Mexico Center for Isotopes in Medicine which brings in a highly skilled workforce, new products and services and business activities.

Moreover, the uranium mining industry understands that its future rests on extraction operations that are safe, clean and responsible to the workers, the public and the environment.

With your support, New Mexico has the potential to position itself as a leading force in solving our nation's energy problems by further meeting our energy demands. I appreciate your leadership on this issue in the Senate and look forward to working with you in the future.

Sincerely,

DR. JOHN A. PIEPER,
Dean and Professor.

CITIZENS' ALLIANCE FOR RESPONSIBLE ENERGY,
Albuquerque, NM, March 11, 2008.

Hon. PETE V. DOMENICI,
U.S. Senate, 328 Hart Senate Office Building, Washington, DC.

DEAR SENATOR DOMENICI: There is a much needed buzz here in New Mexico that centers around Cibola and McKinley counties. People are excited about the return of uranium mining to the region and the jobs that will be created. As the executive director of Citizens' Alliance for Responsible Energy, I also support the return of the uranium industry as uranium is an important component in the renaissance of clean nuclear energy.

The uranium industry has undergone a dramatic transformation since the last mining cycle ended in the 1980's. These improvements will allow the industry to meet its safety and environmental responsibilities. This should alleviate many of the fears and misconceptions that have plagued the return of uranium mining in western New Mexico.

Today, there are state and federal agencies that regulate and ensure uranium mining is safe for the communities and the environment. These agencies such as the EPA, and Mine Safety and Health Administration, as well as the New Mexico Environment Department and the Energy, Mineral and Natural Resources Department were not in existence during the 1950's. Mining companies are now closely regulated and watched by these agencies, guaranteeing that their operations are safe for the workers and the environment.

Since 1972, safety regulations and education have made uranium mining no more dangerous than any other kind of extraction industry. The opposition to mining stems from a lack of information, and when provided with current facts I am confident that these groups will come to welcome the uranium industry back to the area. I urge you to endorse the revival of uranium mining in New Mexico.

Thanks for CARE-ing!

MARITA NOON,
Executive Director.

STATEMENT OF JON J. INDALL, URANIUM PRODUCERS OF AMERICA, SANTA FE, NM

The Uranium Producers of America ("UPA") is a group of domestic uranium mining companies who work together to promote the viability of the domestic uranium industry. UPA companies have operations in New Mexico, Texas, Wyoming, Nebraska, Colorado, Utah, Arizona and South Dakota. We would like to take this opportunity to submit this letter for the record on the March 12, 2008 Senate Committee on Energy and Natural Resources hearing on Abandoned Mines and Ura-

nium Mining. Certain comments made at the hearing contain what we believe to be inaccurate information, and we would like to provide the following clarifications and corrections for the record.

With respect to the testimony provided about abandoned hardrock mines, we have attached the Office of Surface Mining Reclamation and Enforcement Annual Evaluation Report for the year 2005, prepared by the Navajo Nation Abandoned Mine Lands Reclamation Program. This report indicates that the Navajo Abandoned Mine Lands Reclamation Program has reclaimed 913 of 1,032 uranium mines located on the Reservation, at a cost of $23 million dollars. The facts set forth in this report are inconsistent with statements that have been made to the Committee on the extent of the sites remaining to be reclaimed on the Navajo Reservation and the costs thereof.

An additional area of misinformation concerns the alleged cancer incidence rates that are claimed to have been caused by historical uranium mining. The following statistics from the University of New Mexico Cancer Research Center ("CRS"), the recognized authority for cancer research in New Mexico, confirms that the cancer incident rates for McKinley and San Juan Counties, which are largely encompassed by the Navajo Reservation, are far lower than the average rate among American Indians in other New Mexico counties where there is no known uranium occurrence or history of uranium mining. The following data was obtained from CRS:[1]

> Cancer mortality rates for American Indians (AI's) from 2000–2004 were higher for Taos County (159-198/100,000) than McKinley (135-148/100,000). There are no uranium mines in Taos County. The cancer mortality rates for non-Hispanic whites (185-196/100,000) in McKinley County were also higher than that of American Indians.
>
> Cancer incidence rates in Taos and Santa Fe County are 369-393/100,000; McKinley is 267-293/100,000 and Cibola is 53-211/100,000. Again, counties with uranium mining are less than those without uranium mining.

In 2006, the Indian Health Service reported:

> The American Indian and Alaska Native People have long experienced lower health status when compared with other Americans. Lower life expectancy and the disproportionate disease burden exist perhaps because of inadequate education, disproportionate poverty, discrimination in the delivery of health services and cultural differences. These are broad quality of life issues rooted in economic adversity and poor social conditions.[2]

These statistics belie the charges that uranium mining led to serious cancer outbreaks in McKinley and Cibola Counties.

An additional area of misinformation centers around the Church Rock mill tailings spill that occurred in 1979. While this was a serious event, the results of the spill were not as harmful as some suggest. The Church Rock incident was reported upon in the Journal of the Health Physics in Volume 47, Number 1, July 1984, in an article entitled "The Assessment of Human Exposure to Radionuclides from a Uranium Mill Tailings Release and Mine Dewatering Effluent." This report was authored by two staff members of the U.S. Center for Disease Control, two staff members of the New Mexico Health and Environment Department, and a staff member of the U.S. Environment Protection Agency. Two powerful conclusions were reached in this report:

> A review of state and federal regulations that pertain to the ingestion doses calculated from the Church Rock data indicated that no exposure limits were exceeded by the spill, or through chronic exposure to mine dewatering effluent.
>
> In light of the currently known cancer incidence and mortality risks associated with levels of radionuclides measured at Church Rock and Gallup, we conclude that the exposed populations are too small for investigators to detect increases in cancer mortality with acceptable levels of statistical power. In fact, it may be misleading to establish a (cancer) registry with the foreknowledge of low probability of detecting mortality increases.

These are examples of readily available factual data that are often overlooked in the debate over uranium mining. It is important that the discussions over new ura-

---

[1] Age Adjusted Invasive Cancer Incidence Rates by County in New Mexico, All Sites, American Indian 2000-2004, Total American Indian Population 200–2004, Age Adjusted to the 2000 U.S. Standard Million Population UNM Cancer Research Center website cancer rates info./nm/nmmort.html.

[2] Indian Health Disparities Report, January 2006.

nium mining should not dwell on the past, but instead should be directed to the new standards, procedures and technologies that will govern today's industry.

ATTACHMENT.—OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT ANNUAL EVALUATION REPORT

INTRODUCTION

This annual evaluation report is produced by the Office of Surface Mining (OSM) in fulfillment of its Statutory responsibility [under the Surface Mining Control and Reclamation Act of 1977, (SMCRA)] to annually assess the accomplishments of the Navajo Abandoned Mine Land Reclamation Program (NAMLRP). The NAMLRP is under the Executive Branch of the Navajo Nation Division of Natural Resources. The annual report consists of OSM's oversight findings based on field inspections and meetings with the Navajo Abandoned Mine Land Program during the 12-month evaluation period beginning July 1, 2004 and ending June 30, 2005.

The Office of Surface Mining Reclamation and Enforcement (OSM) is responsible for approving State and Tribal AML Reclamation Programs to carry out the goals of Title IV of SMCRA. The primary goal of Abandoned Mined Land (AML) Programs approved under the SMCRA, is to mitigate the effects of past coal mining by reclaiming abandoned coal mines and coal processing facilities. Emphasis is placed on first correcting the most serious problems endangering public health, safety, general welfare, and property. SMCRA provides for reclamation of both coal and non-coal mines abandoned prior to May 1977; however, coal mines generally have funding priority. Once a State or Tribal Program has certified that all of its priority one coal hazards have been reclaimed, SMCRA authorizes the use of State or Tribal AML funds for Public Facility or Infrastructure Projects (PFPs), as a way of off-setting past and present mining related impacts to affected communities.

On behalf of the Secretary of Interior, OSM administers the Abandoned Mine Lands (AML) Reclamation Fund by awarding grants to States and Indian Nations, to cover the costs associated with both program administration and project construction. The OSM Western Region's (OSMWR), Albuquerque Field Office (AFO) provides assistance to the NAMLRP and also evaluates NEPA compliance, inspects reclamation sites and PFP construction sites and summarizes the NAMLRP's 12-month accomplishments in an annual evaluation report (AER).

PART I. GENERAL INFORMATION

Program History

On May 16, 1988, OSM approved the Navajo Abandoned Mine Land Reclamation Program and associated Navajo AML Code/Plan. This approval provided authority for the Navajo Nation to use AML funds to reclaim abandoned mines on the Navajo Nation. NAMLRP did not apply for an Emergency Program, so OSM retained the authority for reclamation of "emergency" AML projects.

On May 4, 1994, the Secretary of Interior concurred with the NAMLRP's certification that all known eligible priority-1 and priority-2 abandoned coal mines were reclaimed. Since receiving certification in May 1994, the NAMLRP used its AML funds almost exclusively for reclamation of eligible abandoned non-coal (uranium and some copper) mines. The Northern Navajo AML Reclamation Project was the final non-coal reclamation project in the NAMLRP's AMLIS inventory. It was successfully completed in May 2004. For the most part, this project completed their AML inventory of non-coal sites, however, a few small abandoned coal mine sites; and gob piles have since been identified that were added to the inventory for reclamation. In addition, Navajo AML also continually monitors and addresses any maintenance needs that arise on past reclamation work. NAMLRP contracts carry a 2-year warranty; however, any older reclamation maintenance needs must be completed under new contracts. Navajo AML has also secured funding, for a couple of small coal outcrop fires in 2004 and 2005.

In 2001, the NAMLRP amended its Navajo AML Reclamation Plan/Code to provide the authority to use AML funds for the construction of public facilities as a means of mitigating or offsetting current and past mining related impacts to impacted communities. In 2002, the NAMLRP funded its first Public Facility Projects (PFP). In 2005, AML construction funds were used for construction of PFPs, reclamation of newly identified coal sites and for maintenance of previously reclaimed coal and non-coal sites.

Maintenance projects entail the repair of previously reclaimed sites that have visibly eroded or where erosion appears eminent. PFPs primarily repair, expand or add new infrastructure (water, sewer, electric power, roads) or public buildings (schools, offices, senior centers, recreation centers, other public buildings).

The NAMLRP operates under an annual budget of approximately $2.28 Million. This figure represents the 10-year average distribution for the period beginning October 1, 1995 through September 30, 2004 and it translates to approximately 66.76% of its annual state share collections which averaged $3.42 M during this same period. The 33.24% of the Navajo AML fee collections that have not been distributed to the Navajo Nation; is called the Navajo Nation Tribal Share Balance. There was over $30M in the undistributed Navajo Nation Tribal Share Balance, as of September 30, 2004.

During EY-2005, NAMLRP had 10 PFPs in construction. Seven (7) of these PFPs (Moenave—Power Line Extension, Huerfano—Multi-Purpose Building, Dilkon—Sewage Lagoon, Ft. Defiance—Powerline Extension, Chinle Valley School—Group Home Renovation, Standing Rock—Chapter House, and Twin Lakes—Infrastructure for a Senior Citizens Center & Infrastructure) were completed during EY-2005. The other three (San Juan—Multi-Purpose Building, Coalmine Canyon Waterline Extension and the Nenahnezad—Navajo Preparatory School Renovation) were in construction but not completed as of the end of EY-2005.

In addition, during EY-2004 and the early part of EY-2005, NAMLRP completed the restoration of a historic building in Window Rock, Arizona that is now the current office location for the NAMLRP-Window Rock Office. The office was re-equipped and re-designed with open space and the computer network, etc. was installed during this same timeframe. This project was done with Navajo Nation Set-Aside funds. (See photos in the appendix to this report.)

In addition, during EY-2005 NAMLRP had one reclamation maintenance project in construction and a second (Chaco Plains) was in project development. A coal outcrop fire (Burnham #1) was fully addressed and extinguished. Another coal outcrop fire project (Burnham #2) was in project development and it will be addressed in EY-2006.

This is the fourth consecutive year that the NAMLRP used AML hinds to construct Public Facility Projects (PFPs). Almost all PFPs funded by the NAMLRP were jointly funded projects. Jointly funded projects are often referred to as leveraged projects, meaning that funding for the project consists not only of Navajo AML, funds but may also consist of funds from individual Navajo Nation Chapters, Tribal funds, State funds, or funds from other Federal agencies. In accordance with the NAMLRP's approved AML Plan, the amount of leverage funding is one of the items considered when selecting PFPs for funding. The concept of leveraged funding is intended to increase the overall benefit obtained from the limited amount of AML funds available to the Navajo Nation.

PFP submissions that were funded so far can be grouped into four main categories:

1) Facilities projects such as Chapter Houses, Community Centers, Multi-Purpose Buildings, Senior Citizen Centers and Head Start facilities;
2) Building renovation & improvement projects such as upgrades of plumbing and electrical systems.
3) Infrastructure projects such as water wells, water lines, sewer lines and electrical power lines, sanitation facilities, and road improvements;
4) Commercial/business development projects such as an Arts and Crafts Center.

Program Staffing

The NAMLRP has three office locations to serve the Navajo Nation. The main office is in Window Rock, Arizona, where the NAMLRP Department Manager and administration personnel are located as well as a couple of field personnel. Two field offices, the Shiprock, New Mexico office, and the Tuba City, Arizona Office are primarily responsible for AML, and PFP field activities. The NAMLRP currently has a staff of 26 full-time equivalent (FTE's) positions, two less than last year. Both the reclamation work and the public facility / infrastructure projects are being accomplished with this staffing. Approximately seven of the 28 occupied positions currently share time with the Navajo Nation's Uranium Mill Tailings Remedial Action Program (UMTRA), which is also under the direction of Ms. Madeline Roanhorse, Department Manager.

Grants and Financial Information

According to data published on OSM's Web Page, the State (Tribal) share distribution for FY-2005 was $2,156,869. The "undistributed" Tribal Share Balance for the Navajo Nation as of September 30, 2004 was over $30 M ($30,863,762). The Tribal Share Balance data for the end of the evaluation period (June 30, 2005) is not yet published and available. To date the Program has collected $92,845,835 in

Tribal Share fees and has spent a total of $61,982,073 of those Tribal Share fees, the vast majority of which has gone toward coal and uranium reclamation.

The following AML grants were either active or closed out during the evaluation period:

Grant Number	End of Grant Period	Amount
GR107810	12/31/03	$4,270,653.
GR207810	12/31/04	$8,249,799.
GR307810	12/31/05	$3,202,765.
GR407810	12/31/06	$4,044,524.
GR507810*	12/31/07	$3,112,749

*This is the FY-2005 grant award.

NAMLRP Department Manager (Director) also has responsibility for the Navajo UMTRA Program which operates in unison with the U.S. Department of Energy.

As mentioned before, the NAMLRP has office locations in Window Rock, Arizona, Tuba City, Arizona and Shiprock, New Mexico. All three offices work on both reclamation projects and public facility projects, including NEPA compliance. The three AML offices support each other and coordinate well on projects. Enthusiasm has been demonstrated in both ridding the Navajo Nation of mine related physical and environmental hazards and in developing and completing infrastructure and public facility projects for impacted Chapters. All three offices provide support and assistance to OSM in gathering information for oversight purposes and in leading and coordinating oversight inspection tours in the field for both PFPs and AML reclamation. This cooperation facilitates OSM's oversight of the Program and the preparation of annual reports.

NAMLRP staff continues to exhibit high dedication to the Program's objectives and morale appears to be high. NAMLRP routinely invites OSM to important events and meetings, both managers and staff are always professional and cordial. Action items and recommendations are always well received by the NAMLRP and are always carried out. The grants concern discussed above is beyond the control of NAMLRP, however, NAMLRP has fully cooperated with OSMAFO to get that concern resolved with their Finance Department.

Chapters and Tribal entities appear to hold the NAMLRP in high regard. The NAMLRP is known within the Navajo community for being responsive to community needs and concerns and for following through on its goals and objectives. Communities have also openly expressed their appreciation for the technical assistance that the NAMLRP has provided. That technical assistance has enabled Chapters to finalize project proposals by fulfilling grant requirements, facilitating the negotiation of other sources of leveraged funds and by assisting with the completion of project descriptions and justifications.

In 2004, the Shiprock and Tuba City offices were reorganized (streamlined) to facilitate joint cooperation on AML reclamation work and a mixture of PFPs. Also, staff and management have actively pursued various training opportunities. Many employees now have extensive experience with NEPA and the understanding of federal requirements for funding PFPs has greatly improved.

NAMLRP has been able to efficiently use its administration and construction grant funds. The NAMLRP is considered by OSM to be very cost effective. The amount of construction activities completed annually easily justify the Program's staffing level, in fact, the multi-faceted Program accomplishes a lot with a staff of only 26 FTE's, given the number of contracts active at one time, the distances between projects, the vastness of the Navajo Nation, the number of impacted Chapters, and the difficult terrain. What has been most important to OSM is that AML reclamation and PFP's have been consistently brought on line every year, contracts are let out, and construction is completed on schedule. As a result, the AMLIS inventory of non-coal reclamation was essentially completed in 2004, aside for annual maintenance projects and a few newly identified mine hazards that are addressed each year.

There is a tremendous need for new infrastructure and facilities such as schools, day care, health care, senior citizen centers, office space, etc., on the Navajo Nation. The PFP's completed by the NAMLRP have already improved living conditions for Chapter communities impacted by past and present mining activities.

As previously mentioned, so far project submissions can be grouped into four main categories:

1) Facility projects such as Chapter Houses, Community Centers, Senior Citizen Centers, Health Facilities, Multi-Purpose Buildings and Head Start or School facilities;

2) Building renovation & improvement projects such as upgrades of plumbing and electrical systems.

3) Infrastructure projects such as water lines, sewer lines, electrical lines, sanitation facilities, sewer/waste disposal sites and road improvements;

4) Commercial/business development projects such as an Arts and Crafts Mall.

The NAMLRP worked with its oversight committee, the Navajo Nation Resources Committee of the Navajo Nation Council, to develop selection procedures and criteria that in effect prioritize the selection and funding of PFP proposals on the Navajo Nation. However, within the scope of these eligibility requirements, each Chapter is allowed to identify its needs and develop its project proposals.

NAMLRP has developed several training presentations for development of PFPs such as planning, communication, writing grant proposals, environmental compliance, construction management, contract management, project management, and construction monitoring. The NAMLRP staff assigned to PFPs, routinely translate / interpret complex technical information for the public in English and/or Navajo as necessary. In addition, they provide assistance to the Chapters as necessary throughout the process.

Active Public Facility Projects

In 2002, the NAMLRP received their first PFP proposals in response to a Request for Proposals (RFP). In all, a total of 110 proposals were submitted to NAMLRP. A live member "Project Review Committee" was established, from respective Navajo Nation departments, to review and rank each of the proposals, in accordance with the project proposal procedures developed by the NAMLRP. Twenty (20) of the 110 project proposals were selected for funding. Nineteen of the 20 were funded using regular AML funds and one project was funded with AML set-aside funds. Some of the twenty project proposals were construction ready and others required assistance from NAMLRP in getting the Environmental Assessment or Categorical Exclusion ready for submission to OSM.

By the end of EY-2002 (September 30, 2002), NAMLRP had submitted 15 of the twenty PFP packages to OSM, each requesting that OSM issue a Findings of No Significant Impact (FONSI) and an Authorization to Proceed (ATP). OSM was able to issue a FONSI and an ATP for 14 of the 15 project submissions. One of the packages required additional NEPA documentation and was returned to NAMLRP (it was resubmitted during EY-2003). Thus, six of the original 20 projects remained to be approved.

ACCOMPLISHMENTS

Navajo AML has been able to promote our program through an effective Public Relations program that has been recognized by others. This has lead to five (5) OSM awards for our reclamation efforts and numerous partnering opportunities.

AML Problem Areas	Mineral	Total # mines	Total # reclaimed	# of Phases	# mines with Environmental Problems remaining	Total Cost (millions)	Comments
Coal Projects	Coal	264	264	n/a	0	3.2	
Bedabito	Uranium	90	81	4	18	1.9	OSM Award
Bidahochi	Uranium	2	2	1	0	0.05	
Black Mesa	Uranium	29	22	3	5	0.6	
* Cameron	Uranium	103	68	6	*0	7.0	
Coppermine	Copper	49	27	2	0	0.8	OSM Award
Cove	Uranium	231	202	4	84	2.7	2 OSM Awards
Eastern Agency	Uranium	15	14	1	4	0.34	
Monument Valley	Uranium	82	67	4	14	6.0	OSM Award
Oaksp./RedValley	Uranium	238	233	4	9	2.6	
Sanostee	Uranium	19	8	1	2	0.1	
Sweetwater	Uranium	48	42	2	13	0.26	
TseTah/Red Mesa	Uranium	179	178	3	17	1.4	
Total Summay	All	1,345	1,204	n/a	166	$ 27.0	5 OSM Awards
Uranium Mines only	Uranium	1,032	913		166	$ 23.0	4 OSM Awards

NOTE: The Environmental Problems are related to uranium mine waste that remains within the AML sites. Access to these mine waste is impossible due to the steep terrain of th mine sites, thus the areas of remaining concerns are located in the high mesas and/or mountainous regions. The *Cameron area is also an area of concern because the mine site are located close to the groundwater, thus concerns are for the geologic structure being the host to the uranium and not necessarily the uranium mine waste.

BENEFITS

○