S. HRG. 110–272

HARD-ROCK MINING ON FEDERAL LANDS

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

TO

RECEIVE TESTIMONY ON HARD-ROCK MINING ON FEDERAL LANDS

SEPTEMBER 27, 2007

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

U.S. GOVERNMENT PRINTING OFFICE

40–573 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) 512–2250 Mail: Stop SSOP, 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

APPENDIXES

APPENDIX I

APPENDIX II

HARD-ROCK MINING ON FEDERAL LANDS

THURSDAY, SEPTEMBER 27, 2007

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

The committee met, pursuant to notice, at 9:35 a.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 start the hearing. Thank you all for being here. This hearing is in regards to mining on Federal lands, a topic of interest to me, of course, because of the prevalence of mining in New Mexico and throughout the West.

The mining industry plays an important role in our country. It provides jobs, it fuels local economies, it produces raw materials for industry. It also contributes, substantially, to our national security.

At the same time, the mining industry has been subjected to criticism, on both fiscal and environmental grounds. From my perspective at least, some of that problem perhaps is a result of the Mining Law of 1872 and our failure to do anything to change that law in the last century and more.

Efforts to comprehensively reform the mining law have been ongoing, literally, for decades. Results have been elusive. Congress came close to enacting comprehensive reform in 1994. Congress has enacted moratoria on patent issuance, and has imposed claim maintenance fees through the appropriations process.

However, the problems with the Mining Law and criticism of its fiscal implications continue. The failure to collect any payment on hard-rock mineral production from Federal lands is a source of concern as is the continuation on the books of the patent system, under which titles to Federal lands can be conveyed for $2.50 to $5 per acre.

Also, there are those who argue that we must take additional steps to ensure that mining operations are conducted in an environmentally sound fashion. I understand that there may be renewed interest on the part of many, both in the industry and in the environmental community, in taking a serious look at reforming the Mining Law. In fact, there are growing number who say that this Congress is the time to achieve this long-awaited reform.

This is the first hearing before the committee in this Congress to address the important topic. We've asked two legal experts to testify, to help define and focus the legal issues related to mining

law reform, that would need to be addressed in any reform legislation. We will also hear from a representative of the mining industry and a representative of the environmental community. I look forward to hearing from the witnesses.

I know Senator Domenici was delayed a few minutes and is on his way, but let me just see if Senator Craig was prepared to make a short opening statement on his behalf, and then we'll go to the witnesses.

STATEMENT OF HON. LARRY E. CRAIG, U.S. SENATOR FROM IDAHO

Senator CRAIG. Mr. Chairman, I am prepared to make a statement. I'll certainly let Senator Domenici speak for himself, as it relates to this issue.

As you have said, we have attempted to visit reform of the 1872 Mining Law a good number of times over the years. I've been with you and Pete and a good many others in that effort. We've not been successful for a variety of reasons.

Clearly, during that time, some significant things have happened. Issues that nag us, as it relates to mining, are still out there. But America has also grown increasingly dependant upon minerals and mineral resources that no longer we produce. You know, whether it's, of course, the cars we drive and the catalytic converters or whether it's the pharmaceuticals that we use, minerals and metals, to our economy, are as or more important today than they have ever been.

I once heard the argument, "Oh, as we move into a high-tech economy, we certainly don't need to worry about minerals or metals." Quite the opposite is true. In this great time stretch that we've been involved with the 1872 Mining Law, and looking at its realities versus its myths—and there are myths versus realities with it—silver no longer is a numismatic metal. It's now an industrial metal, used in the high-tech industry and used in ways that are critical. Now, as the world economy emerges, in 2006, U.S. metal mines produced $23.5 billion worth of metal ores and generated 170,000 jobs. In every community, miners are paid more, paid well, have health benefits, than almost any other class of worker. That has been historically true.

So those 170,000 jobs remain very, very important jobs to this economy and to the small rural communities often times where the metal resource is, that that miner and that company that he works for are working on. So this—this remains something that you just don't sweep under the rug and it ought to remain something that we ought not intentionally handicap.

At the same time, while one, some would argue, "Gee whiz, we're operating off of a law that was crafted in 1872 for the purpose of property and discovery and ownership, that helped finance mining operations?" Let's also remember that that mining operation of today and that mining plan that must be submitted today, is subject to the Clean Air Act, and NEPA, and FLIPA, and all of the other environmental laws that are appropriate, every mining company must apply to today. That's part of a mining plan. That's part of signing off on a mining plan to allow that kind of operation.

What we've also found, is that we have made it so difficult, so complicated to startup a new discovery on public lands, that unless you are the big boys, the very deep-pocketed of the industry, you probably will not get that kind of operation started.

Lastly, let me say, Mr. Chairman, I've changed over time, the industry has changed, we've all changed. Idaho's no longer the dominant mining State that it was, but mining remains important to Idaho. Here's a front page of USAToday. It says, "Which State has the fastest growing economy?" It's Idaho, thriving quietly. The picture is the heart of the old Coeur d'Alene mining district, which was the lead silver, lead, zinc operators in the country when I first came to Congress. There was no operation bigger in the country, other than the copper of Arizona, and some of the phosphates around the country.

But having said that, when we talk about public lands and public land resources and the effective management of them, use of them, conservation of them, and preservation of them—when you're cutting a log on public lands, you pay a fee. When you're grazing on public lands, you pay a fee. When you're drilling on public lands, you pay a fee. I believe the mining industry ought to be paying a royalty.

But as you know, Mr. Chairman, it was the debate over how you apply a royalty, at what point. The 8 percent net smelter return royalty doesn't mean anything if there isn't an industry to apply it to. It is so easy to move offshore today, because in more instances the availability at less cost of the resource is offshore instead of onshore. Because of either limited access and/or costs that are related.

Secondly, while patenting may be the practice of the past, the investment longevity is not. In order for the industry to continue developing its resources and its investments, we have to have stable, long-lasting environments in which those investments can come about.

Our world has changed, our environmental concerns are real, the industry knows it, and over the last two decades, many of our mining industries are absolutely picture book perfect as you can be for an industry that disturbs the surface, that disturbs the undersurface, that processes, that uses chemicals, and all of those kinds of things to apply.

We know how important mining is to our country today and if we're going to remain, to some degree, flexible and independent; if we don't allow ourselves to walk down the road like we have with our hydrocarbons to a point where now we are trying to become independent, when we've become 60 percent dependant upon a very unfriendly world. We are now seeing petro-nationalism around the world that is restrictive to our accesses. Do we want to see, you know, mineral-nationalism? That says, "No America, you're going to walk the tightrope. You're the big consumer, you're going to pay the price."

I hope if we go at reform of the 1872 Mining Law—and I'm certainly willing to help do that—that we do it in a responsible and comprehensive way that helps us recognize the importance of the industry to our economy, and that economy to the local and small communities that it most oftentimes serves.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you. We have four witnesses. We have five votes starting at 11 o'clock. So let me just see if other members want to make short statements here. If they do, I'm sure that I will certainly do that.

Senator Domenici, did you wish to make a statement before we hear from witnesses?

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

Senator DOMENICI. I want you to put my statement in the record, first.

Then, I want to say that I am committed now, Mr. Chairman—having talked with you briefly yesterday and with a number of members of the committee on both sides—I'm committed to strike out with you, in an effort to produce a bipartisan reform of this old Mining Law.

We've done one piece of work that was needed by the country. It was big and tough and we did it on a bipartisan basis. There might be some that think I'm kidding, or that we can't do it. Not at all. I believe we can write a bipartisan bill, with you and I doing our share, and taking Senators with us that want to be meaningful participants. I think we can shake the country and shake the public domain and do something very positive for the country. I'm willing to try that.

I thank you for your words yesterday afternoon late, when you welcomed that statement. Therefore, my substantive statement is not that relevant. The important thing is we're going to try to do better.

Thank you.

[The prepared statement of Senator Domenici follows:]

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

Good morning. Senator Bingaman, thank you for scheduling this hearing. The Mining Law of 1872 has stood for 135 years without significant alteration. Efforts to reform this law have a storied and, at times, contentious history. Throughout this period, however, there has been one constant: mining has remained of great importance to our nation and to my own home State of New Mexico.

Today's conversation is a very important one, because I view this hearing as the first of several steps we need to take toward a bipartisan reform of the 1872 Mining Law. I have reached out to several of my colleagues to share my interest in undertaking the work needed to make reform a reality. This would not be the first time that we've considered changes to the Mining Law, but this time I would like to start with a clean slate. To do this, we must re-visit many issues related to the Mining Law, and I thank the witnesses for shouldering some of that burden.

Senator Bingaman has laid out the major issues before us today. In the larger picture, there are some important things to keep in mind as well, and I would like to discuss them in the context of another issue that this Committee is certainly familiar with; energy.

Trends in domestic minerals production are nearly identical to what we have seen of American energy resources in recent times. While our reliance on foreign sources of energy continues to increase, so too does our importation of foreign minerals. According to the U.S. Geologic Survey, in 2006, the U.S. met more than one third of its demand for 45 minerals through imports, and was 100% reliant upon imports for 17 of those 45. Americans spent nearly $177 billion on foreign minerals in 2006, a 28% increase from the previous year.

Unlike energy resources, however, we do not have alternatives to the individual mineral commodities. For example, while gasoline can be augmented with domestic

biofuels, the periodic table precludes us from seeking alternatives to aluminum, graphite, steel, or any other mineral commodity. It is for this reason that reform efforts must maintain, or increase, the viability of domestic minerals production.

The impact of growth in developing countries on mineral prices is also comparable to the energy situation in which we find ourselves. Times are good for the minerals industry. Between 2005 and 2006, the value of minerals climbed roughly 18 percent, and spending on exploration worldwide topped $7 billion - a 40% increase over 2005.

However, as I have previously noted, we find that domestic minerals exploration also mimics domestic energy trends. Had these increases in exploration occurred in 1993, the United States would have had a 20 percent slice of the $7 billion dollar pie. Our country only managed to attract 8 percent of worldwide investment in 2006, however, despite having reserves of more commodity minerals than any other country in the world.

Of course, there are also many differences between the state of domestic energy and the state of our mineral production. However, these differences are not positive developments—instead, they represent warning signs and the need for balanced reform. While there is a great deal of support for weaning ourselves off of fossil fuels, for instance, doing so with minerals is not only impractical, but likely counterproductive as well.

Consider the fact that a hybrid vehicle on the road now uses twice as much copper as an S-U-V, or the importance of platinum to the next generation of clean, hydrogen fuel-cell vehicles. These concerns are compounded by the very difficult task of finding minerals in the first place.

According to the National Academies of Science, "only a very small portion of Earth's continental crust (less than 0.01%) contains economically viable mineral deposits." Even a brief review of the complexities related to minerals production makes clear that the task of reform is a complicated one.

In considering changes to the Mining Law of 1872 we must balance these complexities with a number of priorities, including: a fair return to the taxpayer on American resources, providing miners with stable conditions to attract investment, efficient resource management to protect the environment, and ensuring the clean-up of abandoned mines in the U.S.

I hope that we will hear from the witnesses their opinions on whether these objectives are being met. To the extent that these objectives are not being met, we welcome constructive recommendations on how the Committee might address these issues in a meaningful way.

It is worth re-emphasizing that a robust, stable, domestic mining industry is extremely important to our economic security. By pursuing balanced reforms to the Mining Law in this Congress-a process which starts today, in this room-we will help ensure the vitality of this sector for many more years to come.

The CHAIRMAN. Thank you very much. I do welcome the effort to come together around a joint piece of legislation we can move ahead with.

Senator Salazar.

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

Senator SALAZAR. Thank you very much, Senator Bingaman. I'll put my statement in the record as well.

I want to make just two quick comments not in my statement. The first is that I, too, look forward to working with you as Chairman and with Senator Domenici and other members of this committee, to see whether we can move comprehensive reform forward, with the 1872 Mining Law, that is thoughtful and that makes sense, both for mining on our public lands, as well as for protection of the environment.

The second thing I want to say is that as part of this effort, I do hope we are able to address an age-old problem in the West. That's the age-old problem of abandoned mines, whether it's in New Mexico, Arizona, Idaho, or Colorado. It's a huge issue that's been unaddressed for a very, very long time.

I had legislation last year, which we had hoped to be able to get through. Unfortunately, we were not able to get it through, but we've been working with the Western Governor's Association and others to try to see whether we could get Good Samaritan legislation through, and I'm hopeful that that is part of what we consider as we move forward with this.

Thank you very much.

[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 hard-rock mining issues. Hard-rock mining issues are particularly important in the Western United States. While much has changed in the West in the past 135 years, the Mining Law of 1872 has remained essentially unchanged since it was passed. I look forward to hearing from our witnesses today about the issues they believe Congress should consider when looking at revisions to the 1872 Mining Law.

Today, however, I want to speak about 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.

The Western United States is pockmarked with old mines and mining residues. At these abandoned mines, there are frequently open shafts and dangerous structures that create real physical hazards to humans and wildlife. Earlier this month, a thirteen year old girl tragically died in Arizona when the all-terrain vehicle she was riding in fell through a brush-covered abandoned mine shaft.

In addition to the hazards posed to humans, many of these sites continuously pollute the water, the land, and the air. Our rivers and streams suffer particularly from these old mines. Erosion and sedimentation, acid rock drainage, heavy metals leaching into streams, sulfide waste piles, contaminated soils, and improperly disposed mining processing chemicals are found at 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. There is no single database that tracks these abandoned mines, and no consistent way of reporting them. Information gleaned from numerous state and federal databases show these abandoned mines are a problem in many western states. For example, there are estimated to be 100,000 abandoned mine sites in Arizona, 50,000 in Nevada, 22,000 in Colorado, and 20,000 in California, New Mexico and Utah. Clearly this is not a small problem.

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.

Fortunately, some people and some companies are willing to clean up mine sites in whole or in part, even though they are not legally responsible. These are Good Samaritans.

They act for many reasons. Some are people who live nearby and suffer directly from the pollution. Others are companies that want to perform a service to the community and to address less fortunate aspects of the history of the mining industry.

Unfortunately, though, our environmental laws create great risks of broad, long term, and very expensive liabilities for anyone who acts at a mine site, even if they act only as Good Samaritans. This problem understandably dissuades Good Samaritans from cleaning mine sites.

In the 109th Congress, I introduced S. 1848, the Cleanup of Abandoned and Inactive Mines Act. My bill enjoyed strong bipartisan support and was reported favorably out of the Environment and Public Works Committee, but we were unable to overcome objections to the bill on the Senate floor. Since my bill was introduced, I am pleased to note that the Western Governors' Association has convened several stakeholder meetings to find common ground on important issues dealing with Good Samaritan cleanups including the scope of liability protection, cleanup standards, state program requirements, and financial assurances that would be required. I also am pleased to note that on June 6, 2007, the Environmental Protection Agency issued Interim Guiding Principles for Good Samaritan Projects at Orphan Mine Sites, and a model Good Samaritan Comfort/Status Letter and a model Good Samaritan Settlement Agreement and Order for Removal Actions at Orphan Mine Sites.

I believe we are closer than we have ever been in the past to moving forward with Congressional action that will allow Good Samaritan cleanups to take place. I plan

to reintroduce a bill in this session of Congress that builds upon the work of the Western Governors' Association, the EPA, and the progress we made on S. 1848 in the last Congress. Good Samaritan cleanups are the right thing to do, and 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 CHAIRMAN. Thank you very much.

Senator Barrasso.

STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM WYOMING

Senator BARRASSO. Thank you very much, Mr. Chairman. If it's alright with you, I'll include my comments as part of the records. I'm looking forward to this panel today.

Being from Wyoming, an energy State and a State where mining is very important, I look very carefully upon this. Reforms to me, Mr. Chairman, that are overly burdensome can result the loss of good-paying jobs, increased reliance of foreign countries, many of whom operate with much less care for the environment than we do here. So, I'm looking forward to working with you and other members of the committee in finding the right balance on these difficult issues. Because I think, philosophically, we have many agreements, but when it gets to the practical issues, we need to make sure that things are done right for our States.

Thank you, Mr. Chairman.

[The prepared statement of Senator Barrasso follows:]

PREPARED STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM WYOMING

Thank you, Mr. Chairman. And, I thank the informed panelists assembled before us today for their participation and instruction.

Reading through the prepared materials submitted by the panelists, I am struck by the agreement I found at the most philosophical level. Examples of such agreement include the recognition that:

- Mining provides materials essential to our economy.
- Some provisions in the hardrock mining law deserve a careful look, and potentially reformat the question of royalties, for example.
- There should be a framework and funding to insure responsible reclamation.
- Mining activities should respect and protect the environment.
- And, the notion that privatization, or patenting, could continue to serve a role in certain circumstances.

It would be my hope that another area for agreement would be that the legal and regulatory framework would be efficient, well-understood, and predictable.

Nonetheless, below this high level of philosophical agreement, there are profound differences as to the best course of action.

Therefore, let me offer a few of my own observations. Domestic mineral production offers benefits to labor, consumers, industry, and even national security.

As an orthopedic surgeon, I am cognizant that the medical instruments I used everyday in my practice are derived from both common and rare minerals. The advances in medical technology would not have been possible but for the minerals extracted from the earth.

Some benefits from the mining industry are intangible:

- They are intangible for my patients and
- They are intangible for my medical colleagues.

Not everything we will be hearing today can be melted down into a gold bar and fully described by a spot market price.

With respect to the environment, I am fortunate to come from Wyoming where responsible mining operations have been the norm, not the exception.

Our State's Department of Environmental Quality is working diligently to resolve any outstanding environmental concerns and appropriately addressing abandoned mines.

And, I'm no stranger to protecting very special environments. As I have previously announced, I am just finishing up work on a draft that will remove significant portions of the Wyoming Range in the Bridger Teton National Forest from future mineral leasing.

That said, I believe this Committee should proceed cautiously with proposed changes that:

- would discourage new mines from being economically viable,
- close existing operations, or
- discourage investment in technologies or full mineral recoveries.

Reforms that are overly burdensome can result in:

- the loss of good paying jobs,
- increased reliance on foreign countries-many of which operate with much less care for the environment, and,
- in the case of uranium, opportunities to produce carbon-free energy.

Mr. Chairman, I look forward to today's hearings, and I look forward to finding balance on these difficult issues just below the philosophical statements of agreement.

The CHAIRMAN. Thank you very much.

Why don't we call the first panel forward? The first panel consists of two witnesses: Jim Butler, who is with Parsons Behle & Latimer in Salt Lake City, who has concentrated his legal practice on mining law issues for many years and John Leshy, who is now with Harvard Law School and was our dislister in our Department of Interior in the previous Administration, in the Clinton Administration.

Thank you both for being here. Why don't you go ahead, Mr. Butler, with your statement? Then we'll call on Mr. Leshy.

STATEMENT OF JIM BUTLER, ATTORNEY, PARSONS BEHLE & LARIMER, SALT LAKE CITY, UT

Mr. BUTLER. Thank you very much, Mr. Chairman, for inviting me here. It's an honor to appear.

Senator Domenici, in an earlier life, I worked for Utah Governor Scott Matheson, and I know he spent a lot of time with you in the 1980s and thought very highly of you. So it's nice to see you again.

Senator Craig, I know how hard you've worked on these issues and it's a personal pleasure to see you here this morning.

Because the time is very limited, I have prepared a written statement. I going to skip just to a few of the substantive issues in that statement and try and talk some about royalties and environmental regulations. If there's time, I'll talk about some of the other issues.

There's little disagreement that the Federal Government should receive some payment from the production of minerals on Federal lands. The issues, as Senator Craig said today, are how this royalty should be structured and how it should be applied. He talked about a gross versus a net royalty. I want to talk briefly and try and demonstrate how the gross royalty affects investment decisions.

What I have in this chart*—this is from the 1977 National Academy of Sciences report, which I've doctored up a little bit—and it describes a model, a very simplified model, for how investments are made in new mining projects. The costs that are incurred by the mining company are the blue, they're below the line. The cash that's realized by the mining company, is the green above the line.

*Chart has been retained in committee files.

There are a couple of things here that I think this model, very simplified, illustrates.

One is, a lot of the costs precede the cash-flow. This is a unique thing about the mining industry. There is exploratory drilling, development drilling, baseline studies, environmental permitting, environmental documents, geotechnical drilling, acquisition of land and water rights—all of those come before, in these early stages, and there's no cash-flow, again, in a new property.

Then you have the mine design. After you have the permitting decision, you have the mine construction. Again, there's usually, typically a large capital investment there.

In the case of a gross royalty, the way mining companies make this decision, obviously, is they say, "This it, these are the costs that we will sink into this property, these are the revenues we expect to receive." There are a lot of complicated assumptions that go into each element of the costs and to the revenues. We could spend a long time talking about that, but I'm going to gloss over it.

Then the question is, in today, "Do we get a sufficient rate of return to justify that investment?" The rate of return has to account for the alternatives, where else you might put that money and the level of risk that is associated with that investment.

If you apply a gross royalty, let's say that at the 8 percent gross royalty in the House, what you do to the investment decision, is you take 8 percent from this line and you move it down here. You're sitting here today, or in these early stages, trying to make an investment decision and trying to calculate a potential rate of return on a mining project. Moving those dollars from cash-flow to cost has a major impact on the projected rate of return. That is why the gross royalty has a dampening affect on mineral investments.

The CHAIRMAN. Let me just ask a question on that. I can understand why you would take it off of the top, off the revenue, if you had a gross royalty. Why would you add it to the costs?

Mr. BUTLER. Because it's a cash-flow you have to pay out, like a fuel expense or a labor expense. It moves, you have an offsetting——

The CHAIRMAN. But you're not off——

Mr. BUTLER. I don't want to double count, so let me——

The CHAIRMAN. Yes, but that's what I think you're doing.

Mr. BUTLER. I don't mean to double count, but it is what you would—you would take dollars from here. Maybe the cash-flow, this square would be the same size, but these dollars would be moved to a cost item down here. You're right, I don't, and I didn't intend to double count.

The CHAIRMAN. Either you take it off the top and don't add it to the bottom or you leave it in the top and do add it to the bottom. Right?

Mr. BUTLER. You're correct. In—the way this shading is in the model, what you would do is you would add it to the bottom.

The CHAIRMAN. Right.

Mr. BUTLER. Yes. I didn't mean to double count. But it would affect the cash-flow decision, the rate of return that you make right here. I thank you for clarifying that. You're right.

The net royalty, because it's tied to profitability, one of the reasons that people invest in mines, is because there's upside. You can strike it rich. Prices may exceed your expectations. The ore that you have in the ground may exceed what you projected at this point. You may make a profit. So in the net royalty sense, you know, there is some money and I—there is the prospect of additional cash-flow out here, that you can't count on at the investment stage, but that you hope to get.

The net royalty comes more from that, more from the expectation, because it's tied to profitability and it's not moved below to a cost line.

There are different impacts on existing operations, but I'll talk about those separately.

I also want to talk briefly about environmental regulations. That's basically my bread and butter legal work. Last year I worked with the State of Nevada, BLM Office. We had a task force to try and help their field offices coordinate the permitting process between the BLM Federal permitting and the Nevada State permitting. One of the products, one of our work products was a chart. I apologize at the, that that is not legible, but you should all have a blown-up copy in front of you that is at least legible.

All I'm trying to illustrate with this is, that it is, to give you some hands-on illustration of the level of detail and complexity that goes into this process. Every plan of operations is supported by a bunch of backup data and additional plans, reclamation plans, waste rock plans, water management plans, quality assurance plans, and must be part of an environmental impact statement for a major project.

On the State side you have water quality permits, you have air quality permits, you have reclamation permits. What I do when the mining industry is good, is I help clients find their way through this process. Because what they want to know, is from this point here where I submit a plan of operations to the BLM, to this point here when I get a permit decision, what do I have to do, what are the hoops that I have to jump through, and what substantive standards does my operation have to meet?

I want to talk briefly about those regulations. In 1998, Congress asked the National Academy of Science to study this system, this coordinated system of Federal and State regulations, to determine if it was effective in protecting the environment from hard-rock mining on Federal lands. That report came back in September 1999 and answered "Yes". It said even though this system is complicated, the report found that it was generally effective.

Congress also asked the National Academy of Sciences to identify regulatory gaps in the current program. The report identified nine gaps. Seven of those gaps have been filled by changes to BLM's 3809 regulations. One of those is an expanded bonding requirement. Everybody, regardless of the size of the operation, is required to post a bond before surface disturbance activities begin.

Two gaps were left and those have to be filled by Congress. One of those is the Good Samaritan legislation that Senator Salazar mentioned. NAS recommended that the law be changed so that mining companies could perform cleanups without assuming extra liability. The second is, the report recommended that BLM be given

authority to impose civil penalties in administrative enforcement actions. I think that requires Congressional action, as well.

There were some additional regulations in 2000. The regulations went beyond the recommendations of the National Academy of Sciences report and I expect Mr. Leshy will talk about those and then we can answer some questions.

The last thing I want to do in my remaining minute, is talk just briefly about context. Senator Craig and others have noted that demand and prices are driven now primarily by China. That's true. Everything that's happened in the mining industry in the past 5 years can be traced to the modernization of China.

But I want to focus on just one related aspect of that. The mining industry in the U.S., if we are not receptive to investment, if we're not going to meet the needs, the increasing global demand, not only are we not competitive in terms of being a consumer, but we're not competitive in terms of being a producer. We face the potential of falling behind in technologies like metallurgy and mining technology, mine engineering and design, because those investments, those people are being trained in other places. I know that the Congress has had hearings about these shortages. There's a generation in the mining industry of technically trained people that's missing. I think that's a follow-up issue to the question of Chinese demand and the changing global market.

Thank you very much and I look forward to your questions.

[The prepared statement of Mr. Butler follows:]

PREPARED STATEMENT OF JIM BUTLER, ATTORNEY, PARSONS BEHLE & LATIMER, SALT LAKE CITY, UT

INTRODUCTION

Chairman Bingaman, members of the Committee, thank you very much for the opportunity to appear before you to discuss implementation of the U.S. mining laws. By way of introduction, I am an attorney with Parsons Behle & Latimer. My firm has offices in Salt Lake City and Reno. We have been working with the mining industry since 1882, when the two original partners—mining lawyers from Carson City—formed the firm in Salt Lake City.

My own legal career includes almost twenty years working for dozens of mining companies with interests on federal lands. My clients have included some of the world's largest companies as well as medium and small mining companies, and individuals and prospecting ventures who are engaged in mineral exploration on public lands. I have served two years as Chair of the American Bar Association's Mining Committee and four years as a vice-chair of the Public Lands Committee. In 2005, I was the Program Chair for the Rocky Mountain Mineral Law Foundation's Annual Institute.

My particular specialization is environmental permitting and compliance for mining operations. I have helped clients with more than 30 plans of operations with the Bureau of Land Management and U.S. Forest Service and the related environmental and reclamation permits from state regulatory authorities. I have also represented mining companies in administrative and judicial appeals relating to their operating permits—before the Interior Board of Land Appeals, state administrative appeal boards, and federal courts in Arizona, Nevada, Montana and Washington.

Before joining Parsons Behle & Latimer, I worked in the office of Utah Governor Scott M. Matheson, where I was his staff assistant on natural resources issues. In that position, I was the primary contact with federal land management agencies, including the BLM, Forest Service and National Parks Service, under cooperative agreements between the State of Utah and those agencies.

For your information, I am registered with the Senate as a lobbyist for Barrick Goldstrike Mines, Inc., which is a subsidiary of Barrick Gold Corporation. However, I am not appearing today on behalf of Barrick Goldstrike or any other mining company. Obviously, my views are influenced by all of my experiences, including my

work for the mining industry, but the views I express here today are my own, and may or may not be the views of my clients.

THE MAJOR ISSUES

Discussions with Committee staff and your invitation letter to appear at this hearing identified five broad categories of issues related to the mining laws:

Royalty

- Should the law impose a royalty on the production of hard rock minerals from federal lands and, if so, what form should that royalty take?

Patenting

- Should the opportunity to patent mining claims be revived, or, if not, whatalternatives can provide security of land tenure for mining investments?

Mining Law Administration

- Are there ways to improve the efficiency and administration of the current law?

Environmental Regulation

- Should the law be amended to include additional environmental standards or regulations?
- Should a federal land manager be able to deny approval of a mining plan of operations which meets environmental standards to favor other land or resource uses?

Abandoned Mines

- What is the extent of environmental problems associated with abandoned mining operations on federal lands, and what are the alternatives to address that problem?

ROYALTY

The question of whether a royalty should be imposed on the production of hard rock minerals from federal lands has been settled since at least 1995, when the mining industry supported legislation contained in the Budget Reconciliation Act which would have imposed a 5% net proceeds royalty on new claims. The debate now focuses almost entirely on the structure and level of the royalty.

With regard to structure, the choices are between a gross royalty, which is based upon the total revenue from the sale of minerals, and a net royalty, which allows the operator to deduct specified costs of production from the value of the minerals before the royalty is calculated. The advantage of the net royalty in the mining context is that it is tied to profitability and does not exaggerate the inevitable price swings in the minerals markets. Royalty payments increase when prices and profits are high, but fall when prices are low and times are hard, allowing operations to cut costs and maintain production and employment.

A profit-based royalty also has a less dampening effect on mining investment. Mining investments typically seek a long-term rate of return based on alternative investments and comparative risks. A royalty payment based on a percentage of the total proceeds from mineral sales directly reduces the potential rate of return—making all mining investments less attractive. Because revenue projections (and rates of return) are typically based on conservative price assumptions, the possibility that prices may exceed expectations—along with profits and royalty payments—does not reduce the initial projected rate of return. A recent study prepared for the World Bank discusses the various royalty options and describes how they might affect investment decisions and the availability of reserves.

With regard to rate, there are two considerations. The first is how the royalty payments fits with the overall economic contribution from mining activities. Mining produces substantial government revenue, even without a federal royalty. Mining operations pay property taxes, sales and use taxes, and business fees and taxes. In Nevada, for example, where mine operators pay a 5% net proceeds tax that is shared between state and county governments, the industry paid more than $192 million in direct tax payments in 2006, including almost $62 million in net proceeds tax. That calculation includes only direct taxes and does not account for the income taxes paid by mine owners or shareholders or the taxes paid by mine employees and businesses that sell products and services to the mining industry. The second consideration is how that rate will affect mine investment. It is axiomatic that if the government takes too much of the potential profit, investors will put their dollars elsewhere.

ENVIRONMENTAL REGULATIONS

Mining operations on federal lands are subject to the full range of federal and state environmental laws as well as federal regulations and state laws and regulations relating specifically to mining operations, reclamation and closure. When mines are expanding or new mines are being built, mining clients come to me to help them navigate through the procedural rules of these various laws and regulations. Before construction, the typical mining operation on federal lands will be required to obtain:

- Approval of a plan of operations from the BLM or Forest Service, including a reclamation plan, closure plan, and cultural resources plan.
  —Applications for plans of operations are supported by environmental baseline studies for air, water, and wildlife, geochemical testing of ore, tailings and waste rock material, geochemical and hydrological modeling, cultural resources studies and reclamation studies.
- Air quality permits from EPA or state agencies with delegated programs under the Clean Air Act. The complexity of the air quality permits increases if there are substantial onsite processing facilities. All sites must have an approved fugitive dust control program.
- Water quality permits from EPA or state agencies with delegated programs under theClean Water Act. 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.
- 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.
- Permits to construct tailings ponds or other impoundments.
- Financial assurance equal to the cost that would be borne by the government if it had to contract with a third party to complete reclamation of the site.

Each of these permits is typically accompanied by an agency and public review process. Every operation that requires a federal decision to authorize mining activities is subject to the National Environmental Policy Act ("NEPA"). For any large project, this requires preparation of an environmental impact statement, which evaluates potential environmental impacts of the mining operation, assesses alternatives and requires the identification of mitigation measures to reduce potentially significant environmental impacts. Public review and comment is invited at the beginning of the process, to determine the scope of the environmental evaluation, and when a draft environmental impact statement is completed. The federal agency preparing the EIS is obligated to consider and respond to all substantive comments on the draft document.

All of the permits including monitoring and reporting requirements. Monitoring may be constant, as in the case of some air and water quality permits, or season, as in the case of some water use authorizations, which require season monitoring of stream flow, seep or springs.

These different pieces of the regulatory process work together—in a way that the National Academy of Sciences report called "generally well coordinated"—to provide a comprehensive regulatory framework for hardrock mining on federal lands.

The regulatory process for mining is constantly evolving. Changes in federal water and air laws, regulations and policies translate directly into on-the-ground requirements for mining operations. States are constantly updating and revising their reclamation and environmental programs. At the federal level, substantial changes were made to BLM's 3809 regulations in 2000 and 2001. The complicated history of the changes in the 3809 regulations—and contemporaneous changes in the administration of the mining law—are spelled out in a chronology that is attached to this statement as Table 1.

The most important changes are included in the revised 3809 regulations which were adopted during Secretary Babbitt's tenure and ratified by the Bush Administration. Those regulations implement changes which were supported by the National Academy of Sciences report on hardrock mining on federal lands, including:

- Expanded bonding requirements.—Regulations now require that all mining and exploration disturbance, no matter how small, be fully bonded before activities can proceed. Regulations, and subsequent BLM guidance, also revise how bonds will be calculated, maintained and released.
- Full NEPA review for small operations.—Earlier regulations included an exception from NEPA for small operations that disturbed less than 5 acres. As the

National Academy of Sciences report recommended, that exception has been dropped for all mining activities, but retained for exploration activities. Even exploration activities disturbing less than 5 acres, however, must be bonded.

- Strengthened water quality measures.—Regulations incorporated key aspects of two prior BLM policy documents regarding management of cyanide in mining operations and acid rock drainage. Those same provisions required increased frequency of inspections of mining operations that use cyanide or may result in acid rock drainage. BLM has adopted additional guidance documents to implement specific water quality objectives in the regulations.

The National Academy of Sciences Committee identified seven "regulatory gaps" in the laws and regulations that were reviewed by the 1999 report. Five of those seven gaps were filled by changes to the 3809 regulations and BLM guidance and policies. Two of those "gaps" require legislative action and include 1) a recommendation that "existing environmental laws 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," and 2) a recommendation that "BLM and the Forest Service should have both (1) regulatory authority to issue administrative penalties for violations of their regulatory requirements, subject to appropriate due process, and (2) clear procedures for referring activities to other federal and state agencies for enforcement."[1]

PATENTING AND MINING LAW ADMINISTRATION

The mining law has a long and colorful legal history. Some of the complexities in the law and the details of mining claim location and maintenance that were drafted in the 19th century seem unnecessary today. At the same time, the mining law has unquestionably succeeded in its primary purpose to encourage mineral exploration and development. Though some disputes still arise, the mining has generally learned to live with thee complexities.

The primary legal issue associated with what we traditionally consider to be the "mining law" in the early 21st century is whether unpatented mining claims offer sufficient security in the land to support investments which may be measured in the billions of dollars. The patenting provisions of the mining law allowed claimants to acquire full title to the land and mineral deposits that were claimed, but those provisions have been the lightning rod for substantial criticism of the law and Congress has allowed no new patent applications since 1994. The security issue can be solved in a number of ways. The most straightforward method is to allow claimants to secure title to unpatented mining claims through the payment of annual claim maintenance fees.

ABANDONED MINES

There is a broad range of estimates of the number of abandoned mines and physical hazards on the federal lands. There is little disagreement that eliminating these sites deserves more attention. In the context of mining law legislation, an abandoned mines reclamation program should include two components. First, Congress should adopt the recommendation from the National Academy of Sciences and enact legislation that would allow mining companies—and other parties—to reclaim abandoned sites without incurring additional liability under environmental laws.

Second, Congress should support and expand existing programs that work, not create a new program. Again, Nevada provides a model for designing a program that works.[2] The Nevada program is funded by a modest fee ($1.50) on county mining claim filing fees and a onetime fee of $20 per acre of new permitted mining disturbance. The Nevada program also applies for grants from BLM's abandoned mines program. The Nevada program secured 540 hazards in 2006 with total revenue of nearly $350,000. The Nevada program encourages cooperation from mining claimants, private property owners, volunteers (including mining companies) and other agencies. The bulk of the work includes fencing or backfilling mine openings on public land. The Nevada Division of Minerals, which administers the Nevada program, is also working with the Nevada Department of Wildlife, Nevada Natural Heritage Program, BLM and Forest Service to secure mine openings in Clark County, but preserve those that may be suitable for bat habitat by constructing bat-compatible enclosures, i.e., enclosures that restrict public access but allow continued use of the mine opening by bats.

---

[1] Hardrock Mining on Federal Lands, National Research Council, 9 (1999).

[2] This information is drawn from the Nevada Abandoned Mine Lands Report, 2006, prepared by the Nevada Division of Minerals.

BLM's abandoned mine land program has also evolved. The most recent information available on that program states that nearly 500 physical hazards were eliminated and more than 1000 acres of water quality in riparian areas improved during fiscal years 2004 and 2005.

Those are my initial comments on the issues raised by the Committee. I expect these issues will be addressed in more detail in questions to Mr. Leshy and myself, or to members of the second panel. With the brief time that remains, I would like to set the context for your consideration of these specific issues that relate to mining on federal lands in the U.S. These are narrow issues, but occur in a world that is much different from the last Congressional consideration of these issues in 1995. Specific legislative decisions on these particular issues should be informed by a broader world view.

THE CONTEXT FOR MINING LAW DISCUSSION IN 2007: CHINA DOMINATES THE WORLD MARKET FOR MINERALS

The last half of the early 1990s and early years of this century were difficult economic times for the mining industry. Copper prices hovered at less than $1 per lb. and gold prices were typically below $300 per ounce. Depressed prices lead to predictable results—incomes dropped, mines closed, a handful of mining companies went bankrupt, and there was a significant consolidation in the industry. For example, I looked back at the record of hearings held by this Committee in 1993. The supplementary material in the record included information on the top nine North American gold producers. Seven of the companies—Placer Dome, Homestake Mining, Lac Minerals, Echo Bay Mines, Battle Mountain Gold, Pegasus Gold and Amax Gold—no longer exist. Only two of the top producers, Barrick and Newmont, remain in business. There has been a similar trend in the copper industry.

The market for metals began to rebound in 2002 and 2003, based almost exclusively on demand associated with the modernization of China and the growing Chinese economy. Chinese demand is today, and is expected to continue to be, the biggest single influence on the global minerals market. Copper consumption in China has more than tripled since 1998 and it is now the biggest consumer of copper in the world. The story is the same for most other minerals. China is also the world's largest consumer of aluminum, nickel, tin, lead, zinc and iron ore. Since 1999, China has consumed two-thirds of the world's growth in base-metals output. Since 2002, China has accounted for half the world's growth in consumption of steel, copper and aluminum, almost all the world's growth of nickel and tin, and much of the growth in lead and zinc.[3] The new demand has driven commodity prices up. Market prices for copper, zinc, lead and iron ore have all more than tripled since 2002.

In the past few years, the Chinese, concerned about future reserves and prices for the minerals necessary to continue economic expansion, have invested heavily in global mining companies and reserves. In 2005, the Chinese mining company entered into an agreement with Chilean copper producer Codelco, guaranteeing delivery of refined copper for 15 years and giving the Chinese an opportunity to invest directly in one of the Codelco mines. Chinese companies have sought to diversify their supplies with investments in South America, Australia, Africa and even the United States. Within the past few weeks, it has been reported that China is seeking to invest more than $5 billion in the Democratic Republic of the Congo, which could lead to Chinese ownership of important reserves of copper, cobalt, iron ore, gold and uranium.

To date, the growing global demand has not translated into increased production in the U.S. According to U.S.G.S. data, mine production of copper in the U.S. is essentially flat. Copper production from U.S. mines in 2006 was actually lower than production between 1991 and 2001. Imports of copper have increased. Again, based on U.S.G.S. data, about half of the refined copper consumed in the U.S. was imported. Through 2006, production of other major metals in the U.S., including gold, which is a major export commodity, also remained flat.

Experts disagree as to what these developments for the global mining industry and potential U.S. production. Some predict that prices will moderate as global production—especially from Australia and South America and within China—increases. That may mean little long-term change in U.S. mining. Others see that any lagging demand from China will be offset by new demands from India. If prices remain at current levels, domestic exploration will continue and eventually some new mines will make it to production. Most agree that any prolonged downturn in the Chinese economy would dramatically impact metal prices and halt growth in the industry.

[3] China Business, Sept. 1, 2007.

Under either view, it is important that decisionmakers in Congress understand how much the world has changed in the past fifteen years. Decisions about the mining law and the mining industry should not be made based on a view of the world that is 15 to 20 years out of date. If a healthy domestic mining industry is important and I believe that it is then we need to look closely at policy decisions which affect the long-term cost and availability of minerals. Gross royalties that shrink reserves and prematurely close mines, additional hurdles in the permitting process that increase investment risk and delay permit decisions, and decisions that further restrict the availability of lands for exploration and development will inevitably reduce the production of minerals from federal lands. In the future, if we look abroad for those resources, they may not be available, at least at prices that American consumers are willing to pay.

CONCLUSION

I appreciate the opportunity to make this opening statement and look forward to your questions.

Attachment.—Table 1

Chronology of Administrative Changes to the Mining Law, 1994 to 2007

Sept. 1994	Congress imposes moratorium on processing of patent applications (renewed annually since 1994).
April, 1996	BLM adopts new acid rock drainage policy as agency guidance.
July, 1996	BLM adopts regulations addressing use and occupancy on mining claims.
Feb. 1997	BLM promulgates new bonding regulations subsequently struck down in 1998 in Northwest Mining Ass'n v. Babbitt because BLM failed to comply with Regulatory Flexibility Act).
Nov. 7, 1997	Solicitor Leshy issues "Millsite Opinion," which limits the availability of millsite claims for mining support facilities.
Nov. 14, 1997	Department of Interior Appropriations Act for 1998 requires that BLM consult with Western Governors before proposing any changes to the BLM's 3809 regulations.
Nov. 17, 1997	BLM Director Pat Shea sends letter to Chairmen of Congressional Energy and Appropriations Committee certifying that consultation required by Interior Appropriations Act has been completed.
Oct. 1998	Department of Interior Appropriations Act for 1999 requires National Academy of Sciences to study and report on adequacy of federal and state environmental, reclamation and permitting laws regarding hardrock mining on federal lands.
Feb. 1999	BLM publishes proposed revisions to the 3809 regulations.
May, 1999	Congress limited application of the Millsite Opinion in 1999 Supplemental Appropriations Act.
June, 1999	Supplemental Appropriations Act of 1999 requires that BLM reopen the public comment period on the proposed 3809 regulations after the publication of the National Academy of Sciences report.
Sept. 1999	National Academy of Sciences Report, Hardrock Mining on Federal Lands is released.
Nov. 1999	Appropriations Act for FY 2000 requires Secretary of Interior to promulgate 3809 regulations that are "not inconsistent" with the recommendations of the National Academy of Sciences report.
Sept. 2000	Requirement of Appropriations Act for FY2000 is extended in FY 2001.
Oct. 2000	BLM publishes final 3809 regulations.
Dec. 2000	State of Nevada and others file suit challenging certain provisions of the final 3809 regulations.
Jan. 2001	Solicitor Leshy issues "Ancillary Use Opinion," which restricts the use of mining claims for mining support facilities.

Attachment.—Table 1—Continued

Chronology of Administrative Changes to the Mining Law, 1994 to 2007

Jan. 2001	Final 3809 regulations go into effect.
March, 2001	BLM suspends certain provisions of the 3809 regulations and reopens public comment period on other provisions.
June, 2001	BLM retains bonding provisions of the 3809 regulations.
Oct. 2001	BLM issues final rule revising 3809 regulations. Final rule includes four substantive changes: 1) remove "mine veto" provision, 2) replace provisions relating to water use and water quality with prior regulations. 3) remove provision imposing joint and several liability on claim owners and operators for reclamation. 4) remove provision authorizing imposition of administrative civil penalties.
Nov. 2001	Mineral Policy Center and others file suit challenging the revised 3809 regulations.
Oct. 2003	Department of Interior rescinds the Millsite Opinion.
Nov. 2003	District Court's decision in Mineral Policy Center v. Norton, upholds the revised 3809 regulations with the exception of the application of FLPMA's "fair market value" requirement for certain lands, which is remanded to BLM for further consideration.
Oct. 2005	BLM adopts new rules requiring cost recovery for processing of mining plans of operations.
Dec. 2005	Department of Interior rescinds the Ancillary Use Opinion and clarifies process for review of plans of operations.

The CHAIRMAN. Thank you very much.
Mr. Leshy, thank you for being here.

STATEMENT OF JOHN D. LESHY, HARRY D. SUNDERLAND DISTINGUISHED PROFESSOR OF LAW, UNIVERSITY OF CALIFORNIA, HASTINGS COLLEGE OF THE LAW, SAN FRANCISCO, CA

Mr. LESHY. Thank you very much, Mr. Chairman. I'm delighted to be here and delighted that the committee is interested in looking again at this issue. It is, as many of you have noted, a longstanding, sort of, controversy on the public lands and there have been many attempts by this committee and this body to, in this Congress to reform the law. All have—some have made nicks in it and many have failed and I'm really heartened by the interest of the committee, particularly by Senator Domenici's remarks.

I'm delighted to appear here with Jim Butler. Jim and I have discussed these issues in a friendly and adversarial way over many years. I've always enjoyed debating them with him.

I emphasize I appear today as a private citizen. I'm not representing anybody. I've made it, the Mining Law and it's reform, kind of a hobby over the last 35 years, for better or worse, mostly worse, I suppose. But I've written about it and I've worked on it in government in the non-profit sector and academia.

The shortcomings of the law, I think, have really been identified by the remarks that many of you have made so far. There are really three—three basic ones as I see it.

One is the patenting feature, the fact that the law allows privatization of very valuable public resources at bargain basement rates without any kind of consideration of a larger, broader public interest. This patenting feature is really the last vestige of the, sort of, 19th century westward movement constellation of laws. Congress has interrupted it, in a sense, by these annual moratoria on patent applications. But obviously, Congress must act each year to continue those moratoria or patenting resumes, and we did have an attempt a couple of years ago to actually, not only lift the moratoria, which passed the House, but to expand the whole patenting idea. So, I think there is, frankly, general consensus that the time has come to really end that feature of the Mining Law.

The second shortcoming is the one that Jim addressed in some detail and others have mentioned. That is the fact that there is no payment, no royalty, no rental, no kind of direct financial return to the Treasury from the hard-rock mining on the public lands. It really is the glaring exception, as you all know. We now generally charge people to camp on the public lands and recreate in various ways and timber harvesters and energy companies and utility companies and just about, cattle ranchers, just everybody else pays something to use and exploit the resources of the public lands. Usually something like fair market value. The hard-rock mining industry doesn't pay anything. It's the big, very large exception. So that's one unique thing about it.

Frankly, if you look to other lands, State private lands and lands abroad, the mining industry pays something. I mean, the Federal lands of the United States are practically the only place on this earth, that this industry operates without making a direct payment to the owners of the minerals. So, if they operate on private land, they pay a royalty, if they operate on State land they pay a royalty, Federal lands they do not. It is time to close this, what I think is really a big loophole.

Let me say a couple of words about Jim's comments, because there are various ways to do this. My own view is, the devil is very much in the details, in terms of how you design a royalty, net versus gross, those are sort of labels, whether it's 10 percent or 2 percent or some other percentage. It's much more important exactly how you craft the royalty.

For the model here, I would look, frankly, as this committee knows, the United States charges a royalty for coal extraction, oil and gas extraction, geothermal extraction, fossil fuels generally. Those systems aren't perfect, as we all know. I saw an Inspector General report the other day that talked about some difficulties the Interior Department is having, but they do produce genuine, important revenues for the taxpayers, a return on their ownership of these minerals. They're systems that the industry and the government are quite comfortable with, I think overall. They haven't crippled the industries.

So, I think my message here, is that there are ways, sensible ways to craft a royalty or other form of payment that can produce genuine revenue for things like cleaning up the abandoned mines, as well as deficit reduction and the like, that can be carried out in an efficient way without crippling the industry.

The third point I want to talk about, and the third, I think, general area of—recognized as a shortcoming of the Mining Law, though not by everybody, is that there are some environmental gaps and loopholes in terms of regulation. It is true, I will agree with Senator Craig that the mining industry is now subject to a lot of environmental law that it did not used to be. The Clean Air Act, generally the Clean Water Act, et cetera, do apply to hard-rock mining operations. But, but there are differences. There are loopholes, gaps here, regulatory gaps that, that result in real problems.

A couple are in the water area. The Clean Water Act, for example, does not generally protect ground water. It's not designed to protect ground water. The Clean Water Act is generally designed to protect, sort of, industrial waste coming out of pipes. Mines don't pose those kind of problems. They need, in some respects, some Clean Water Act permits, but the sort of overall, general water quality and, to some extent, quantity impacts of hard-rock mining are not addressed under existing environmental laws.

Also, the hard-rock industry operating on Federal land, again, does not get the same kind of regulatory treatment that virtually all other users of the Federal land get. Because no other user of the Federal land can claim a right to mine, regardless of the level and quantity of environmental impact.

Some of you know, or I've addressed this in more detail in my written statement, but the current Administration takes the view—this is their legal position—that the government does not have a right to say "no" to a proposed hard-rock mining operation, no matter how devastating its impacts on the environment or on other natural cultural resources. It simply can not stop a mining operation, no matter how bad it is, if the impacts of that mining operation are considered necessary to mining, if they're sort of a necessary byproduct.

That is a very large loophole. Again, no other industry operating on the public lands, faces that kind—has that kind of opportunity. In other words, if you're an oil and gas lessee or a timber operator or an energy company building a pipeline or a transmission line or power plant or whatever, the government always has the right to say, "You know, we sort of would like to be able to help you, but your particular operation in this place, is so devastating, we can't allow it." The government can not say that to the hard-rock mining companies, under the current legal view.

Second, and also important, under the current legal view of this Administration, the government can not deny hard-rock mining companies the right to use as much public land as they want and they think they need for waste dumps, tailings piles, et cetera, an unlimited right to an unlimited amount of acreage. That is, again, the current legal position of the Government. These, again, are things that no other industry operating on the public lands has, that is this kind of "right."

Now, I readily admit that there are some, many excellent mining operations out there that do a very good job of protecting the environment. Many companies behave very responsibly. There's just no question about that. The industry has come a long way in that respect. But, this is a pretty, very big business, in terms of the huge amounts of acreage, of tons of material that are moved. That is a

huge change in the industry from 30 years ago. We now move 100 tons of rock and ore to get one ounce of gold. You've seen, I'm sure, the committee has seen, the scale of these operations is vast. It's a technological engineering marvel, really.

But it also can pose some very serious environmental problems. When mistakes happen or mines are put in the wrong place or bad mines are approved, the consequences can be really expensive, devastating, long-term, et cetera.

As has been noted, the abandoned mine problem on Federal lands from days, particularly when there was no environmental regulation, is a very large one, estimated, I mean, depending on who you ask, between $10 and $50 billion ultimately would be required to clean these abandoned mines up. They also pose safety problems. I was in Arizona a week ago and there was, a kid fell into an abandoned shaft and died. That happens from time to time. Those things need to be fixed and there needs to be a source of money to do that.

So, I see my time is coming to a close. I'm sure the committee has questions. I do, let me just close by saying I think the industry needs to live up to, essentially, be brought up to the same standards—and it's not that far to bring them—but to the same standards and the same decisionmaking authorities that apply to all other users of the Federal land. I think we as a nation are there. I really applaud this committee's interest in taking up this issue again, and I stand ready to help any way I can.

Thank you.

[The prepared statement of Mr. Leshy follows:]

PREPARED STATEMENT OF JOHN D. LESHY, HARRY D. SUNDERLAND DISTINGUISHED PROFESSOR OF LAW, UNIVERSITY OF CALIFORNIA, HASTINGS COLLEGE OF THE LAW, SAN FRANCISCO, CA

I appreciate your invitation to testify today, and the engagement of this Committee on reform of the Mining Law of 1872. There is no more important task among the constellation of issues involving our public lands, lands which encompass nearly one-third of the Nation's real estate and a large portion of its valuable natural resources like minerals.

I appear here today as a private citizen, expressing my own personal views, and not representing any group or institution. I have worked on Mining Law issues for thirty-five years, in academia, in government and in the nonprofit sector. Before I address the specific questions in your letter of invitation, I would like to provide some larger perspective on the recently rekindled effort to reform the Mining Law.

Calls to reform the Mining Law date back to a few years from its passage, and have been made by many U.S. Presidents, from Republicans like Theodore Roosevelt and Richard Nixon to Democrats like Jimmy Carter and Bill Clinton. Almost forty years ago, as Stewart Udall was stepping down after eight years as Secretary of the Interior, he called its repeal the biggest unfinished business on the Nation's natural resources agenda.

Signed into law by President Ulysses S. Grant four years before the telephone was invented, this antiquated relic is the last statutory survivor of a colorful period in the Nation's history that began with discovery of gold in the foothills of the Sierra Nevada in 1848. The mining "rushes" that ensued accelerated the great westward expansion of settlement. And they swept many of the Western states to statehood—California (the golden state), Nevada (the silver state), Montana (the treasure state), Idaho (the gem state) and eventually Arizona (the copper state). The same era witnessed the enactment of numerous other laws filling out the framework for that great movement—laws like the railroad land grant acts and the Homestead Act of 1862. A generation later, Congress enacted landmark laws like the National Forest Organic Act in 1897 and the Reclamation Act of 1902, and a generation after that, the National Park Organic Act of 1916 and, in 1920, the Mineral Leasing Act and the Federal Power Act.

All these other laws have long since been repealed, replaced, or fundamentally reformed, often more than once. But the Mining Law of 1872 remains. Today the public lands and resources are managed under modern laws like the Federal Land Policy & Management Act of 1976 (FLPMA), the National Forest Management Act of 1976, the Federal Coal Leasing Amendments of 1976, the Surface Management Control and Reclamation Act of 1977, the Reclamation Reform Act of 1982, and the Federal Oil and Gas Leasing Reform Act of 1987.

The Mining Law has escaped this tide of reform despite the fact that, since 1872, the population of the U.S. has grown more than seven-fold (from less than forty million to more than 300 million), the population of the eleven western states plus Alaska (where the Mining Law principally applies) has grown from about one million to nearly 70 million, and the mining industry, our society and our economy have all changed in ways beyond comprehension.

It is not for lack of trying. It has long been recognized that the Mining Law is thoroughly out of step with evolving public resource management principles. Indeed, the first Public Land Commission created by Congress to assess public land policies recommended in 1880 that it be thoroughly rewritten. Many blue-ribbon commissions since have likewise called for reform.

The Law's three most important shortcomings are as follows:

First, the Mining Law allows valuable public resources to be privatized at bargain-basement rates, without consideration of the broader public interess. Its so-called patenting feature is the last vestige in federal law of nineteenth century public land disposal policy. Much abused for purposes that have nothing to do with mining, the Mining Law has privatized an area of federal land larger than the state of Connecticut, much of it in scattershot inholdings that complicate rational land management throughout the West to this day. Patenting is not necessary to mine; indeed, the Supreme Court recognized as far back as 1884 that the "patent adds little to the security of the party in continuous possession of a mine he has discovered or bought." Many large mines are found at least partly on un-patented federal lands.

Congress has since 1994 enacted appropriation riders to forestall new applications for Mining Law patents. This practice has had no demonstrable negative effects on the hardrock minerals industry. But Congress must act each year, or patenting resumes. The fragility of these annual riders was driven home in the fall of 2005 by the now-infamous Pombo-Gibbons legislative proposal that would have not only lifted the moratorium on new patents, but also greatly liberalized the terms of patenting. That ill-conceived proposal—which passed the House but then died under a storm of protest—could have resulted in the scattershot privatization of more millions of acres of federal lands.

As long as privatization remains a core feature of the Mining Law, the temptation remains for future mischief-makers to try similar stunts. It is time for Congress to repeal, once and for all, the Mining Law policy allowing willy-nilly privatizing of the federal lands.

Second, the Mining Law fails to produce any direct financial return to the public for the exploitation of publicly owned resources. Mining companies are charged no rental, pay no royalty, and make no other payment that recognizes that the people of the U.S. own the minerals being mined. Their position is unique in two distinct ways. First, practically all other users of the public lands—oil and gas and coal developers, timber harvesters, energy companies that run transmission lines across the federal lands, cattle graziers, and even, these days, hunters, anglers and other recreationists—pay the government something (in most cases, something like market value) for the publicly-owned resources being used or removed. Second, practically everywhere else on this earth that hardrock mining companies operate—on state or private lands in the U.S., and just about everywhere abroad—they pay something to the governments and others who own the minerals.

It is time for Congress to close this glaring loophole. Whatever justifications might once have been offered for such a giveaway of public property—such as when gold had strategic value and the West was sparsely settled—have long since disappeared. Today 85% of the gold mined is used to make jewelry, and the West has long been the fastest-growing region of the country.

Third, the Mining Law results in inadequate protection of the environment and other uses of the public lands. All other users of the public lands

who can cause significant environmental disruption are subject to a straightforward system of regulation which requires them to minimize the environmental effects of their activities and clean up any mess they create. And all other users are subject to the fail-safe authority of the government to prevent proposed activities that threaten major environmental harm which cannot be prevented or mitigated appropriately.

The Mining Law itself is utterly silent on environmental regulation. Operations carried out under it no longer entirely escape regulation, thanks to laws like the Clean Water Act. But these other laws do not comprehensively address the myriad of environmental threats posed by hardrock mining, such as groundwater depletion and pollution and disruption of wildlife habitat. Nor do these other laws require the government, in making decisions about whether to approve proposed mines, to weigh the value of mining against other values and uses of the public lands.

The hardrock mining industry has long used the silence of the Mining Law on such issues to stoutly contest the reach of the government's authority over its activities. And it has long had powerful allies in the government on these matters. Just within the last few years my two immediate successors as Solicitor of the Interior Department issued legal opinions supporting the industry's view that the Mining Law hamstrings government authority. In one, the Solicitor concluded that the government lacks authority to prevent proposed hardrock mineral operations on public lands no matter how huge a threat they might pose to the environment and other resource uses. In another, the Solicitor concluded that the Mining Law gives the mining industry the right to use as much public land as it thinks it needs as a dumping ground for the residue of its vast hardrock operations. This is no small matter, because hardrock mining operations these days can involve hundreds of millions of tons of waste from gigantic open pits several miles across and a mile or more deep. This legal position holds, in other words, that the government is powerless to reject a proposed hardrock mine on federal land that would permanently contaminate aquifers containing immensely valuable future drinking water supplies, and/or obliterate immensely valuable cultural sites, and/or permanently appropriate many thousands of acres of land immensely valuable for other uses. It is no wonder that the federal land management agencies continue to feel cowed when they contemplate exercising regulatory controls over this industry.

Mining is a dirty business, and must be carefully controlled to prevent environmental disasters. History teaches not only that things can go bad with hardrock mining operations, but when they do, the costs to repair the damage can be enormous. Well over a century of mining under the Mining Law of 1872 has saddled the Nation's taxpayers with a cleanup cost for thousands of abandoned mines that, according to some estimates, approaches fifty billion dollars. It bears emphasizing that, despite the limited controls modern laws like the Clean Water Act bring to bear on hardrock mining, bad mines still fall through the regulatory gaps. To take just one example, Montana and U.S. taxpayers are today paying millions of dollars to clean up the Zortman-Landusky mine in Montana—a mine which was approved with all the modern laws in place that the industry argues are adequate.

It is long past time to close these regulatory loopholes and eliminate these ambiguities so as to make clear to all in the industry—as well as to federal land managers—that the hardrock mining industry will be held to the same standards, and be subject to the same kinds of regulatory authority, that apply to all other users of the public lands.

Since the last time Congress seriously considered comprehensive Mining Law reform, more than a dozen years ago, much has changed. Today, Mining Law reform is both more imperative and, in my judgment, more achievable. Here's why.

First, the industry structure, operations and economic impact have evolved considerably. Thanks to new techniques for processing gold and other hardrock minerals from more and more widely disseminated, fine-particle deposits, the hardrock industry produces more and more minerals by moving vastly greater amounts of earth and rock than ever before. The United States now produces much more gold than it ever did before, and is the third leading producer in the world.

The industry is also much more heavily concentrated, with many fewer companies and many fewer mines than ever before. More than four-fifths of U.S. gold production now comes from a single state-Nevada. The four largest mines, all in Nevada, account for well over half the total domestic production. The thirty biggest mines

(more than half in Nevada, including twelve of the fifteen largest) yield 99% of total production. Barrick Gold, a Canadian company, is the biggest, accounting for about 40% of domestic U.S. (and 8% of world) gold production. Production of copper and other precious metals are similarly concentrated.

Moreover, the hardrock industry now operates with such ruthless efficiency that it employs far fewer people than it used to. Its workers may be relatively well-paid, but they are far fewer in number and much more geographically concentrated than they ever were.

In the meantime, the economies of the western states have evolved rapidly away from their historic roots dependent on resource extraction. Today the regional economy where the Mining Law applies—the western states in the lower 48 plus Alaska—has changed dramatically. While mining used to be a dominant industry in many western locales (as state nicknames remind us), today its overall economic impact is small, even minuscule. The west is now the most urban and fastest growing region in the country. Its dynamic growth and economic health are fundamentally linked to the quality of life provided by the open spaces and recreational amenities of the public lands.

Demographic and economic change has changed public sentiment at the ground level. Westerners are increasingly unsympathetic to the idea that the hardrock mining industry deserves these special exemptions from the laws and policies that apply to everyone else. It is not surprising, then, that when the mining industry seeks to exploit its favored position under the Mining Law, more and more local people-ranchers, hunters, anglers, retirees, land developers, tourist industry officials, municipal water providers and other local government officials-are asking why this nineteenth century policy still exists.

Their concerns are growing because soaring mineral prices, particularly for gold, copper and uranium, have led to a new rush of claim-staking under the Mining Law in areas with high values for other uses. Mining claims on federal lands recorded with the BLM have nearly doubled in just the last four years; there are now close to 400,000 individual mining claims scattered across federal lands.

People in the west are also more familiar than most with the consequences of failing to control the industry. They live with the thousands of abandoned mines scattered throughout the region, and are familiar with the sorry legacy of safety hazards, polluted streams and disrupted landscapes that will require billions of dollars to repair. And they don't appreciate the fact that, under the current regime, the dollars to pay for this cleanup will come more from taxpayers than from the industry that created the mess.

Another noteworthy change in recent years is that, for the first time, the hardrock mining industry is facing some pressure to reform from the demand side-the jewelry industry that consumes much of its product. With leadership from Tiffany and other major jewelers, this movement has helped persuade some major mining companies, concerned about their reputations as well as their impacts, to work to improve their practices and make other accommodations to modern social and environmental values. In short, the industry is no longer so monolithic and so reflexively hostile to change.

Reforming the archaic Mining Law will not—as some industry representatives ritually maintain—put an end to the domestic hardrock mining industry. Every year Canada's Fraser Institute surveys mining industry executives and uses the results to rank the most favorable jurisdictions in the world for hardrock mining, considering a variety of factors, including political stability. The American West is always at or near the top of the rankings. Furthermore, skyrocketing mineral prices means the industry is thriving as never before, and any increase in production cost that might result from reform will be modest and can readily be absorbed. The basic objective of reform is to put in place practices and policies that oil and gas operators, coal miners, electrical utilities, ski areas, and other intensive users of the federal lands have operated under quite successfully for decades. I have no doubt that the innovative, progressive companies in this industry-those who have flourished around the world by being so-will adapt readily to such reforms, just like other public land users have successfully adapted to similar requirements imposed on them over the last many decades.

Now let me address in some detail the questions you posed in your September 12 letter of invitation.

Question: Whether there should be a royalty or alternatives to it, including how to structure it:

I would underscore two goals in designing a system by which the hardrock mining industry pays something to the public for the use of the public's lands and minerals: First, that it produce real revenue for the Treasury, to reduce the deficit and/or to

repair some of the costs and damage left by past hardrock mining activities. Second, that it be efficient to administer, to minimize opportunities for clever accountants and lawyers to "game" the system. Generally speaking, the rule of thumb for a royalty is that the more exemptions, deductions and offsets allowed, the more the system can be "gamed," and the less likelihood significant revenue will be raised. As an extreme example, I would direct your attention to the "sham" royalty included in what came to be known as the "sham reform" proposal that was included in the gigantic budget econciliation bill vetoed by then-President Clinton in early 1996. My recollection is that the Congressional Research Service estimated that it was so riddled with deductions and loopholes that it would have raised a paltry $1 million per year from the entire multi-billion dollar industry.

For guidance on both royalty levels and structure, the Committee would be well-served to look at the oil and gas and coal provision of the Mineral Leasing Act. The context is closely analogous to hardrock mining-in each case the objective is to secure a fair share of revenue from highly capitalized investments to produce minerals from publicly-owned lands, that are not without risk and are globally competitive. While the Leasing Act royalty systems are not free from opportunities for mischief, there is no doubt they raise significant revenue for the Treasury in a relatively efficient manner.

Any royalty or similar payment the Congress might embrace—whether 8% as in H.R. 2262, the reform bill introduced into the House, or a higher percentage comparable to what the oil and gas industry pays-will be small compared to risk factors the industry has long faced, like fluctuations in commodity prices, and in exchange and interest rates. Sizeable return to the government from fossil fuel extraction from federal lands has not hurt the competitiveness of that industry.

Question: Are there alternatives to a royalty?

A conventional royalty would presumably apply only to mineral ore extracted from federal lands. It would not, in other words, include any kind of charge for the use of federal lands to support the extraction of minerals from formerly federal lands. Many, perhaps even most, of the very large hardrock mining operations in the West (which, as I noted earlier, are responsible for the vast majority of the total domestic production) are on lands in a mixture of ownerships-private, state and federal. Often the federal lands, particularly those where the ore body is found, may be mere slivers or odd-shaped parcels intermixed with others. Sometimes all or most of the actual ore body is on non-federal land (often, because it has already been patented under the generous terms of the Mining Law). See, e.g., Mineral Resources: Value of Hardrock Minerals Extracted From and Remaining on Federal Lands (GAO/RCED-92-192, August 1992).

Even where the U.S. no longer owns any part of the ore body, the federal lands usually play a key role in bringing the ore body into production-by providing lands for mineral processing, for dumping waste rock and mine tailings, and so forth. The United States should, in my judgment, receive a financial return for the use of its land in these circumstances that reflects its contribution, both past and present, to the overall operation.

Suppose, for example, that the ore body of a large mine is 75% in private ownership, having been previously patented under the Mining Law, and 25% federal land. That mining operation may permanently use thousands of acres of federal land as waste rock dumps and tailings piles for the mining operation. It seems to me that a royalty or payment to the Treasury which is limited to the 25% of the ore body still in federal ownership is inadequate return to the public for this use of the public's resources. If access to this federal land were granted under Title V of FLPMA-which would be the case if this were a power plant, a factory, the user would pay fair market value for the land. Mine operators who use thousands of acres of federal land as a dumping ground ought to pay something more than a nominal fee to hold claims; indeed, their payment ought to reflect some measure of the value these federal lands contribute to the entire mining operation. This might be done through a much more substantial rental, holding fee or other payment, or a severance tax. I appreciate there may be jurisdictional complications should this Committee try to craft something along those lines, but it seems to me well worth thinking about.

Question: How should revenues from a royalty or other levy be distributed?

I will discuss this below, in connection with abandoned mines.

Question: What kind of transition rules should there be for royalties or other levies?

As a matter of law, there are in fact very few limits on Congress's ability to apply reforms, including a royalty or other fees, or tougher environmental regulations, to existing mining claims.

This is a much misunderstood area. Many believe, mistakenly, that all mining claims located on federal lands are constitutionally-protected "private property interests" which limit the ability of Congress to reach them. That is not the case. It has long been clear-reaffirmed in many decisions of the U.S. Supreme Court—that a mining claim located on the federal lands carries with it a constitutionally protected property right only if it contains a "discovery" of a "valuable mineral deposit." Mining claims which lack such a "discovery" are mere licenses to occupy the federal lands. The legal status of locators of such claims is no different from that of a hunter or angler or other recreational user of federal lands. "[I]t is clear that in order to create valid rights . . . against the United States [under the Mining Law] a discovery of mineral is essential." Union Oil v. Smith, 249 U.S. 337, 346 (1919); see also Cole v. Ralph, 252 U.S. 286, 296 (1920).

The locator of a claim without a discovery does have the right to exclude other miners from the claim, so long as the original locator is actively exploring for a mineral. This is the "pedis possessio" (foothold) doctrine recognized by the Supreme Court almost ninety years ago. Union Oil v. Smith, supra. But the locator has no rights against the United States until a discovery is made. This means the United States can change its policy or rules, and even effectively extinguish such claims, at any time before a discovery is made, without any obligation to pay compensation.

In practice, almost all mining claims are located in advance of discovery. They are located to provide a foothold on public lands in order to explore for valuable mineral deposits. Mining claims are typically located, in other words, in speculation that a mineral might possibly exist and be profitably mined from the claimed land. But hopes and speculations, the Supreme Court has long made clear, are not tantamount to a "discovery." See, e.g., United States v. Coleman, 390 U.S. 599 (1968); Sullivan v. Iron Silver Mining Co., 143 U.S. 431 (1892). Thus most mining claims do not carry with them constitutionally protected property rights, and Congress retains practically unfettered authority to change the rules regarding them.

With regard to mining claims that do include a "discovery," the analysis is a little different. These contain property rights which can give the claimant some argument for compensation in some circumstances if the government acts to "take" these rights. Whether the argument will succeed usually depends on a case-by-case, fact-intensive analysis. See, e.g., Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency, 535 U.S. 302 (2002); Penn Central Transportation Co. v. New York City, 438 U.S. 104, 123-28 (1978).

But certain things are clear from Supreme Court decisions in this area. For example, the government retains broad authority to impose new regulations over mining claims that contain a discovery and a property right. The U.S. Supreme Court addressed this exact question in 1985, and its guidance is worth quoting at some length:

> Even with respect to vested property rights, a legislature generally has the power to impose new regulatory constraints on the way in which those rights are used, or to condition their continued retention on performance of certain affirmative duties. As long as the constraint or duty imposed is a reasonable restriction designed to further legitimate legislative objectives, the legislature acts within its powers in imposing such new constraints or duties. * * *
>
> This power to qualify existing property rights is particularly broad with respect to the "character" of the property rights at issue here. Although owners of unpatented mining claims hold fully recognized possessory interests in their claims, we have recognized that these interests are a "unique form of property." * * * The United States, as owner of the underlying fee title to the public domain, maintains broad powers over the terms and conditions upon which the public lands can be used, leased, and acquired. See, e.g., Kleppe v. New Mexico, 426 U.S. 529, 539 (1976). * * *
>
> Claimants thus take their mineral interests with the knowledge that the Government retains substantial regulatory power over those interests. * * * In addition, the property right here is the right to a flow of income from production of the claim. Similar vested economic rights are held subject to the Government's substantial power to regulate for the public good the conditions under which business is carried out and to redistribute the benefits and burdens of economic life.

United States v. Locke, 471 U.S. 84, 104-05 (1985) (emphasis added). As this last-quoted sentence from Court's opinion makes clear, the government retains the right to require a payment (whether labeled a tax, royalty, fee, or something else) from a holder of a mining claim on federal lands, even one with a discovery and a property right, as part of its continuing redistribution of the benefits and burdens of eco-

nomic life. In general, the Supreme Court has never given credence to arguments that federal taxes and fees constitute takings of private property. See, e.g., Cole v. LaGrange, 113 U.S. 1, 8 (1885) ("the taking of property by taxation requires no other compensation than the taxpayer receives in being protected by the government to the support of which he contributes"); County of Mobile v. Kimball, 102 U.S. 691, 703 (1880) ("neither is taxation for a public purpose, however great, the taking of private property for public use, in the sense of the Constitution").

It is well-established that the "discovery" creating a property right against the government is dependent upon the marketability of the mineral. This means the right may vanish-and with it the property right against the government-as a result of changed conditions. As the Supreme Court has held, a "locator who does not carry his claim to patent . . . does take the risk that his claim will no longer support issuance of a patent." Best v. Humboldt Placer Mining Co., 371 U.S. 334, 336 (1963).

In this connection, the Interior Department and the federal courts have long held that, in determining whether a discovery exists, the cost of complying with environmental laws and regulations must be taken into account. The courts have recognized that new environmental restrictions may affect claim validity, and reduce or eliminate the government's obligation to compensate claimants. See, e.g., Clouser v. Espy, 42 F.3d 1522 (9th Cir. 1994) ("virtually all forms of [government] regulation of mining claims-for instance, limiting the permissible methods of mining and prospecting in order to reduce incidental environmental damage-will result in increased operating costs, and thereby will affect claim validity. However, the . . . case law makes clear that such matters may be regulated by the government"); Reeves v.United States, 54 Fed. Cl. 652 (2002) (compensation denied to a claim locator who was prevented from developing claims he located in a wilderness study area on federal land).

For all these reasons, I believe it is well settled that the government has nearly unfettered authority to apply newly enacted laws and regulations, including a royalty, to mining claims that are not accompanied by a discovery; that is to say, most of the several hundred thousand claims currently of record. It also has very considerable power to apply to new laws and regulations to mining claims that include a discovery, without creating any obligation to compensate the claimants.

Because of the strength of the case for congressional authority, I was dismayed by the rather casual assertion of the Administration's witness, at the House hearing on Mining Law reform on July 25, that a royalty on existing claims would raise constitutional "takings" questions. Given the analysis I set out here, I recommend the Committee give no weight to such assertions unless the person making it supplies the Committee with a legal memorandum backing up its assertion by refuting the analysis offered here.

While there is very little legal limit on the ability of Congress to impose a royalty or other levy or to tighten environmental regulation of existing claims, obviously Congress can take equitable considerations into account, such as capital investments that have already been made in existing mines. But I would strongly discourage applying royalties or other levies or new environmental regulations only to claims located after enactment of reform legislation. Most areas of federal land that have significant likely mineral potential are already blanketed with claims. Most of these claims lack a discovery and a concomitant property right. Most have seen little investment and are being held speculatively. Most mines likely to open in the next few decades will probably be on already located claims. Thus exempting existing claims from new requirements (permanently, or for a period of years) would be a huge loophole and not provide genuine reform.

As I indicated earlier, any levy that emerges from Congress will be a small factor in the overall profit and risk picture for these enterprises. Furthermore, there are various ways to craft a royalty or other levy that adjusts its impact to overall profitability. Payments to the government might be on a sliding scale depending upon overall commodity prices; e.g., if the price of gold doubles or is halved, the royalty or other payment is adjusted accordingly.

Question: Whether to eliminate patenting entirely or only partially and whether to provide some other mechanism for security of tenure.

At one time, I thought that further patenting under the Mining Law was never justified. But after further reflection I believe that privatization of the federal lands involved in large hardrock mining operations can be justified under certain carefully defined conditions. As I have already noted, many, perhaps most, major hardrock mining operations in the West are on lands in a mixture of ownerships—private, state and federal, with the federal parcels often mere slivers or odd-shaped parcels intermixed with others.

Giving mining companies title to federal lands involved in these operations would consolidate and simplify ownership and reduce regulatory and other complexities.

After operations cease, the lands involved often serve very little public value for other uses. Moreover, continuing federal ownership can cloud the responsibility for protecting public health, safety, and the environment from pollution endemic to these sites.

On the other hand, I can think of at least two federal interests that are implicated in any proposal to privatize these federal lands.

First, taxpayers deserve a fair return on valuable publicly-owned resources. There is no reason why the U.S. could not protect this fiscal interest while still privatizing these lands; e.g., Congress could make privatization contingent upon the mining operation making a payment (lump sum or periodic) to the Treasury to capture an appropriate share of future income streams made possible by the use of these federal lands in these mining operations.

Mining companies have sometimes showed a willingness to entertain such arrangements and pay real money to simplify and secure their land positions. In the last Congress and again in this one, for example, legislation has been introduced to approve a complex series of land exchanges in Arizona between the United States and the Resolution Copper Company (a joint venture between BHP Billiton and Rio Tinto). According to news reports, Resolution is seeking to tap a large deep underground copper deposit. While it already owns or controls considerable land in the area, it wants title to some federal land (which may or may not include part of the ore body) to facilitate the operation. To gain title (through a proposed congressionally-approved exchange), Resolution is apparently willing to pay the United States substantially more than it would be required to pay to gain title under the Mining Law (assuming Congress failed to renew the annual moratorium on patenting, and assuming Resolution qualified for patents). That is, Resolution has acquired title to and is offering to trade to the United States considerable land of high conservation and recreational value. Not having examined the details of this proposal, I am not prepared to comment on whether the arrangement represents a fair return to the federal taxpayer. But it is an example of a major mining entity being willing to pay genuine value for privatizing federal land in order to facilitate a major mining operation.

Second, the U.S. should ensure that privatization does not unduly threaten the environment in general, and nearby federal lands in particular. So long as the U.S, retains title to some of the lands affected, some environmental regulations and procedures that attach only to federal decisions (such as are made with respect to federal lands) would continue to apply—such as NEPA, Endangered Species Act §7, National Historic Preservation Act, Native American consultation and protection laws, and parts of the Clean Water Act. Here too, however, I believe it should be possible to fashion ways to protect the federal interest protected by these federal laws. For example, privatization might be conditioned on working out an agreement or compact between state and federal regulators that establishes a regulatory framework to do this.

For these reasons, I think privatizing federal lands involved in major hardrock mining operations need not be ruled out. I hasten to point out, however, that patenting has a long and sorry history of abuse. Most of the 3.2 million acres patented under the Mining Law since 1872 have in fact never been used, or used very little, for mining. Instead, they have been used for residential or other kinds of development, as private recreational retreats, spas, golf courses, and many other things. Given that record, any legislation that retains some opportunity to privatize lands in connection with hardrock mining must be very carefully drawn.

In short, I think privatization is an option worth considering, so long as it (a) is narrowly tailored to apply only to active or approved bona fide major mining operations; (b) retains for the U.S. the discretion to decide whether, under all the circumstances, the public interest is better served by deeding the land to the mining company rather retaining it in public ownership; (c) provides appropriate compensation to the United States for the fair value of the federal lands and minerals involved in the land being privatized; and (d) accommodates federal interests in protecting federal lands and resources not being privatized through some arrangement worked out in advance with state regulators.

While the hardrock mining industry is naturally concerned about security of tenure, no other industry operating on federal lands has a guarantee of perpetual tenure. All are subject to periodic reexamination and reevaluation, and environmental and other operating standards are readjusted from time to time. This is, indeed, a fact of life in all natural resource enterprises operating around the globe. Market and other forces are usually far more important to the tenure of these enterprises than the decisions of government land managers.

Question: How can the administration and efficiency of the Law be improved?

The Mining Law contains many provisions which plague the industry. This is not surprising, considering that the Law was mostly designed for "pick-and-shovel" mineral activities common in the mid-nineteenth century. Today's vastly changed industry bears no resemblance to the kinds of activities for which the Law was designed. As a result, the Mining Law contains inadequate protection for legitimate explorers against claim-jumping by rival miners, and has some limits on claim size that seem arbitrary and anachronistic. I devoted considerable attention in my 1987 book on the Mining Law to many of these features.

I believe reform legislation could well address these matters. The most important reasons to reform the Mining Law remain, however, to end the opportunity for wholesale patenting, to capture some revenue for the public owners of the minerals and land involved, and to hold the hardrock mining industry to the same kinds of environmental standards and regard for other uses of the federal lands that are routinely applied to all other users of the federal lands.

If reform legislation contains adequate measures on these three points, I believe Congress should, at the same time, consider and incorporate any reasonable suggestions the hardrock mining industry has to make the Law more simple and efficient from its perspective. The Congress should, however, take care to ensure such improvements do not undermine or defeat the thrust of the legislation on the three most important points.

Question: Whether environmental standards, regulations, monitoring and enforcement need modifying, such as whether a federal land management agency can deny approval of a permit to a mining operation which meets environmental standards because of other land resource values and uses (environmental and other).

As I indicated earlier, I believe that clarifying and upgrading environmental standards is a principal reason to reform the Mining Law. I do not believe existing standards and practices are adequate to protect multiple uses of the public lands and a healthy environment.

Looking first at the Bureau of Land Management's current "Part 3809" regulations governing surface management of hard rock mining on BLM-managed lands, early on the George W. Bush Administration weakened these regulations significantly, removing a number of key provisions that had been added by the Clinton Administration. Compare 65 Fed. Reg. 69,998 (2000) with 66 Fed. Reg. 54,837 (2001). One of the most important was to eliminate the federal government's authority to disapprove proposed hardrock mines on federal lands that threatened devastating, uncontrollable harm on other important natural and cultural resources.

The Bush Administration acted on the basis of a Solicitor's Opinion issued by my successor, which overruled an opinion I had issued in 1999. These legal opinions differed on how to interpret a key phrase in the Federal Land Policy and Management Act of 1976 (FLPMA), where Congress expressly amended the Mining Law to require the Interior Secretary to protect the public lands from "unnecessary or undue degradation" (emphasis added). 43 U.S.C. § 1732(b).

My legal opinion was that "or" means "or," so that BLM has a responsibility to regulate hardrock mining on the public lands to protect against "undue" degradation, even if that degradation is regarded as "necessary" to mining. My successor's legal opinion was that "or" really ought to be construed as meaning "and." Thus, in his view, BLM has no authority to prevent hardrock mining that causes "undue" degradation if such degradation is "necessary" to mining.

Environmental groups asked a federal court to settle this dispute. After full briefing, the court ruled that my reading of FLPMA was correct, and the Department has the responsibility to say no to proposed hardrock mines that cause "undue" degradation even if it is "necessary" to mining. Somewhat bizarrely, however, the court decided not to set aside the Bush Administration's removal of the right to prohibit devastatingly bad mines from the Part 3809 regulations. Conceding the question was "indeed extremely close," the court was persuaded by the Department of Justice's argument that—even conceding that the Bush Administration's Solicitor was wrong on the law—those regulations need not articulate that authority in so many words, because they could be interpreted as allowing the Department to prohibit such mines, and environmental groups could challenge Interior's decisions in particular cases in the future. Mineral Policy Center v. Norton, 292 F. Supp. 2d 30, 46 n. 18 (D.D.C. 2003). Neither side appealed this ruling.

Turning to national forest land, the counterpart U.S. Forest Service regulations (36 C.F.R. Part 228) are even weaker. This is not surprising, for the Forest Service was long reluctant to do any regulation of hardrock mining on national forests. Congress gave it express authority to regulate mining to prevent destruction of the national forests way back in 1897 (see 16 U.S.C. §§ 478, 551), but it did not exercise this authority for more than three-quarters of a century. The regulations it finally

adopted in 1974 were relatively tepid and have changed little since, despite vast ensuing changes in hardrock mining technology and practices.

Among other things, they require mining operations only to be "conducted so as, where feasible, to minimize environmental impacts on National Forest resources," 36 C.F.R. § 228.8 (emphasis added), and they require operators to take only those measures to "maintain and protect fisheries and wildlife habitat which may be affected by the operations" that are "practicable"; id., at 228.8(e) (emphasis added). In other words, the Forest Service, like the Interior Department, currently takes the position that the government cannot prevent a proposed hardrock mine on lands it manages even if it threatens dire environmental harm. The courts have refused to overturn this position. Okanogan Highlands Alliance v. Williams, 236 F.3d 468 (9th Cir. 2000).

In my judgment, this is too important a matter to be left in this current state. I believe the law should clearly state that the government has the responsibility to prevent proposed hardrock mining operations if it finds severe, un-mitigatable adverse impacts would be visited on other important public resources and values. The public interest requires no less. Every other user of the public lands—oil or coal company, forest products company, electric utility, rancher, hunter, angler, or hiker—is held to that common-sense standard. Hardrock mining, which has the potential to cause more serious disruption than any of these others, deserves no special exemption.

Finally, the question posed suggests that a distinction may be drawn between "environmental standards" and standards to protect "other land resource values." I do not believe this distinction is easy to draw, nor do I think it is useful to draw in this context. Environmental standards are imposed for the purpose of, among other things, protecting other resource values; e.g., an important reason the government controls air and water pollution is to protect wildlife habitat. Moreover, the "other . . . resource values" that the government is responsible for protecting in this context are on public lands. Every decision made to allow a particular use of public lands ought to consider the impact of that use on other uses and values. The government routinely does that when it decides whether to issue coal or oil and gas leases, sell timber, issue permits for livestock grazing, site power plants or other energy generating facilities, or allow hunting or off-road vehicle use or even hiking. I do not believe there is any persuasive reason to give proposals to open hardrock mines an exemption.

Question: Whether additional categories of public land should be withdrawn from hardrock mining.

I know that the industry has expressed particular concern about the idea of withdrawing national forest lands subject to the roadless rule from new mining claim location. Many do not realize that under the Clinton Administration's so-called "roadless rule" (whose future is still in doubt, being mired in litigation) national forest roadless areas remain open to new mining claim location and to the possibility of hardrock mineral development. Even new roads might be built in such areas to serve proposed hardrock mines. The extent to which the Forest Service can and would limit or control such road-building is left murky in the rule and in its preamble.

I would argue that this matter should not be left uncertain. I understand that substantial numbers of new claims have recently been filed in such roadless areas, suggesting the very real possibility of future conflict. Yet there is much room to doubt whether, in reality, any proposed new mines will ever be opened in these areas. They are by definition remote, with difficult access and, wholly apart from legal restrictions, have high development costs. Also, nearly all of these lands have been open to mineral development for well over a century, yet no significant development has taken place (else they would no longer be roadless). My recommendation would be to close them to new claim location, subject to whatever valid existing rights exist.

I also recommend that uranium be withdrawn from the Mining Law. The other energy resources—coal, oil and gas, tar sands, oil shale, and geothermal resources—are all governed by leasing systems, most of them dating back to 1920. These industries have not been hampered, and the public's fiscal and environmental interests are better protected. Uranium is the only energy mineral treated differently, and it only to some extent. Some federal uranium is already subject to leasing rather than to the Mining Law-a result of some post-World War II withdrawals of some federal land on the Colorado Plateau (which vested the Atomic Energy Commission with jurisdiction over this leasing, now exercised by the Department of Energy).

There is no justification for continuing to subsidize the domestic uranium industry (and with it the civilian nuclear power industry) by allowing publicly-owned uranium to be mined without a royalty or other payment to the Treasury. As with

hardrock mining, past uranium mining and milling has left a big cleanup bill for the taxpayer. The government is currently spending many millions of dollars, for example, to move a large mill tailings pile away from the banks of the Colorado River adjacent to Moab, Utah, and has spent much public money in cleaning up uranium mines and mills in the past. And there is more to do. Consumers of uranium should pay these bills, not taxpayers. Finally, there is no strategic argument for subsidizing domestic uranium production when friendly countries like Canada and Australia have abundant uranium resources. For all these reasons, I believe the idea of simply putting uranium under the Mineral Leasing Act ought to be given very serious consideration. It would be a welcome part (but only a part) of Mining Law reform.

I also urge the committee to consider crafting a special process for state and local governments to petition the federal government to withdraw tracts of federal land from the Mining Law where they can show special reasons for local concern. Many communities in the West derive water supplies from watersheds that could be severely impacted by hardrock mines. Many derive important economic and other benefits from federal lands nearby that could be threatened by hardrock mines; e.g., gateway communities to federal land areas with high recreational use, big game habitat and the like. While some of these lands may already be withdrawn, some may not. It seems to me appropriate to give state and local governments a special process to petition the government to withdraw lands from new mining claims, to give such petitions presumptive validity, and to require the federal government to act on them promptly.

Question: Whether coverage of existing environmental laws is sufficient and if not what gaps must be addressed.

In my judgment, existing BLM and Forest Service regulations do not adequately address hardrock mining's potential for adverse impacts on surface and groundwater supplies, which can be considerable. The Ninth Circuit recently ruled, for example, that existing federal law did not require BLM to protect water supplies in approving hardrock mining plans. Great Basin Mine Watch v. Hankins, 456 F.3d 955 (9th Cir. 2006).

Neither the BLM nor the Forest Service do a very good job regulating small-scale mining operations—so-called "notice only" mines and wildcat explorations. Compliance with laws like NEPA, the Clean Water Act or the Endangered Species Act is often wanting, and these operations sometimes mishandle toxic chemicals and use earthmoving equipment carelessly, devastating fish and wildlife habitat. Yet many times other users of federal lands and the public do not even get notice in advance of these operations.

Finally, there is the matter of "bonding," where the government requires operators to provide financial assurance for cleanup so that the taxpayer does not foot the bill if the operator defaults or goes bankrupt. To its credit, the George W. Bush Administration did not relax the Clinton Administration's tightening of bonding standards in the Part 3809 regulations. The Forest Service regulations are not as good, leaving it with much more discretion on bonding.

Several governmental reports have documented that bonds are still sometimes set at inadequate levels, putting the taxpayers at risk. See, e.g., Hardrock Mining: BLM Needs to Better Manage Financial Assurances to Guarantee Coverage of Reclamation Costs (GAO # 05-377, June 2005) (reporting on a 2004 survey showing 48 mining operations on public lands had closed without cleanup since BLM began requiring financial assurances; in more than half the cases, the financial assurance was inadequate, to the tune of at least $56 million, to cover the cleanup costs); see also Environmental Liabilities: Hardrock Mining Cleanup Obligations (GAO #06-884T, June 14, 2006) (recommending hardrock mining be given a high priority in developing financial assurance requirements, because of the serious risk to taxpayers; some mine owners have defaulted on multiple occasions, leaving taxpayers to bear cleanup costs); Environmental Liabilities: EPA Should Do More to Ensure that Liable Parties Meet Their Cleanup Obligations (GAO #05-658, August 17, 2005); US EPA, Office of Inspector General, Nationwide Identification of Hardrock Mining Sites (Report No. 2004-P-00005, March 31, 2004).

While federal officials generally try to require financial assurances in the amount sufficient to repair and reclaim what they forecast will be the adverse effects of the proposed mine, their forecasts often prove to be unduly optimistic. Recent studies show they often underestimate the amount of environmental degradation from proposed hardrock mines, particularly from disruption and pollution of water supplies. See Ann Maest and Jim Kuipers, Comparison of Predicted and Actual Water Quality at Hardrock Mines: The Reliability of Predictions in Environmental Impact Statements (2006); and Predicting Water Quality at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art (2006). The cost to repair or control that kind of damage can be high, and the bond amount-which is often calculated simply

on the basis of moving dirt, replacing soil and reestablishing a vegetative cover—can be woefully insufficient to cover it.

Question: What is the extent of the problem of abandoned mines, and what funding mechanisms and priorities should be put in place to deal with it.

I have already noted that the problem is huge; while exact estimates vary, there is no doubt that there are many thousands of abandoned mines on the federal lands which pose continuing safety and pollution problems, and that the cost of cleaning up these problems runs into the tens of billions of dollars. An informative report on this subject is Patricia Nelson Limerick, et al., Cleaning Up Abandoned Hardrock Mines in the West: Prospecting for a Better Future (U. of Colo. Center of the American West, 2005), available at http://www.centerwest.org/publications/pdf/mines.pdf.

In considering this problem in the overall context of Mining Law reform, I would urge that the first principle be one borrowed from the Hippocratic Oath—do no harm. Reforming the Mining Law should cement in place environmental standards and controls sufficient to prevent the already huge problem of abandoned mines from getting worse.

Second, in my judgment, it is entirely appropriate that a significant part of the revenues raised by any royalty or other levy be set aside for helping repair the vast legacy of past hardrock mining operations on federal land in the west. Often the owners and operators can no longer be found to bear the costs.

Third, in terms of standards for cleanup, it seems obvious that serious safety problems need to be put at top priority, with serious pollution and other environmental problems second. But I would caution against mandating any comprehensive inventory of the scope of the problem before on-the-ground work can begin. Many states and some federal agencies have been evaluating the particulars of this problem for many years. Fourth, federal money should be limited to cleaning up federal lands, or sites that are in mixed federal and state/private ownerships. There is plenty to do for the foreseeable future on federal lands. Other laws, federal, state and local, may provide remedies to clean up abandoned sites on non-federal lands. In generally, I think the approach to this problem contained in the reform bill introduced in the House, H.R. 2262, is a sound one.

CONCLUSION

I commend your leadership for taking up this important issue. You have the best opportunity in a generation to achieve a landmark legacy in public land policy-making. I stand ready to help any way I can to move this forward, and I would be happy to answer any questions you may have.

The CHAIRMAN. Thank you very much.

Thank you both. Let me just start with a couple of questions. Mr. Butler, let me ask on this issue of patenting. I think Mr. Leshy's testimony was that he thinks there's a consensus that patenting no longer makes sense, that we ought to have some other system for making public land available, rather than just giving fee simple to those who stake claims to mine. What's your view on that? Do you think that a reform of the Mining Law should include the elimination of a patenting process?

Mr. BUTLER. I'm not sure I'd agree that patenting no longer makes sense, but I think the judgment has been that it's not longer politically viable. That transferring those lands into private hands is at odds with the general public policy of holding on to public lands. So that other means need to be found to give operators a security in the piece of land where they put their property—apart from a patent—but something that—unpatented mining claims, because of the vagaries of the law, can sort of come and go in terms of their property rights. So you need some certainty of the title before you make that investment.

I've got a picture* of the Gold Strike mine, that I was going to use, and I'll be very quick so as not to take your time. These are

*Photo has been retained in committee files.

processing facilities at the Gold Strike property. This is the roaster, this is the autoclave, those were two properties built by Barrack, because the particular kind of ore at this property requires a different kind of processing. They were developed and patented in the sense of intellectual property and then built at a cost of, between the two of them, about $1 billion. People don't make those kinds of investments if they don't have some belief that the land that they're sitting on is going to remain under their control.

The CHAIRMAN.What's the right way to accomplish that? Through a leasing arrangement, like we do with oil and gas, or what?

Mr. BUTLER. I think, actually I think there are some simpler ways to do it, if you're not going to patent it. You can simply make the title to those lands that are included within a plan of operations, secured by the payment of claim location fees. It's not a complicated problem, but I, and I think you can get around it. Again, there may be some details where you want to deal with closure issues and post-mining land uses, but I think you can secure the title in those through the existing claims system.

The CHAIRMAN. Let me ask also about this suggestion or point that Mr. Leshy made about current law that allows unlimited right to use an unlimited amount of public land for the various attendant activities that go with mining. Once you establish a mining operation, as I understand it, if you want to have a tailings site, if you need other processing sites that might——

Mr. BUTLER. You can that this is the table, this is the, these are, this is the tailings, that in background, that's one of the waste rock dumps.

The CHAIRMAN. Right. So, should a reform of the Mining Law contain some types of limitations on the extent of the mining companies' ability to use public land for these purposes?

Mr. BUTLER. There is a limitation in existing law that says you can only use those lands that are necessary for ancillary facilities. While John, I think, disagrees with that, I don't think there are circumstances where people have spread out waste rock dumps over, you know, thousands of extra acres that they didn't need. You know, there are design factors and I think the regulations can impose, you know, sort of reasonable design requirements. I think the limitation is in the law and should remain, that you can use what is necessary to support the mining operation.

The CHAIRMAN. All right.

Mr. Leshy, I think in your testimony, you suggest that uranium should be withdrawn from the Mining Law and made subject to leasing. Could you elaborate on that suggestion a little bit?

Mr. LESHY. Yes. You know, if you look at all the other energy minerals—fossil fuels, coal, geothermal, et cetera, they're all leasable. Uranium is the only energy mineral that's not leasable. It also a kind of embedded, like, geologically similar to other, the fossil fuels in many respects. So, there's frankly no real good reason why the one mineral that has, you know, strategic significance for energy, et cetera, should be subject to the Mining Law. It sort of stands out there as an exception, nobody was thinking about it, obviously, when the Mining Law was adopted.

It is also, because it is under the Mining Law, there's no royalty, there's no rental, et cetera, it produces no return to the Treasury.

It seems to me, for all those reasons, that it ought to be treated more like coal and oil and gas than like gold and silver and zinc and copper.

The CHAIRMAN. Senator Domenici.

Senator DOMENICI. Mr. Leshy, if your country is short on mineral development and that's a matter of fact and established—I'm not saying that is the case, but if it is and if it was—why would it be so important that we have a remuneration to the Federal Government, rather than a set of laws that would get the minerals developed and the properties maintained? When the minerals are no longer there, that the property would be returned. What's wrong with that as a model?

Mr. LESHY. In terms of general policy toward public lands, the Congress and the Government as a whole, for a very long time, has basically adopted the view that these are public resources and if they're exploited, the public owners of these resources ought to get some sort of remuneration.

Senator DOMENICI. Sure.

Mr. LESHY. That is, you know, of course, in a way that goes back to, I suppose, the monarchies and the idea that the, the whole idea of the royalty is that the king reserves, you know, a portion of the mineral wealth of the country.

So—but we apply that general principle way beyond minerals. So like I said, almost everything else, timber, forage, camping opportunities, et cetera. So, the idea that if you exploit the public's resources, you should pay the public Treasury something for that is a long-standing idea that's firmly embedded in policy and the——

Senator DOMENICI. The word exploit is an interesting word because that's what you keep using. You know, I don't want to spend much time on this because we'll all be, obviously, dead-set moving toward royalties of some type. So long as we don't kill the cook, you know, we ought to have royalties.

The most important thing is that something good occur for the United States of America and that if, in fact, we're going to develop minerals that we really need, and if you put too much of a royalty on, you're not going to develop them, then it doesn't do any good to talk about the fact that everybody else does it. It doesn't do any good to say that it's exploitation when, who knows if it's exploitation. You put it down on paper and add up pluses and minuses, it might not be. It might be the cheaper the royalty, the more America gets. That's a possibility, right?

Mr. LESHY. Yes. I did not mean, by using the word exploit, any negative connotation. Extract, substitute extract for exploit. What I meant was when you use the public's resources.

Senator DOMENICI. OK. That's fine.

Mr. Butler, I'm interested in your interpretation of unnecessary or undue degradation, a standard contained in the Interior Department's regulations.

Mr. BUTLER. I think that goes to the issue that John raised in his testimony about BLM's right to say no to what he called a bad mine. I think he's wrong on that because—and it's partly a question of timing and partly a question of characterization.

The, under the Federal Land Policy and Management Act, the Secretary has authority, the Interior Department has authority to

say no to mining anytime, anywhere, any location. They can withdraw those lands from the operation, the mineral laws and claims can not be staked there. That's an authority that is frequently used. In the BLM land use planning process, that—the agencies are supposed to look at lands that should be withdrawn, and they frequently do.

I did a quick scan of land use plans that are pending in Utah, there's one in Moab. They proposed to withdraw another 80,000 acres. One in Vernal, they proposed to withdraw another 40,000 acres. They can place restrictions on particular areas by designating them as areas of critical environmental concern.

So I think that the Government has adequate authority to say no to mining, but they have to say it at the land use planning stage. They can't say no to a mine that otherwise meets all applicable environmental standards. That is, you get your water quality permit, your reclamation, your air permit, you post your bond, you comply with the Endangered Species Act, you comply with the National Historic Preservation Act. You can't go down, you can't go through that whole process, which was described on that flow chart, and the BLM land use manager say, "Well, now I've decided, even though you've spent 5 years in the permitting process, you've invested $50 million in developing this, and we've completed an EIS, and you meet every applicable standard. I've decided you're a bad mine and I don't want to permit you," or, "I've decided that the land that you're on is more valuable for recreation or some other use." That, I agree, is a correct interpretation of the law. The Government can say no, but they can't say no at the end, if you meet all the applicable standards.

Senator DOMENICI. Something goes around in my brain, that last time we took a crack at this, it was because some kind of a scandal was allegedly brewing, and that had to do with how the mining company ends up getting to use the property at some point in time for things that have nothing to do with mining. Is that still a problem or did we solve that issue?

Senator CRAIG. Patent——

Mr. LESHY. I think it's, that particular issue is largely solved, because the—well, it's solved in the sense that there's no more patent applications. So if you want to use the land for hotels or whatever, you can't get a patent. If patenting resumed, it could be a problem again because, the fact is, about 3.2 million acres have been patented under this law since 1872 and GAO has looked at this from time to time and determined that the vast, vast majority of that acreage has never been mined. I mean, there is a very long history of Mining Law being used for patenting for purposes that have nothing to do with mining.

That problem has generally reduced over the years with a little more Government oversight scrutiny and all of that. But it is—it is still a potential problem because in order to get a patent, you don't have to be mining. That's—that's a clear principle of the law and so that opens the door to this kind of event.

Senator DOMENICI. If we're reforming the Mining Law, we can look at that issue, though, right? Come out with a Mining Law that doesn't permit that, right? We could do that.

Mr. LESHY. Yes, you can address that issue. Yes. You could end that problem.

Senator DOMENICI. It seems to me, rather than leave it as one of these sores out there that gives everybody an opportunity to take a whack at it, you know, you probably don't need it.

People used to try to talk me into the fact that they needed hotel property. I never did believe it. I don't remember who I sat by that tried to convince me, but I think he might be present here, but I'm not sure. Would one of the Senators ever do that?

Senator CRAIG. Never.

Senator DOMENICI. Never. OK.

Mr. Butler, in his written testimony, Mr. Leshy is rather dismissive of the takings issues associated with applying royalties to mining operations retroactively. As a matter of legal merit—but also in terms of a policy decision before this committee—can you state your thoughts on this matter?

Mr. BUTLER. Sure, that goes to the question of when the royalty will apply, the transition rules or the grandfather rules. Mr. Leshy's testimony discusses some of the legal issues and concludes that it's Constitutionally permissible to apply a royalty to existing claims, particularly those that don't have a discovery. I don't disagree with that. I think you have that authority. Whether or not it's a good thing to exercise that authority, I think that's the question.

I also think that there will be a narrower range of cases, those operations that do have discovery and are affected directly by the royalty, where there may be some takings issues raised. I think those are more case by case, rather than a restriction on Congressional authority.

But on the policy side, I think, Senator, it goes back to the remarks that you made a few minutes ago about how the royalty will affect decisionmaking and affect operations of existing mines. I—if you consider, apart from the model I talked about the investment decision—if you've got an operating mine, you're trying to keep, you know, enough cash coming in to pay your costs. So you may, in the rough times when prices are low, you may keep that mine open even if you're not achieving that rate of return, because you hope that you can cover your costs and prices will go up. If you impose a royalty on those operations, there does come a time—you know, that is an additional cost, again if it's not based on profitability—an additional cost that you have to bear. That could force some mines, again in those hard times, and in those, when the operations are close to the margins, that could force additional mines to close.

So I think you have to be very careful about where you apply the royalty. I think the best policy is to not apply it to those companies that have made investment decisions based on the current structure.

Senator DOMENICI. Thank you very much.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Craig.

Senator CRAIG. Mr. Chairman, thank you very much.

All that is being discussed this morning, I find refurbishing memories. I'm flipping through my mental Rolodex at this moment,

Mr. Chairman, thinking about some of these things. Let me highlight a couple of them that I think are tremendously valuable.

Patenting gave certainty. If we're not going to use patenting any more—and I don't disagree with Mr. Leshy, times have changed—then we must provide certainty. How do you do it? You might do it with a lease. Do we want to allow public land to become private land? It appears we don't want as much of that anymore. But we have to provide certainty, stability for these kinds of very huge investments to be made.

If we don't do that, and if at the end of the day, 832 days later, that BLM land manager out there says, "Nope." Then $60, $80, $100 million and 837 days in the State of Nevada—investors will not come. They can not make that kind of investment without certainty.

I understand what Mr. Leshy is saying. There is one of our biggest problems. That's where the frustration hits the road. Yes, it takes land, surface land. We all think of getting down in the ground or digging a pit. It also takes surface to operate these large new mines of significant value. That surface is impacted. I don't dispute that.

I've passed the day when I think you ought to get private property, reversion. We're going to let them use the land under certain restrictions for the purpose of bringing out the resource, and when the resource is depleted, we can revert. But in that time we must provide certainty. I'm not sure yet how to do it.

Now, devil's in the detail. What is the debate we've just finished on oil leasing? Somebody's decided that when we designed oil leasing to push out into the deep waters of the Gulf, we would reserve the right, but we would grant the right of certain royalty relief. Why? To challenge the producer to get out there in that deep water. We did, and it worked.

But now we're trying to backtrack, saying, "Oh, gee whiz. There's a lot of money being made here. That was not our intent." Devil's in the detail, and that's what you just said, John. Whatever we do with any of this, we had better be very, very clear. We ought to put it in a business model that works, that the industry says, "Yes, we can do those things."

Now, I will tell you, and I've lived the history of silver for a couple of decades. If we had a gross royalty applied and not a net, my guess is, that when silver was two and a half and three dollars a few years ago, the mining operations that were struggling would not be here today.

But they are here today and they're very profitable today at a $10 and $11 silver. I don't know where it is at the moment. I haven't checked to see what the price of silver is. But the point is also survivability. If you're going to get a group of investors, Mr. Chairman, that are going to make this huge up front investment, then they know that there will be good times and bad times, based on international mineral markets. The good times never stay in this industry. Only the wise investor, who can plan for the future, can and does stay.

That is the history of mining. I don't see it being any different when you subject yourself to a commodities market in a world environment. Survivability, stability, certainty, all of those are key fac-

tors. There's absolutely no reason to plug any environmental loophole that's out there. I'm glad that Mr. Leshy recognizes that we've come a long way, and we are. If there are differences, we ought to try to get to them.

I know the mining industry well. The mining industry of today are a group of men and women that are environmentally very sensitive. They want to do the right things, but they also see the opportunity.

So, I've listened closely to all of you and I thank you very much for your testimony. I don't see the task as impossible, but I do see it as, if we don't do it right, then we will chill investment. It will go away and the industry will begin to shrivel. That is something that we should not do. Senator Domenici knows, as you know, Mr. Chairman, uranium, the ability to produce energy. In the decades ahead, may be extremely valuable for this country. We ought not shove it offshore.

Thank you.

Silver's at $13 today. Thank you. That's profitable, that is very profitable.

The CHAIRMAN. I should have bought some of that.

Senator CRAIG. Yes, you should have. But when it was $3, you would not have.

The CHAIRMAN. Yes.

Senator Barrasso.

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

Mr. Butler, in your testimony you eloquently noted that if government takes too much of the potential profit, investors are going to put their dollars elsewhere. Looking at this, I also look to see when does someone decide to withdraw or close something, as well. So this is just in a new investment.

Mr. BUTLER. That's a new investment.

Senator BARRASSO. But for additionally, if you move enough of this down here, at some point you may find that it's not worthwhile continuing.

Mr. BUTLER. That's right. It's a different——

Senator BARRASSO. Certainly in Wyoming where we have a situation where, if something were, that were operating were to close because of a change, you know, we would lose severance taxes, State and local property taxes, all of the other benefits that come to the State, as well as to the employees who are working there. You know, so if something is imposed, what are your recommendations of how you would construct one that results in the least chance of any kind of serious disruption?

Mr. BUTLER. I think that the royalty based on profitability, and that is one that allows deduction of some of the costs, primarily solves that problem. Because a decision to maintain an operating mine is a different calculus. You're primarily concerned about covering day to day costs. In fact, some mines will operate for a year or two or more at net losses, if they think that there's, you know, light at the end of the tunnel.

What happens with the gross royalty, is it just pushes that down. Because as long as you're producing, you have to keep paying that royalty. It's like any other cost. So that encourages, in the bad times, it encourages mines to close. If that's based on profitability,

in those times when you're not making very much money, you're not paying very much royalty. If you're actually not making any money, you're not making, you're not paying any royalty. That is, I mean, that's an issue in terms of the revenue stream. But in terms of maintaining those operating mines, that's the way to do it.

Senator BARRASSO. Then, Mr. Leshy, along the same line. I think I heard you say something along the lines that a royalty should be developed without crippling the industry. You know, I'm not convinced that that should be the standard that we use in crafting a royalty. I mean, it's almost, I read your testimony, it almost sounds like you're saying, "Well, we should because we can," as opposed to really making the overall decision. You mentioned this as a hobby, but in Wyoming this is lifeblood. So I'd be interested in your comments on that, please?

Mr. LESHY. You know I don't disagree with a lot of things that Jim said, in terms of the industry's investment, sort of, psychology here. The idea of a royalty is only one of the various ways to get, what I think, is a fair return to the taxpayer for the extraction of the public's minerals.

For example, the very large tailings and waste dump acreage that is involved in these modern operations—the industry is basically paying nothing for those, other than a small holding fee on the claims. I mean, there's no rental value. There is no value captured to the public for the, really the permanent use of those lands. Because those tailings piles aren't going to go away when the mine ceases. They're going to be there forever.

So, that is another way to, I think, capture a fair return to the Treasury that—I just keep coming back to this, but I think it's an important point—that that kind of fair return to the taxpayer is captured in virtually every other use of the Federal lands. I can not think of a reason why hard-rock mines should be treated differently under that principle.

So I think the overall objective here is just parity. It is to say this industry operating on Federal lands should be treated the same way as all the other industries and users of the Federal lands.

Senator BARRASSO. You believe you can do that without—I think your words—without crippling the industry?

Mr. LESHY. I think there are ways to do that, yes. You know, the coal industry, the oil and gas industry pay substantial royalties, far higher in percentage than we've ever talked about in Mining Law reform, and they're an extremely prosperous industries.

Senator BARRASSO. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

We have another panel and so, unless any Senator has a burning question, I'll thank this panel very much for your testimony. We appreciate it and we will continue to call on you for ideas as we move ahead in this process and ask the second panel to come forward.

The second panel is made up of Dusty Horwitt, who is with the Environmental Working Group here in Washington, D.C., and Timothy Snider, who's with Freeport McMoRan Copper & Gold, representing the National Mining Association.

All right. Why don't you start, Mr. Horwitt, and then Mr. Butler.

Mr. HORWITT. Senator, thank you. I think we're having a small technical problem.

The CHAIRMAN. OK. Should we go with Mr. Snider first while you're resolving the technical problem there?

Mr. HORWITT. That would be fine with me.

The CHAIRMAN. OK. Why don't you go ahead, Mr. Snider?

STATEMENT OF TIM SNIDER, PRESIDENT AND CHIEF OPERATING OFFICER, FREEPORT MCMORAN COPPER & GOLD, REPRESENTING THE NATIONAL MINING ASSOCIATION, PHOENIX, AZ

Mr. SNIDER. Great. Thank you, Mr. Chairman. Thank you members of the committee.

My name is Tim Snider, I'm the President and Chief Operating Officer of Freeport McMoRan Copper & Gold. I held a similar position with Phelps Dodge Corporation before Freeport acquired us in March of this year.

We, our company, has operated in New Mexico and Arizona since the 1880s. Personally I'm a third generation copper miner. I started my career in 1970 and in fact, I worked about a third of my career in New Mexico for our operations. I'm testifying today on behalf of the National Mining Association and we appreciate the opportunity to testify before the committee.

The National Mining Association, of course, is an association of producers and supporting businesses of the mining industry. They produce the majority of the coal, metals, industrial and agricultural minerals in the United States. Our association and its members employ about 170,000 high-wage jobs.

Of course, it shouldn't come to any surprise that from somebody like me, that we believe mining is very important to this country. Public lands in the west are a vital source of minerals and metals that are, it's a key element to driving our economy and our national security, by the way.

What may not be as widely known, is that the National Mining Association and its member companies support reform of the Mining Law. We are committed to the development of a fair, predictable, and efficient National Minerals Policy through amendments to the Mining Law of 1872. A lot of my comments have already been covered, so I won't take you, I won't plow, replow the same ground. But I do want to make a few points.

The Mining Association supports—what we seek is a Mining Law that includes, really five specific aspects. First, we agree that it should secure a fair return to the Government through a royalty on production of metals and minerals from new mining claims on Federal lands. Of course, there's been a lot of discussion around the form of that royalty, but—and a discussion around whether this is a gross royalty or a net profits royalty. But I just want to kind of put that in human terms a little bit.

This industry is realizing very high metal prices at the moment and all of our companies are making good profit. Just 5 years ago the, exactly the opposite was true. We were struggling for our very existence. My company and various others in our Association were working very hard to maintain the integrity of our operations from

an environmental standpoint and other standpoints, and we did a very good job of it. But most importantly, we maintained employment during that period. Because we knew that better times were coming.

If we are to apply a gross royalty, I would argue that we would be adding fixed costs to all of those operations, that make them less viable during those down times, and we would be less able to maintain that employment and the other benefits to communities that we generated during that time. That's why we support a net profits royalty, one in which everybody gains in the up times and we're able to remain viable in the downtimes.

Second, we think that the law should establish an abandoned mine lands cleanup fund, financed through this, with the revenues from this royalty. This was mentioned a little bit earlier. Such a fund would allow for reclamation and closure of historic mines, which were left during a time, before the advent of modern environmental practices. We believe this is something that can and should be done. This provision should seek to coordinate with other existing programs and should include a Good Samaritan liability protection provision that could promote voluntary cleanups.

The third aspect, the law should provide for certainty of title and tenure to support confident investment in mining ventures. Of course, this has been discussed by the other witnesses pretty thoroughly, the patenting issue and so forth. But it's very critical when we, in the industry, seek to make investments for something that could be a 30-year investment, in which we start investing and 10 years later we might start getting cash-flows. It's very important for us to have that security of title in one fashion or another.

Patenting has worked and it worked during its time. It may be time for something else, but we have to make sure that investors feel certain about the investments that they're making, to the extent possible.

The uncertainty that we have today, I think is reflected in the fact that only about 8 percent of the worldwide mineral exploration budgets are targeted for the United States. I think it's a clear indication of the uncertainty that the industry feels about investing in the United States.

The fourth aspect of the law that we believe that is important, is that we recognize and not duplicate or supplant existing Federal and State environmental laws, which regulate all aspects of the mining, of the industry, from exploration through mine reclamation, and ultimately to closure. There's a comprehensive framework of regulations that we deal with, including the Clean Water Act, Safe Drinking Water Act, the Clean Air Act, NEPA, Toxic Substances Control Act, RECRA, Endangered Species Act, and I could go on.

We believe this suite of laws and regulations is sufficient and appropriate to protect the environment. In fact, in 1999, a report issued by the National Academy of Sciences on hard-rock mining, agrees with that assessment. They conclude that the best way to improve environmental protection in our industry is to effectively implement those existing regulations.

The fifth and final aspect that we believe is important for the Mining Law involves access to public lands. We, of course this has

also been talked about and I won't replow that ground too much, but we believe that there are adequate methods of removing lands from mining use today. We don't believe that the Mining Law needs to provide more.

Currently about half of public lands are not available for mining. Some of the mechanisms in which lands can be removed are wilderness designation, national parks, wildlife refuges, recreation areas, wild and scenic rivers, and other means. We do agree that there are places where mining just shouldn't be done, but we think that the existing mechanisms provide that.

In conclusion, the United States needs a robust mining industry to help meet the needs of American consumers. Unfortunately, we believe that America is allowing our mineral industries to diminish as other countries' industries are flourishing. Increased dependency on imports of vital metals and minerals is not in our national interest and causes many negative consequences, not the least of which is vulnerability to supply disruptions due to political or military instability.

The U.S. mining industry has fully embraced the responsibility to conduct its operations in an environmentally and fiscally sound manner. We hope and expect that the Mining Law legislation will recognize and honor this commitment and the industry's contribution to our national well being. We look forward to working with the committee to bring this to conclusion.

Thank you and we appreciate the opportunity to provide testimony.

[The prepared statement of Mr. Snider follows:]

PREPARED STATEMENT OF TIM SNIDER, PRESIDENT AND CHIEF OPERATING OFFICER, FREEPORT MCMORAN COPPER & GOLD, REPRESENTING THE NATIONAL MINING ASSOCIATION, PHOENIX, AZ

Good morning, Mr. Chairman and members of the Committee. My name is Tim Snider, and I am President and Chief Operating Officer of Freeport McMoran Copper & Gold. In March, Freeport acquired Phelps Dodge Corporation, which has operated copper mines in New Mexico and Arizona since the 1880s. I am a third generation copper miner and started my career at Phelps Dodge in 1970. 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 royalty 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 royalty;
- 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;
- Recognizes the existing comprehensive framework of federal and state environmental laws regulating all aspects of mining from exploration through mine reclamation and closure; and
- Recognizes existing authorities for closing or declaring unsuitable for mining those federal lands with unique characteristics or of special interest.

The cornerstone of NMA's policy objectives is a predictable legal and regulatory framework to provide the long-term certainty and stability needed to protect existing investments and to attract new capital necessary to maintain a healthy and sustainable domestic mining industry. The importance of the domestic mining industry to our economy, our way of life and our national security cannot be ignored. Indeed, it is irresponsible for us to ignore the vast mineral resources we have within our nation's boundaries when our domestic needs are so great.

The United States has an abundance of natural resources including 78 metals and minerals that are the foundation of our modern industrial economy. Only the combined countries of the former Soviet Union and Australia rank higher than the United States in the global distribution of 15 metals with critical uses.

FAIR RETURN

A progressive and responsible approach to modernizing the Mining Law can achieve a fair return to the public and fund the restoration of abandoned mine lands, while encouraging the private investment required to develop and carry out environmentally and socially responsible mining operations.

The imposition of a royalty has the potential to have significant economic consequences on existing and future mining operations, but the impact will vary depending upon the type of royalty imposed. Determining the type of royalty, the rate and its application to existing claims are critical. As noted in the World Bank royalty study, mining is "particularly sensitive to [royalty] effects because of its cost structure and vulnerability to substantial market-driven demand and price swings." Otto, James. Mining Royalties: A Global Study of Their Impact on Investors, Government, and Civil Society. Washington, DC: World Bank, 2006, p. xiv.

A net income royalty produced from new mining claims on federal lands would provide the public with a fair return and with funds for restoring abandoned mine lands. This type of royalty most appropriately balances the need to both provide a fair return to the public and to foster a strong domestic minerals industry. Gross royalties, or certain royalties based on a net smelter return, on the other hand, may result in significant losses to state and federal treasuries, mine closures, job losses and discouragement of new mines. The World Bank study appropriately cautions against gross royalty approaches as compared to approaches based on ability-to-pay or profit-based approaches: "Nations should carefully weigh the immediate fiscal rewards to be gained from . . . high levels of royalty, against the longterm benefits to be gained from a sustainable mining industry that will contribute to long-term development, infrastructure, and economic diversification." Id. at 3. This type of royalty also encourages operators to leave lower grade (less profitable) ore in the ground, resulting in wasted public resources.

ABANDONED MINE LANDS

Using revenue generated from a net royalty on new claims to fund the cleanup or rehabilitation of abandoned mine lands (AML) is an essential aspect of amending the Mining Law. AML sites, which were mined and left in an unreclaimed state before the advent of modern environmental laws and reclamations practices should be addressed by: using funds generated through a royalty to assist in clean-ups; coordinating existing federal and state AML funds and programs; and Good Samaritan liability protection to promote voluntary clean-ups. The funds should be used for the actual cleanup and rehabilitation of abandoned mines and not to cover administrative overhead costs.

CERTAINTY/SECURITY OF TENURE

Ensuring long-term security of tenure (or title) is an essential component of a modern mining law necessary to encourage the private sector to invest in mineral activity on federal lands. In the past, such security was provided by the patenting process, which allowed mine claimants to obtain ownership of the lands being mined

or used for mining purposes. While the current congressional moratorium on patenting has not brought mining on public lands to a halt, it highlights the need for additional security of tenure in the mineral and the surface while claims are being held in advance of, as well as during, development and operations. Inclusion of language in the Mining Law is needed to clarify the rights to use and occupy federal lands for mineral prospecting, exploration, development, mining, milling, and processing of minerals, reclamation of the claimed lands, and uses reasonably incident thereto.

Furthermore, security of tenure is critical in obtaining the financing necessary for mining projects. 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. Potential investors must know their expectations will not be turned upside down by fundamental alteration of laws, regulations or policies. As the World Bank recently found, to attract such investments, governments need to adopt the fundamental principle of "no surprises," such as changes in laws, regulations or policies. Id. at 73.

Because mining operations by their very nature require long-term and substantial commitments of capital, the stability of the statutory and regulatory framework plays a crucial role in decisions to invest in a mining project. As a result, the investments critical for bringing a mine to fruition tend to migrate toward projects planned in countries that offer predictable regulatory climates that correspond to the long-term nature of mining operations.

Despite reserves of 78 important mined minerals, however, 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 metal 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. 2007, U, 2007, p. 7. This increased import dependency is not in our national interest. 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.

ENVIRONMENTAL STANDARDS

Under current law, a mineral exploration or mining operation on federal lands is subject to a comprehensive framework of federal and state environmental laws and regulations including: the Clean Water Act; the Safe Drinking Water Act; the Clean Air Act; the National Environmental Policy Act; Toxic Substances Control Act; the Resource Conservation and Recovery Act; the Endangered Species Act; and the Bureau of Land Management (BLM) and Forest Service surface management regulations for mining. These laws and regulations are "cradle to grave," covering virtually every aspect of mining from exploration through mine reclamation and closure. According to the 1999 report on issued by the National Academy of Sciences (NAS) panel of experts convened by Congress, this existing framework for mining is "generally effective" in protecting the environment. Hardrock Mining on Federal Lands, National Academy of Sciences, National Academy Press, 1999, p. 89.

That 1999 NAS report also found that "improvements in the implementation of existing regulations present the greatest opportunity for improving environmental protection . . . " Id. at 90. Notably, the Department of the Interior's 2000 and 2001 regulations governing mining and reclamation on BLM lands ("the 3809 regulations") significantly strengthened the standards for mining on federal lands, including new provisions on guaranteeing reclamation through financial assurances.

Importantly, the NAS panel of experts cautioned against applying inflexible, technically prescriptive environmental standards stating that "simple 'onesize-fits-all' so-

lutions are impractical because mining confronts too great an assortment of site-specific technical, environmental, and social conditions." Id. Furthermore, recognition of the existing comprehensive framework of federal and state environmental and cultural laws that already regulate all aspects of mining from exploration through mine reclamation and closure avoids unnecessary and expensive duplication. Additional standards or enforcement mechanisms are not needed to protect the environment.

IMPORTANCE OF ACCESS

Access to federal lands for mineral exploration and development is critical to maintain a strong domestic mining industry. As stated in the 2006 BLM Minerals Policy Statement: (1) except for Congressional withdrawals, public lands shall remain open and available for mineral exploration and development unless withdrawal or other administrative actions are clearly justified in the national interest and (2) with few exceptions, mineral exploration and development can occur concurrently or sequentially with other resource uses.

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. As the 1999 NAS report to Congress noted, the "remaining federal lands in the western states, including Alaska, continue to provide a large share of the metals and hardrock minerals produced in this country." Id. at 17.

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 congressional oversight, would arbitrarily impair mineral and economic development.

CONCLUSION

The United States needs a robust minerals production industry to help meet the needs of American consumers. Unfortunately, America is ceding to others the responsibility for meeting our minerals needs. Increased import dependency created by lack of U.S. mineral development is not in our national interest and 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. The U.S. mining industry has fully embraced the responsibility to conduct its operations in an environmentally and fiscally sound manner. It hopes and expects that Mining Law legislation will recognize and honor both this commitment and the industry's contribution to our national well-being.

NMA appreciates the opportunity to provide this testimony.

The CHAIRMAN. Thank you very much.

Mr. Horwitt, why don't you go right ahead?

STATEMENT OF DUSTY HORWITT, PUBLIC LANDS ANALYST, ENVIRONMENTAL WORKING GROUP

Mr. HORWITT. Thank you, Mr. Chairman, distinguished members of the committee. My name is Dusty Horwitt and I'm a Public Lands Analyst in Environmental Working Group. We're a non-profit and advocacy organization based here in Washington and in Oakland, California. Thank you for this opportunity and I thank Mr. Snider for agreeing to go first.

For the last several years, Environmental Working Group has analyzed mining claims on Federal land using a computerized data base from the Bureau of Land Management.

Mr. Chairman, what we have found is a frenzy of claims staking that is increasing every day and threatens a crisis for many of America's most treasured national parks, including the Grand Canyon, where there has been an explosion of uranium mining claims.

This modern day land rush is driven by the sky-high price of uranium, gold, and other metals, which is caused by demand from China, the United States, and other players around the globe. It's facilitated by a law, as we know, written in 1872 when Ulysses S. Grant was President.

More than 4 years of analysis has led us to one inescapable conclusion. Under the current wide-open Mining Law, where mining interests, unlike oil and gas companies, can stake claims with no government oversight or approval, vast portions of the American West are at the mercy of global demand for minerals.

This is simply unacceptable. Without changes to the law, the global demand for minerals could easily result in situations where companies begin prospecting and developing mining claims right next to incomparable wonders like the Grand Canyon, other national parks, or even local water supplies.

Since 2003, mining claims on public land, in 12 Western States, have increased by more than 80 percent. You can see it on the chart displayed here. Active claims are now at their highest level since an annual claim maintenance fee took effect in the mid-1990s. Claims have increased in each Western State.

Here's an image of New Mexico, where active claims as of July 2007, marked in blue, have increased 50 percent in the last three and a half years. Each claim on the map represents dozens or even hundreds of claims on the ground.

Here's an image of Colorado, where claims have increased by 239 percent since 2003. That's the largest increase of any State. Again, these claims on the map represent thousands of claims on the ground, as we'll see in just a moment.

This dramatic surge in claims could be extremely problematic, because once a claim is staked, the Federal Government interprets Mining Law as providing virtually no way to stop hard-rock mining, short of buying out mining claims or other extraordinary measures, even when mining is right next treasured national parks, such as the Grand Canyon.

Here's a satellite image of the Grand Canyon. You can see the claims in blue clustered on both the north and south rims. We found that as of July, mining companies hold 815 claims within 5 miles of Grand Canyon National Park, 805 of those were staked since January 2003. Most of these claims are for uranium. Those identified as uranium claims have the yellow and black symbol. A Canadian company, Catera Resources, has already proposed to drill exploratory holes for uranium just north of the Canyon. The operation would include a helicopter pad to carry supplies in and out.

Next, let's look at a map of the Canyon Country in Southern Colorado and Utah. Many of these claims are also for uranium. Arches National Park in Utah has 869 mining claims within 5 miles of its boundary, 864 of those staked since 2003. Canyon Lands National Park has 233 claims within 5 miles, all of them staked since January 2003. Some of the claims on the Colorado side are, are the lands that are treasured for their scenic and recreational value.

Without proper protections for our public lands, these claims can be very costly. In 1996, the Government paid $65 million to buy out patented mining claims just 3 miles from Yellowstone National Park, that would have been the site of a major gold mine. The mine would have been located at the headwaters of three streams that flow into the park.

You'll note the town of Moab, Utah on the map here. The Department of Energy has begun a project to clean up 16 million tons of radioactive uranium mine waste near the Colorado River. The waste is a threat to drinking water for millions downstream. Clean-up estimates range from $412 million to $697 million and the project may not be complete until 2028.

Mining pollution—our leading source of toxic pollution—is often not contained at the site of the mine. In Summitville, Colorado, in 1992, a spill of cyanide and heavy metal-laden water killed some 20 miles of the Alamosa River. The area is now a Superfund Site. A similar disaster occurred in the 1990s at Oregon's Formosa mine. Just this month, that site was also made a Superfund Site.

Mining provides important raw materials for our economy, but we also need a Mining Law, that in the face of global demand for minerals, protects our most important places and allows land managers to balance mining with other interests, such as drinking water, just as they can with oil and gas development. With our most treasured places at risk, the time for reform is now.

I thank the committee for this opportunity and look forward to your questions.

[The prepared statement of Mr. Horwitt follows:]

PREPARED STATEMENT OF DUSTY HORWITT, PUBLIC LANDS ANALYST, ENVIRONMENTAL WORKING GROUP

SUMMARY

Mr. Chairman, distinguished Members of the Committee: My name is Dusty Horwitt, and I am a Public Lands Analyst at Environmental Working Group (EWG), a nonprofit research and advocacy organization based in Washington, DC, and Oakland, California. I thank the members of the Committee for this opportunity to testify.

For the last several years, the Environmental Working Group has analyzed mining claims on federal land, using computerized data provided by the Bureau of Land Management.

Mr. Chairman, what we have found is a frenzy of claim staking that is escalating each day and threatens a crisis for many of America's most treasured wild places and national parks, including the Grand Canyon, where there has been an explosion of uranium mining claims. This modern-day land rush is driven by the sky-high price of uranium, gold and other metals caused by demand from China, the United States and players around the globe.

Since 2003, claims on all public land in 12 Western states have increased by 80 percent. This dramatic surge in claims could be extremely problematic because once a claim is staked, the federal government interprets mining law as providing virtually no way to stop hard rock mining at that site, short of buying out mining claims or other congressional intervention, even when mining is in plain view of national parks such as the Grand Canyon.

As you well know, a valid mining claim gives the claim holder the opportunity to mine on federal land and can be staked without government approval or oversight wherever land is open to mining. This Wild West approach stands in stark contrast to the approval required through the oil and gas leasing program where the public has an opportunity to participate in decisions that affect public lands. As anyone knows who has been in the West in the past five years, this approval process has not in any way stymied oil and gas exploration.

More than four years of analysis of mining claims has led us to one inescapable conclusion: Under the current, wide open mining law, vast portions of the American West are at the mercy of global demand for minerals. This is simply unacceptable. Without changes to the law, global demand for minerals could easily result in situations where companies begin prospecting and developing mining claims right next to incomparable wonders like the Grand Canyon, other national parks and wilderness areas, or even local water supplies.

Globalization has finally caught up with the 1872 Mining Act and rendered it totally and definitively obsolete. The West is not as big as it used to be. With growing demand for metals we do not need a Mining Law designed to encourage mining; we need a mining law that both permits mining, but also protects, without wavering, our most important natural places and resources.

ACTIVE MINING CLAIMS INCREASED MORE THAN 80% SINCE JANUARY 2003

Our research shows that in 12 Western states, the number of active mining claims has increased from 207,540 in January 2003 to 376,493 in July 2007, a rise of more than 80 percent. Over an eight-month period, from last September to this May, the BLM recorded more than 50,000 new mining claims. Claims as of July 2007 covered an estimated 9.3 million acres.

We have seen this increase in every Western state, with claims for all metals increasing by 50 percent or more in Arizona, Colorado, New Mexico, Nevada, South Dakota, Utah and Wyoming.

Mining claims have increased in every one of twelve Western states.

State	Claims active as of January 2003	Claims active as of July 2007	Percent Increase
Arizona	22,711	40,670	79%
California	18,981	22,494	19%
Colorado	5,430	18,391	239%
Idaho	10,598	13,013	23%
Montana	10,554	12,779	21%
New Mexico	7,550	11,348	50%
Nevada	100,972	179,773	78%
Oregon	5,088	6,087	20%
South Dakota	1,030	2,340	127%
Utah	8,723	28,968	232%
Washington	2,193	2,492	14%
Wyoming	13,710	38,138	178%
12 state total	207,540	376,493	81%

*Source: Environmental Working Group analysis of Bureau of Land Management's LR2000 Database, July 2007 download.

Attached to the end of this statement are maps of several Western states that show the locations of active claims.*

Many of the new claims are for uranium. The BLM reports that the estimated number of uranium claims staked in Colorado, New Mexico, Utah and Wyoming combined increased approximately 750 percent from less than 4,300 in fiscal year 2004 to more than 32,000 in fiscal year 2006.

http://resourcescommittee.house.gov/images/Documents/20070726/testimony__horwitt.pdf. Information source and contact: House Subcommittee on Energy and Mineral Resources, Legislative Hearing on H.R.2262, Thursday, July 26, 2007, at 10:00 am, Testimony of Mr. Dusty Horwitt, Public Lands Program Analyst, Environmental Working Group, 1436 U St. N.W., Suite 100, Washington, DC 20009, (202) 667-6982.

Many of the claims for all metals are being staked by foreign mining companies and speculators who could mine the land or sell to multinational corporations. Mining companies often extract minerals using techniques involving toxic chemicals, giant earthmoving equipment, sprawling road networks and vast quantities of water where water is a precious, scarce resource.

This land rush is sweeping the West despite the remnants of an earlier generation of uranium mines that have left a legacy of death and disease, despite the fact that mining as a whole is our leading source of toxic pollution and despite the fact that

*All maps and photos have been retained in committee files.

mining claims give companies a right to mine that effectively supercedes efforts to protect the environment and preserve our American heritage.

In the face of a landslide of global economic forces that threaten many of our most valued natural places and the health of people all across the American West, the 1872 Mining Law offers the legal equivalent of a pick and a shovel.

The following photo images* were produced by EWG by linking federal data on mining claims with Google Earth satellite photos of national parks. They show the clear threats to some of our most treasured national parks and depict areas that bear the legacy of past uranium mining pollution.

This satellite image of Grand Canyon National Park shows mining claims featured in blue and uranium claims identified with the yellow and black radiation symbol, clustered on both the north and south rims. We found that as of July, mining interests held 815 claims within five miles of the Park, 805 of them staked since January 2003. Many of these claims are for uranium.

A Canadian company, Quaterra Resources, has already proposed to drill exploratory holes for uranium on claims just north of the Canyon. The operation would include a helicopter pad to carry supplies in and out. The idea of uranium mining near America's greatest national treasure is troubling and the thought of helicopter flights of radioactive material in an area already crisscrossed by dozens of tourist flyovers a day is even more disconcerting.

Many of these claims are also for uranium. Arches National Park in Utah has 869 claims within five miles of its boundary, 864 of them staked since January 2003. Nearby, Canyonlands National Park has 233 claims within five miles, all staked since January 2003. Many of the claims on the Colorado side are near lands treasured for their scenic and recreational values.

A third national park threatened by mining claims is California's Death Valley. Here, mining interests have staked 1,693 claims within five miles, 503 since January 2003.

Without proper safeguards for our public lands, protecting national parks from these claims can be very costly. In 1996, the federal government paid $65 million to buy out patented claims just three miles from Yellowstone National Park that would have been the site of a major gold mine. The mine would have been located at the headwaters of three streams that flow into the park.

National Parks and Monuments with mining claims within five miles include:

Park or Monument	Active Claims	Claims Staked Since Jan. 2003
Death Valley National Park, CA and NV	1,693	503
Arches National Park, UT	869	864
Grand Canyon National Park, AZ	815	805
Joshua Tree National Park, CA	409	117
Canyonlands National Park, UT	233	233
Mt. Saint Helens National Volcanic Monument, WA	204	105
Capitol Reef National Park, UT	161	151
Great Basin National Park, NV	154	18
Yosemite National Park, CA	83	50
Zion National Park, UT	66	54
Yellowstone National Park, ID, MT, WY	21	1

THE LEGACY OF URANIUM MINING

Near the top left of the Utah/Colorado map on page six is the town of Moab, Utah. The Department of Energy has begun a project to clean up 16 million tons of radioactive uranium mine waste near Moab that have contaminated land near the Colorado River. The waste is a threat that could pollute drinking water for millions. Cleanup estimates range between $412 million and $697 million and, according to the Department of Energy, the project could last until 2028.

You'll also note the town of Monticello, Utah at the far south of the map. Colorado's Grand Junction Daily Sentinel recently reported that residents of Monticello claim unusually high rates of cancer they believe were caused by a now-closed uranium mill.

The Los Angeles Times reported in a landmark series last year how uranium mining has left a legacy of cancer and a degenerative disease known as Navajo Neuropathy on the Navajo reservation that includes Arizona, Colorado, Utah and New Mexico.

Uranium mining companies have said that a process called "in situ leaching" will reduce environmental harm, but the practice raises significant concerns about contamination of groundwater according to the U.S. Geological Survey (USGS) and Nuclear Regulatory Commission (NRC). In this type of mining, chemicals are injected underground to leach uranium out of subterranean deposits. While the USGS and NRC state that in situ leaching "in general" is less harmful than traditional uranium mining and milling, "the use of leaching fluids to mine uranium contaminates the groundwater aquifer in and around the region from which the uranium is extracted." The agencies add that "groundwater restoration represents a substantial portion of the cost of decommissioning at a uranium leach mining facility."

MINING IS THE NATION'S LEADING SOURCE OF TOXIC POLLUTION

But uranium mining is hardly the only cause for concern. According to the U.S. Environmental Protection Agency's Toxics Release Inventory (TRI), metal mining as a whole is the leading source of toxic pollution in the United States-a distinction the industry has held for eight consecutive years (1998-2005), ever since mining was added to the TRI list.

The EPA has also reported that more than 40 percent of Western watersheds have mining contamination in their headwaters. The total cost of cleaning up metal mining sites throughout the West is an estimated $32 billion or more.

UNEARTHING POLLUTION

The extraordinary pollution generated by metal mining is caused largely by digging and the sheer size of contemporary mining operations. Modern mining practices are a far cry from the use of mules and pick axes that were common during the late 1800s when the Mining Law was written. In part, the techniques have changed because concentrated deposits of gold and other metals are largely gone. Mining companies now excavate "mineralized deposits," or ore that contains microscopic amounts of precious metal.

To extract the amount of ore they desire, modern mining operations typically have to remove enormous quantities of rock and dirt with heavy, earthmoving equipment. The holes they dig can exceed one mile in diameter and 1,000 feet in depth.

Mining companies commonly use cyanide or other chemicals to extract the metal. In this process, companies place the huge quantities of rock and earth on a plastic-lined heap leach pad and then spray or drip cyanide over the pile. As the cyanide trickles through the heap, it binds to the precious metal. The mining company then collects the metal from the cyanide solution in liquid-filled pits at the base of the rock pile.

Cyanide and other chemicals can poison water, land and wildlife near mines, but most mining pollution results from digging. When mining companies dig for metals, they expose sulfur-laden rock to air and water, resulting in the formation of sulfuric acid. The acid often drains away from the mine site into ground or surface water where it makes the water so acidic that fish and other organisms cannot survive. This phenomenon is known as acid mine drainage. At California's abandoned Iron Mountain mine, for instance, scientists discovered the world's most acidic water with a pH of -3.6, 10,000 times more acidic than battery acid.

The acid itself is not the only problem. When the acid comes in contact with rock, it dissolves toxic metals including arsenic, cadmium, lead and mercury, and carries those metals into water sources. Acid mine drainage from the Iron Mountain Mine, for example, has periodically released harmful levels of heavy metals into the Sacramento River and has virtually eliminated aquatic life in several nearby creeks. Roughly 70,000 people use surface water within three miles of Iron Mountain Mine as their source of drinking water. Acid mine drainage laden with heavy metals is a problem throughout the West from past and present mines.

Once it begins, such pollution is very difficult to stop. Roman metal mines are still draining acid in Europe. Closer to home, the EPA wrote that Newmont's Phoenix proposal in Nevada "will likely create a perpetual and significant acid mine drainage problem requiring mitigation for hundreds of years." Furthermore, reclaiming acid draining mines after mining ceases is a huge financial liability. The state of New Mexico estimates that one copper mine, the Chino Mine, will cost more than a quarter billion dollars to clean up.

LONG-DISTANCE POLLUTION

Mining pollution often spreads far beyond the site of the mine. For example, in Summitville, Colorado in 1992 a spill of cyanide and heavy metal-laden water killed some 20 miles of the Alamosa River. The area is now a Superfund Site. Taxpayers

have already spent $190 million to clean up the area and will likely be tapped for millions more in the future.

Earlier this month, the EPA added Oregon's Formosa mine to the Superfund list. The historic mine was reopened in the 1990s, mined for two years by a Canadian company and then abandoned with catastrophic results. The mine's acid drainage has killed 18 miles of a creek where salmon once spawned and cleanup is expected to exceed $10 million, the Associated Press reported.

Another example of extended mining impacts is the plume of contaminated groundwater beneath the Bingham Canyon mine. The EPA reports that the plume extends for 72 square miles. The mine is part of the Kennecott South site about 25 miles southwest of Salt Lake City that has been proposed for Superfund status. The mining watchdog group, Earthworks, estimated that the Bingham Canyon mine will leave taxpayers with the largest liability of any mine in the United States: more than $1.3 billion.

A fourth example comes from Arizona in 2006, where dust from a 400-foot-high tailings pile at Phelps Dodge's Sierrita Mine spread over a two- to four-and-a-half-mile radius, coating homes and lawns in nearby Green Valley with white powder. The company said it sampled the tailings several years earlier and found no cause for concern but the state cited the company for failing to prevent the dust from blowing onto homes.

Residents of Crested Butte, Colorado, Boise, Idaho and other towns, are currently facing significant mine proposals that could threaten local water supplies and other resources.

ANTIQUATED LAW

The threat we face today, however, is more serious than in years past. The specter of mining operations is looming over the Grand Canyon and many other treasured national parks, and the 1872 Mining Law provides inadequate tools to control it. Indeed, the 1872 Mining Law does the opposite: it directly facilitates the problem by granting mining rights with no government approval, providing weak standards for protecting water, and creating a potential bonanza with no royalty payments if the claim pans out. Under current law, demand for raw materials around the globe can place our public lands at risk and leave Westerners and federal land managers at the mercy of multinational mining companies.

Mining companies have argued against changing the law because mining is so important to our national security. Yet the oil and gas industry is also vital to our national security and has operated on federal land under a significantly different set of rules. Oil and gas operators must win government approval before gaining control of federal land, pay royalties on the energy they extract and are subject to rules that allow energy development to be balanced with other interests. Under this system, oil and gas companies have enjoyed record profits and record numbers of approvals for drilling permits in the past several years. Indeed, government oversight has often been far too lax. But the main point is that the oil and gas industry has thrived under a much more progressive legal framework.

Mining has operated under an antiquated law for long enough. When mining threatens to scar if not destroy places like the Grand Canyon, it is time to draw the line. We no longer need to give special treatment to the mining industry, particularly when other extractive industries operate profitably on our public lands without such favored treatment and particularly when our national parks and monuments are at risk.

RECOMMENDATIONS TO IMPROVE THE MINING LAW

We recommend several changes to the mining law:

- Protect Western lands.—Mining companies should be allowed to operate on federal lands, but some places should be off-limits. These places include lands bordering National Parks, Forest Service Roadless Areas, and sacred sites.
- Tougher standards for mine permits and cleanup.—Mining companies should be required to prevent perpetual water contamination and put up enough money before operations begin to cover the full costs of cleanup should the company go bankrupt or abandon the site.
- Treat Mining Like Oil and Gas.—Land managers should have the ability to balance mining with other interests such as water quality, the same ability they have with oil and gas and other extractive industries.
- Royalty payments.—Currently, mining companies pay no royalty unlike every other extractive industry operating on federal land. A fair return to taxpayers is essential for cleaning up abandoned mines and providing assistance for communities affected by the boom and bust mining economy.

- Abandoned mine cleanup fund.—Cleaning up abandoned mines is estimated to cost $32 billion or more. Congress should create a fund to accomplish this important task.
- An end to mining's tax break.—In addition to being able to mine royalty-free, mining companies can claim a tax break on up to 22 percent of the income that they make off hardrock minerals mined on federal public lands. Congress should close this loophole.
- No more land giveaways.—For years, mining interests have been able to buy claimed land from the federal government for $2.50 or $5.00 an acre. Since 1994, Congress has placed a moratorium on these giveaways that must be renewed annually. Congress should enact a permanent ban.

Mining provides materials essential to our economy, but it must be conducted in a way that strikes a balance with other values. We look forward to working with the Committee to ensure that mining on our public lands is conducted in a responsible manner.

Thank you for this opportunity to testify.

The CHAIRMAN. Thank you very much.

Let me start and just ask Mr. Snider, I think I heard you say that about half of the public land is currently not available for mining.

Mr. SNIDER. Yes, that's what I said.

The CHAIRMAN. We have a staff background memo here that says, according to the 1999 NRC—that's the National Research Council—report, "The BLM is responsible for 260 million acres of land in the Western States, including Alaska, of which roughly 90 percent are open to hard-rock mining. The Forest Service manages 163 million acres in the Western States, of which roughly 80 percent are open to hard-rock mining." Do you disagree with those?

Mr. SNIDER. I haven't looked at those specific reports. What I would ask you, if I could research that and get back to you on that.

The CHAIRMAN. Yes, I wish you would because obviously there's a big difference. If the Government has already chosen to put half of the public land off limits to mining, that's very different than this information.

Senator CRAIG. Mr. Chairman.

The CHAIRMAN. Yes.

Senator CRAIG. Does that include all National Parks? Very possibly that reference is a factor of all public lands. You've spoken only to Forest Service and BLM and not all of the other domain out there. Those are the dominant ones.

The CHAIRMAN. Yes, well maybe——

Senator CRAIG. No, I would—I would like to see that figure confirmed also, but my guess is you've not mentioned parks, and parks is not in there.

The CHAIRMAN. Yes. No, that's a good point.

Mr. SNIDER. OK.

The CHAIRMAN. If you could clarify that——

Mr. SNIDER. We'll certainly do that.

The CHAIRMAN. That would be useful.

Let me ask Mr. Horwitt, it seems to me, based on our previous panel's discussion, Mr. Butler's points, the Government is free to take action to put areas off-limits to mining claims under current law, as I understand it. Do you know if there's any effort by environmental groups or others, to urge the Government to put some of these areas off-limits, to deal with the proliferation of mining claims that you've described?

Mr. HORWITT. Yes, there is. In fact, in the bill on the House side, that bill would include several areas off-limits, including Forest Service roadless areas and sacred sites. We look forward to working further to identify areas, such as land just outside the Grand Canyon, that ought to be put off-limits to mining.

The CHAIRMAN. But you're referring there to areas that are suggested Congress put off-limits. I'm asking administratively, is it your understanding that the various land management agencies have—I took it from Mr. Butler's testimony—ample authority in the law today for the land management agencies to put areas off limits to mining? Do you know if there's a big push to cause them to exercise that authority?

Mr. HORWITT. We, my understanding is that they can do that, also. You know, our push in recent weeks and months has been to include areas off-limits in Congressional legislation.

The CHAIRMAN. OK.

Let me stop. I know we're going to run into a vote problem here soon.

Senator Domenici, go right ahead.

Senator DOMENICI. Thank you very much.

Mr. Horwitt, I'm not certain that the number of claims staked is the most accurate measure of on-the-ground mining activities. You know what history has revealed in that regard—lots of stakes, but not so much mining. Can you tell us how many plans of operation have been submitted for the claims that are displayed on the maps that you showed us, in my State and other States? I don't know of any claims, any plans for operation.

Mr. HORWITT. I'd be happy to get that number for you. I agree generally that there are many claims that are staked that are not developed. I think the risk is that you have a situation like we had outside Yellowstone National Park where a claim could be developed.

Senator DOMENICI. I'm not disagreeing, I'm merely saying that it's good for us, for those of us who are contemplating fixing the law to understand that claims don't end up as being property transferred, nor does it end up being operational headquarters for mines. What about from an historic perspective? How often do mining claims become full-scale operations? That's what I was trying to get to. You don't have the answer, but you can dig it up.

Mr. HORWITT. Yes, we can get you some data on that.

Senator DOMENICI. I think that would be interesting for us to know. We also do know, without any further research, that the interest in uranium activity is directly related to the price. This is because the price of uranium has gone up dramatically and that has pricked the investment interest of thousands of people. I know because they're writing letters to my office from all over, talking about how do you do this, how do you make claims? Because remember some people did get rich—a lot didn't—in the first drive through New Mexico.

Let's see. I want to move to two more quick ones. Thank you for letting me have a moment, Mr. Chairman.

Mr. Snider, I've discussed, in some detail, the similarities between domestic energy security and trends in the mineral industry. I worry that the concerns we have had about foreign ownership of

and investment in domestic energy resources mirrors the American mining industry. Can you quantify any foreign participation in domestic mining for us and provide some insight as to what the implications of that might be, if any?

Mr. SNIDER. I can't—I can't quantify that. I can tell you that there is—there is some foreign investment in the U.S. mining industry, but I do not believe it's——

Senator DOMENICI. Big.

Mr. SNIDER [continuing]. It's substantial.

Senator DOMENICI. All right.

Mr. SNIDER. But I can quantify that for you.

The CHAIRMAN. Will you do that?

Mr. SNIDER. Yes, I will.

Senator DOMENICI. Thank you. That's for the committee, not just for me.

Mr. SNIDER. Yes, of course.

Senator DOMENICI. In considering changes in mining law, cleanup and abandoned mines must be a top priority. That's already been stated. An obvious approach to this situation would involve spending royalties and other revenues on cleanup efforts. What else can the industry do to expedite abandoned mine cleanup? Either of you? Both?

Mr. SNIDER. Of course, the Good Samaritan provision that I spoke of earlier.

Senator DOMENICI. Yes.

Mr. SNIDER. Today, if my company—or any company—was to go to some abandoned mine that we had nothing to do with originally and try to clean it up, we're immediately tagged with all of the liabilities and the chain of title that goes along with it. That's what keeps us from going out and doing a lot of that stuff.

Senator DOMENICI. Right.

Mr. SNIDER. A Good Samaritan provision would release us from that type of liability and make it much more attractive for companies to go out and do some of that voluntary, additional reclamation.

Senator DOMENICI. I'm as interested in the fact that it wouldn't necessarily be voluntary. They'd get stuck with the Good Samaritan rule if they happen to go on and do a cleanup that's not for free. They get stuck with the fellow servant and go on and have to pay for everything. So we've got to look at that.

Mr. SNIDER. Yes.

Senator DOMENICI. Unless we want to leave these mines sitting out there and wait until it gets so profitable that maybe somebody will pick a couple of them and clean them up.

I yield and thank the Chairman for giving me so much time.

The CHAIRMAN. Senator Craig.

Senator CRAIG. Mr. Chairman, thank you very much. I'll be brief.

Let me focus on what Mr. Horwitt has brought us because it is really very fascinating and it is prelude to a reality that we are moving toward. It is very, very important. Now, the primary source of our fuel for these new reactors, that Pete received a license application for the other day, is in part coming out of the down-blends from highly enriched weapons from Russia, that we're now taking in and redoing. That will last through 2013.

When that's over with, if you think uranium prices are high today, and we've not yet effectively facilitated sources and we've got new reactors coming online, then we have a very real problem, a very pricey problem, and one of being, again, dependent upon, Mr. Chairman, places like Kazakhstan and other places that are much less stable than might Moab, Utah be.

Now, having said that and that's not a criticism of your observations. Not only do we need to be concerned about those properties and how they get developed, if they can be developed, for a 2013 and beyond resource, or once again, we'll be 60 or 70 or 80 percent dependent upon foreign nations for a critical energy source. Because we want to bring online a lot of new clean nuclear reactors.

But a Good Samaritan Law property crafted, under the new technologies of today, what Mr. Snider has talked about is not just going in and being a Good Samaritan, but maybe doing so in a way that is profitable, because of new technologies today. I don't know and I doubt that you would know, Mr. Horwitt, so I won't ask, unless you can add that those large tailings piles in Moab that are going to cost $413 million to clean up. Under today's technologies, might be reprocessable, to pull out uranium that would be needed beyond 2013, if the Good Samaritan Law would allow it.

You know, the Government does things sometimes pretty well, but there are a lot of things they don't do well and they ought to let the private sector do it and they ought to incentivize the private sector to do it. Because they will do it for less money, because they want to make it profitable, but they will do it within the limits.

I see a tremendous opportunity. Old tailings, old techniques, new techniques, new technology, that we can take that Good Samaritan Law and do cleanup that is "profitable", not a negative impact on the general fund. It might, under a new royalty system, actually bring money into the general fund.

To me, that is a phenomenal environmental win-win concept. If all interests come to the table to understand that if we approach it from that manner, we have great opportunity.

That's my general reaction to the observation, but there's some real factors moving in the market out there, and the one I just gave about 2013 and beyond is a very real one and a very important one for a future nuclear electrical generation industry in this country.

Thank you all very much.

The CHAIRMAN. Senator Barrasso.

Senator BARRASSO. Thank you, Mr. Chairman. I know the time is short.

Mr. Horwitt, I agree with Senator Domenici that, with that question about how many claims and how many things actually develop into economically feasible mines. I think it would be less than 1 percent, so I'd be interested in that response as well, that if you can get that back to the other members of the committee.

You talked about the large global demands. I'm wondering if there are things that we do better in the United States environmentally than are happening other places. Are there things that we should try to do here because the global demand is going to continue to be there and I think the use of so many of these resources are going to be important and go forward.

I'm an orthopedic surgeon. Some of the different things that we use—chromium, cobalt, molybdenum, in the implants—they're going to be continued to be needed in a greater and greater number. So I'd be interested in that.

Then, finally, we talked a little bit about the AML money, the abandoned mine lands. You know, I look at that and do we really believe that Federal royalties are going to be used for cleanup. You know, in Wyoming I know that money's been collected by 30 years, for the last 30 years, but the money hasn't come back yet to the State. So, you may want to both comment on that.

Thank you, Mr. Chairman. That's the—that will be my last question.

Mr. HORWITT. I would comment on, you know, as far as a small number of mines, or of claims turning into mines. That's likely true. It's also true and a recent study by a mining engineer and a geochemist, that a large percentage of mines that do get developed, end up exceeding water quality. So we do need to make sure that if a mine is developed that it's developed properly.

I would also say one thing that we could do better and that would help with abandoned mine cleanup, is on the front end, making sure that our bonding requirements for mining operations are adequate. Because we've seen, even in recent years, in the 1990s, again and again that the Bromine in South Dakota, Zortman-Landusky Mine in Montana, the Summitville in Colorado, that operators have created significant cleanup disasters, and there's very little money that the companies have put up to cover those costs. Taxpayers end up paying tens or even hundreds of millions of dollars.

Mr. SNIDER. Just a quick comment on the abandoned mine land fund. I think you're right about the coal situation. We need to craft the fund so that, make sure that the funds go back to the States and therefore, is used for abandoned mine cleanup.

Senator DOMENICI. That was his question. Excuse me, Mr. Chairman. Didn't you want to raise, weren't you raising the question, what's happened to that fund? Why isn't it used? I don't know. Maybe I didn't hear you.

Senator BARRASSO. You're correct, Senator Domenici. We're continuing in a struggle to make sure that the money goes back to the States that should go back with the Abandoned Mine Land Fund. When people talk about Federal royalties and then some of that being used for cleanup—if we look at the AML money, I don't think that it's turned out the way that I think it was initially designed, and would hope that if we are talking about royalties, that those lines be made more clear.

Mr. SNIDER. Absolutely.

Senator BARRASSO. Thank you.

The CHAIRMAN. All right. Thank you very much.

Thank both witnesses. I think it's been a useful hearing. It's not the last hearing we're likely to have on this subject. So, we will be in touch with you and thank you again for your testimony.

[Whereupon, at 11:08 a.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

RESPONSES OF JOHN LESHY TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. In your view, can legislation legally impose new environmental requirements on existing claims that are not yet being mined?

Question 2. Can legislation legally impose new environmental requirements on existing claims that are being mined on the date of enactment?

Question 3. What transition rules should apply to any new environmental requirements?

Question 4. In your view, can legislation legally impose a royalty on existing claims that are not yet being mined?

Question 5. Can legislation legally impose a royalty on existing claims that are being mined on the date of enactment?

Question 6. What transition rules should apply to any new royalty?

Answer. Questions 1-2 and 4-5 raise legal questions about the power of the government to impose new environmental and financial requirements on existing mining claims and existing mining operations. Questions 3 and 6 raise more general questions of policy.

I will begin by setting out the general analytical and legal framework for analyzing these questions.

First, the Supreme Court has many times held that the power of Congress over public property like federal land and minerals is extremely broad. See, e.g., Kleppe v. New Mexico, 426 U.S. 529 (1976). "Without limitations" and "entrusted primarily to the judgment of Congress" are phrases the Court has frequently used in this context. See, e.g., United States v. Gratiot, 14 Pet. 526, 537-38 (1840); Light v. United States, 220 U.S. 523, 527 (1911).

Second, Congress's broad power may be somewhat constrained to the extent property rights have vested in federal lands or minerals. It has long been clear, however, as reaffirmed several times by the U.S. Supreme Court, that a mining claim located on the federal lands carries with it a constitutionally protected property right only where the claimant can show a "discovery" of a "valuable mineral deposit." "[I]t is clear that in order to create valid rights . . . against the United States [under the Mining Law] a discovery of mineral is essential." Union Oil v. Smith, 249 U.S. 337, 346 (1919); see also Cole v. Ralph, 252 U.S. 286, 296 (1920). Mining claims without a discovery are mere licenses to occupy the federal lands. Their legal status is no different from that of a hunter or angler or other casual user of federal lands. The locator of a claim on which a discovery is lacking has the right to exclude other miners from the claim, so long as the original locator is actively exploring for a mineral, Union Oil v. Smith, supra, but until a discovery is made the locator has no rights against the United States.

This means the United States is not constrained by law from changing its policy or rules, from levying a royalty or other financial charge against any minerals produced from such claims, nor even from effectively extinguishing such claims altogether, at any time before a discovery is made.

In practice, almost all mining claims are located in advance of discovery, to provide a foothold on public lands in order to explore for valuable mineral deposits. Such mining claims are located in the hope and speculation that a mineral might possibly exist and be profitably mined from the claimed land, but the courts have long made clear that such hopes and speculations do not satisfy the "discovery" re-

quirement. See, e.g., United States v. Coleman, 390 U.S. 599 (1968); Sullivan v. Iron Silver Mining Co., 143 U.S. 431 (1892).

The vast majority of the several hundred thousand mining claims currently located and maintained on federal lands are not currently producing minerals. Many have not even been significantly explored. One can safely assume that very few if any claims not now in production could presently show a discovery within the applicable legal requirements.

This means that Congress retains practically unfettered authority to change the rules regarding them—both the environmental rules (see question 1, above) and the financial terms or royalty under which mineral production might take place in the future (e.g., the royalty asked about in question 4, above).

Existing claims that are currently being mined-the subject of questions 2 and 5 above-require a little different analysis. Such claims presumably have a "discovery" of a "valuable mineral deposit," and thus have a property right. If the government imposes new regulation that effectively shuts down such operations, the claimant may-and I emphasize may - have a legal argument for compensation. Whether the argument succeeds depends on a case-by-case, fact-intensive analysis. See, e.g., Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency, 535 U.S. 302 (2002).

Regarding question 2, it is very clear that the government retains substantial ongoing regulatory authority over such claims. In 1985, the U.S. Supreme Court said this about the power of Congress to legislate new requirements for existing mining claims from which minerals were currently being produced, and its guidance is worth quoting at some length:

> Even with respect to vested property rights, a legislature generally has the power to impose new regulatory constraints on the way in which those rights are used, or to condition their continued retention on performance of certain affirmative duties. As long as the constraint or duty imposed is a reasonable restriction designed to further legitimate legislative objectives, the legislature acts within its powers in imposing such new constraints or duties. * * *
>
> This power to qualify existing property rights is particularly broad with respect to the "character" of the property rights at issue here. Although owners of unpatented mining claims hold fully recognized possessory interests in their claims, we have recognized that these interests are a "unique form of property." * * * The United States, as owner of the underlying fee title to the public domain, maintains broad powers over the terms and conditions upon which the public lands can be used, leased, and acquired. See, e.g., Kleppe v. New Mexico, 426 U.S. 529, 539 (1976). * * *
>
> Claimants thus take their mineral interests with the knowledge that the Government retains substantial regulatory power over those interests. * * * In addition, the property right here is the right to a flow of income from production of the claim. Similar vested economic rights are held subject to the Government's substantial power to regulate for the public good the conditions under which business is carried out and to redistribute the benefits and burdens of economic life.

United States v. Locke, 471 U.S. 84, 104-05 (1985).

The last-quoted sentence also answers question 5, above, which asks whether the United States has the authority to impose new financial requirements on existing claims that are producing minerals. The government retains the right to require a payment (whether labeled a tax, royalty, fee, or something else) from a holder of an actively mined claim on federal lands, as part of its power to act in the general welfare to "redistribute the benefits and burdens of economic life." In general, the Supreme Court has never given credence to arguments that federal taxes and fees constitute takings of private property. See, e.g., Cole v. LaGrange, 113 U.S. 1, 8 (1885) ("the taking of property by taxation requires no other compensation than the taxpayer receives in being protected by the government to the support of which he contributes"); County of Mobile v. Kimball, 102 U.S. 691, 703 (1880) ("neither is taxation for a public purpose, however great, the taking of private property for public use, in the sense of the Constitution").

Claims that are producing minerals today are not guaranteed a future income stream. The minerals must remain marketable, considering the myriad of factors affecting commodity prices, the cost of production, and so forth. Because "marketability" is a standard test for discovery, see United States v. Coleman, supra, the mining claimant has only a somewhat fragile property right, one which may disappear because of circumstances beyond the miner's control. As the Supreme Court has held, a "locator who does not carry his claim to patent . . . does take the risk

that his claim will no longer [have a discovery good against the government].” Best v. Humboldt Placer Mining Co., 371 U.S. 334, 336 (1963).

In this connection, the Interior Department and the federal courts have long held that, in determining whether a discovery exists, the cost of complying with environmental laws and regulations must be taken into account. The courts have recognized that adding environmental restrictions may in fact affect claim validity. See, e.g., Clouser v. Espy, 42 F.3d 1522 (9th Cir. 1994) (“virtually all forms of [government] regulation of mining claims-for instance, limiting the permissible methods of mining and prospecting in order to reduce incidental environmental damage-will result in increased operating costs, and thereby will affect claim validity. However, the . . . case law makes clear that such matters may be regulated by the government”); Reeves v.United States, 54 Fed. Cl. 652 (2002) (person who located mining claims in a wilderness study area had no compensable property right to have a mining plan approved).

To summarize my answer to questions 1–2 and 4–5, then, there are very few limits on Congress’s power to apply reforms to existing mining claims. It is well settled that the government has nearly unfettered authority to apply newly enacted laws to mining claims that are not accompanied by a discovery; that is to say, most of the several hundred thousand claims currently of record. It also has very considerable power to apply new regulations to mining claims that have a discovery without creating any obligation to compensate the claimants.

The Statement of [George W. Bush] Administration Policy issued on the House-passed reform bill on November 1, 2007, expresses “serious concerns” about its royalty provision “because it fails to take into consideration property rights relating to properly maintained mining claims established prior to enactment of the bill.” The quoted statement is ambiguous. If the Administration is suggesting that “properly maintained mining claims” without a discovery have property rights, it is flat wrong for reasons set out above.

Perhaps it is referring only to existing “properly maintained” claims that have a discovery. But even if it is, it seems to be saying that it opposes applying a royalty to this much smaller category of claims because doing so could result in a “claim for a compensable taking under the Constitution.” Of course, virtually any government action can result in a “claim” of a compensable taking. That is not the same thing as saying that the “claim” would be honored by the courts. Indeed, Congress would have very little to do if it acted only in ways that did not give anyone some sort of “claim” for compensation.

For these reasons, I believe the Committee should give no weight to the Administration’s assertion unless it-and I would include here the Department of Justice as well as the Solicitor’s Office of the Interior Department-supplies the Committee with a legal memorandum explaining in detail exactly what its position is on this matter, and responding to the analysis I have offered here.

Now let me turn to questions 3 and 6, which raise issues not about Congress’s power, but about matters of equitable policy in reforming the Mining Law. This is mainly a matter of balancing the interest to be protected by the new law (primarily the public’s interest in a healthy environment and the interests of the public owners of these minerals in receiving a fair return for their ownership interest) with the interest of the mining industry (primarily in protecting sunk investments).

I would strongly discourage exempting all existing claims from the application of royalties or other levies or from new environmental regulations. Many areas of federal land with mineral potential are already blanketed with claims but, as I indicated earlier, most of these claims lack a discovery and a concomitant property right. Equally important, most have seen little investment and are being held speculatively. Most mines likely to open in the next few decades will probably be on already-located claims. Thus exempting existing claims from new requirements (permanently, or for a period of years) is not legally required, would open a huge loophole, and thwart genuine reform.

Regarding environmental requirements (question 3), I suggest that existing exploration operations need be given only a minimal time-perhaps a year or two-to bring themselves into compliance with new rules. At the exploration stage the amount of investment is relatively small compared to the actual mining enterprise. While more time should be provided to existing producing mines, generally a few years should be sufficient.

It is worth keeping in mind that, while large mines can involve very substantial investments, the costs of environmental compliance are only a small part of the industry’s overall profitability picture, and tend to fade into insignificance compared to factors like retail commodity prices, foreign exchange rates, the cost of energy and equipment, and so forth.

Regarding a royalty or other financial payment to the government (question 6), the investment interest in existing mines could be taken into account in at least two different ones. One is to impose a lower payment on existing mines than new ones (as HR 2262 does). The other is to transition into a royalty payment gradually or after a period of years. There are various other ways to craft a royalty or other levy that adjusts its impact on overall profitability. Payments to the government might be on a sliding scale depending upon overall commodity prices; e.g., if the price of gold doubles or is halved, the royalty or other payment could be adjusted accordingly.

Any royalty or similar payment the Congress might embrace-such as 8% for new mines, and 4% for existing mines, as provided in the House-passed reform bill, H.R. 2262, or a higher percentage comparable to what the coal or oil and gas industry pay on federal leases-will be small compared to risk factors the industry has long faced every day, like fluctuations in commodity prices, and in exchange and interest rates. Sizeable return to the government from fossil fuel extraction from federal lands has not hurt the competitiveness of that industry. This is not to trivialize the investments or the equitable concerns of existing miners, but to suggest how easy it is to overstate the significance of the costs of reform on the overall profitability of the industry.

Practically all the major mineral producing countries of the world have increased royalties or other financial payments and tightened environmental requirements on mines in the last couple of decades, and yet overall the industry has never been in better financial health.

RESPONSES OF JOHN LESHY TO QUESTIONS FROM SENATOR CANTWELL

Mr. Leshy, I am very concerned about the environmental impacts of hardrock mineral mining on our nation's public lands. Hardrock mining, the extraction of metals such as gold, silver and copper, can cause significant impacts on the environment, potentially affecting ground and surface waters, aquatic life, vegetation, soils, air, wildlife, and human health. Metals contamination resulting from hardrock mining can continue for hundreds or thousands of years following the cessation of mining operations. In the United States, more than 500,000 inactive and abandoned mines are estimated to exist in 32 states. Thousands of abandoned mines in Washington are located in sensitive mountain watersheds.

Recently in my state, the Bureau of Land Management (BLM) released a draft Environmental Assessment for issuing a hardrock minerals lease near Mount St. Helens. I am concerned that the BLM's draft Environmental Assessment did not adequately address potential environmental impacts. Although the Environmental Assessment identifies unstable soils in the potential lease area and notes concerns about sediments washing into the streams that feed into the Green River, the BLM nonetheless issued a finding of no significant impact. The Green River is home to listed species of salmon and steelhead, and mine development activity could significantly harm and potentially eliminate these fish populations. Also, acid rock drainage from the mine's leaching process could contaminate the municipal water supply for nearby communities including Kelso, Castle Rock, and Longview.

Question 1. On April 18, I sent a letter to Acting Bureau of Land Management (BLM) Director Jim Hughes regarding the BLM's recent announcement of a hardrock minerals lease near Mount St. Helens. Mr. Hughes stated in his response to my letter that "implementation of the preferred alternative would not result in authorization of on-the-ground activities or disturbances, thus, at this point in time, there are no impacts to analyze for this action." I understand that the BLM has a statutory responsibility under National Environmental Policy Act to analyze and document the direct, indirect and cumulative impacts of past, present and reasonably foreseeable future actions resulting from federally authorized fluid minerals activities. The issuance of a hardrock minerals lease is a necessary precursor to authorizing mining activity that pose serious environmental consequences.

a. In the fluid federal minerals mining program, federal commitments to mining companies seem concrete, in practice at least, at the point of lease issuance. What is your understanding of the point in the leasing application process that it is appropriate for the BLM to consider the environmental impacts of a proposed mining operation on federal public lands?
b. Do you agree with the position that "there are no impacts to analyze" when undertaking an Environmental Assessment considering the issuance of a hardrock minerals lease?
c. Do you believe an Environmental Assessment that considers the issuance of a hardrock minerals lease should accurately evaluate all potential environmental impacts that could result from a mining lease?

Question 2. In response to my April 18 letter, Mr. Hughes stated that "The U.S. Forest Service consent letter indicated that issuance of a lease is compatible with both the purposes of the acquisition, and the Forest Plan." It is my understanding that the BLM can only issue a lease for acquired land if it is compatible with the purposes for which the government obtained the land. The land in question was purchased by the government from the Trust for Public Land under the authority of the Weeks Act using Land and Water Conservation Funds, which are appropriated by Congress for conservation and recreation purposes. Land acquisition under the Weeks Act is for limited purposes. Specifically, only lands "necessary to the regulation of the flow of navigable streams or for the production of timber" are to be recommended for purchase. Such acquisition is authorized only if it "will promote or protect the navigation of streams on whose watersheds they lie." Furthermore, the Gifford Pinchot National Forest Supervisor sent a letter to the Congressional Delegation in February 1986 stating that the federal government's acquisition of this property "will aid in the preservation of the integrity of the Green River prior to its entering the National Volcanic Monument, and will also aid in the preservation of the scenic beauty of this area which is to become an important Monument portal."

Question 3. Mr. Leshy, can you imagine a scenario where leasing this land acquired through the Weeks Act to a mining company is compatible with "promoting or protecting the navigation of streams on whose watersheds they lie," the "preservation of the integrity of the Green River," or "aid[s] in the preservation of the scenic beauty of" such an area?

Answers. Because this proposal involves acquired land, the Mining Law of 1872 is not involved. Although I am not familiar with the details of this situation, NEPA generally requires BLM to assess the environmental impacts of proposed mining operations made possible by a decision to lease at the time that decision is made. The Act requires federal agencies to take a "hard look" at the environmental consequences of their actions before they occur, thereby ensuring "that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impact." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) As a statute intended to affect federal agency decisionmaking, the courts have held that the "appropriate time for preparing an EIS is prior to a decision, when the decision maker retains a maximum range of options," which is before "irreversible and irretrievable commitments of resources" are made. Sierra Club v. Peterson, 717 F.2d 1409, 1414 (D.C. Cir. 1983).

Regarding the question of whether there are impacts to analyze at the lease issuance stage, and what the BLM should consider at that stage, NEPA requires consideration of all reasonably foreseeable impacts that may develop as a result of lease issuance. The government might credibly argue that there are no impacts to analyze at the lease issuance stage only if the lease itself contained a stipulation that the lessee had no right to occupy the leased land surface without further approval from the government-sometimes called a "no-surface-occupancy" or NSO stipulation. Courts have held that the government may postpone NEPA compliance past the lease issuance stage on leases with an NSO stipulation. If the lease does not contain an NSO stipulation, the possibility of full-scale mining needs to be considered at the lease issuance stage, because it is a reasonably foreseeable consequence of issuing a mineral lease without reserving the authority to deny surface occupancy of the leased premises. See Conner v. Burford, 848 F.2d 1441, 1448-51 (9th Cir. 1988); Peterson, 717 F.2d at 1414. The fact that there is some uncertainty about the future, and thus te NEPA analysis requires some speculation, is not a sufficient excuse for not doing it: "Reasonable forecasting and speculation is thus implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as "crystal ball inquiry." City of Davis v. Coleman, 521 F.2d 661, 676 (9th Cir. 1975).

Regarding your question in Paragraph 3, because the land here was acquired under the authority of the Weeks Act for limited purposes relating to watershed protection and streamflow, any mineral development on such lands (though not prohibited entirely, see 16 U.S.C. § 520) is allowable by the Interior Secretary only if the Secretary of Agriculture advises that it will not interfere with the primary purposes for which the land was acquired. Also, the fact that this land was, as you point out, acquired with Land and Water Conservation Fund ("LWCF"') moneys brings into play the specific requirement of the Land and Water Conservation Fund Act of 1965 that lands purchased by the Forest Service with LWCF funds shall be "primarily of value for outdoor recreation purposes." 16 U.S.C. § 460l-9(a)(1).

Leasing these lands for mining purposes could well be inconsistent with the terms under which these lands were acquired. Cf. Kerr-McGee Corp. v. Hodel, 630 F.Supp. 621 (D.D.C. 1986) vacated as moot, 840 F.2d 68 (D.C.Cir. 1988) ("it appears that

mineral development is incompatible with the primary purposes" for which the forest lands were acquired under the Weeks Act).

RESPONSES OF JOHN LESHY TO QUESTIONS FROM SENATOR SALAZAR

Question 1. The issue of payment for the right to mine minerals from federal lands seems to be one of the areas where there are differences of opinion when mining law reform is discussed. Some advocate a royalty-based approach that would collect a fee based on the production of minerals from federal lands. Others have suggested a profit-based approach where payments would be tied to the income a company makes. It seems to me that one of the goals of collecting a payment is to fund the cleanup of abandoned mine sites. Can you share your views on how a payment for the right to mine might be structured that would guarantee adequate funding, while also ensuring a sustainable mining industry?

Question 2. It seems that our country must address the past legacy of abandoned mines that continue to pollute the lands in the West. We know today that there are companies that are willing to step forward as "Good Samaritans" to help address the problems from past mining, but they may be hesitant to step forward because of concerns about the possibility of becoming fully responsible for cleaning up a problem they did not cause. Can you describe what changes you believe are necessary to make to existing laws to encourage Good Samaritans to help in addressing abandoned mine sites?

Answer 1. I agree completely that a very important goal of collecting a payment for hardrock mineral extraction on federal land is to fund the cleanup of abandoned mines. As many have noted, the problem is huge; while estimates vary, there is no doubt many thousands of abandoned mines on the federal lands pose continuing safety and pollution problems, and the cost of cleaning them up runs into the tens of billions of dollars. An informative report on this subject is by Prof. Patricia Nelson Limerick, et al., Cleaning Up Abandoned Hardrock Mines in the West: Prospecting for a Better Future (U. of Colo. Center of the American West, 2005), available at http://www.centerwest.org/publications/pdf/mines.pdf.

In considering this problem in the overall context of Mining Law reform, I would urge that the first principle be one borrowed from the Hippocratic Oath-do no harm. Reforming the Mining Law should cement in place environmental standards and controls sufficient to prevent the already huge problem of abandoned mines from getting worse. A key part of this is to make it difficult for companies to walk away and leave polluting messes with the cleanup bill going to the Nation's taxpayers.

Second, in my judgment, it is entirely appropriate to set aside a significant part of the revenues raised by any royalty or other levy to address this sad legacy, for often the owners and operators can no longer be found to bear the costs. It is appropriate for the industry responsible for creating the problem (and its consumers) bear considerable responsibility for cleaning it up.

Third, in terms of standards for cleanup, it seems obvious that serious safety problems need to be put at top priority, with serious pollution and other environmental problems second. But I would caution against mandating any comprehensive inventory of the scope of the problem before on-the-ground work can begin. Many states and some federal agencies have been evaluating the particulars of this problem for many years. Fourth, federal money should be limited to cleaning up federal lands, or sites that are in mixed federal and state/private ownerships. There is plenty to do for the foreseeable future on federal lands. Other laws, federal, state and local, may provide remedies to clean up abandoned sites on non-federal lands. In generally, I think the approach to this problem contained in the reform bill introduced in the House, H.R. 2262, is a sound one.

It seems to me there are two basic goals in designing a system by which the hardrock mining industry pays something to the public for the use of the public's lands and minerals: First, that it produce real revenue for the Treasury, to reduce the deficit and/or to repair some of the costs and damage left by past hardrock mining activities. Second, that it be efficient to administer, to minimize opportunities for clever accountants and lawyers to "game" the system. Generally speaking, the rule of thumb for a royalty is that the more exemptions, deductions and offsets allowed, the more the system can be "gamed," and the less likelihood significant revenue will be raised. As an extreme example, I would direct your attention to the "sham" royalty included in what came to be known as the "sham reform" proposal that was included in the gigantic budget reconciliation bill vetoed by then-President Clinton in early 1996. My recollection is that the Congressional Research Service estimated that it was so riddled with deductions and loopholes that it would have raised a paltry $1 million per year from the entire multi-billion dollar industry.

For guidance on both royalty levels and structure, the Committee would be well-served to look at the oil and gas and coal provision of the Mineral Leasing Act. The context is closely analogous to hardrock mining-in each case the objective is to secure a fair share of revenue from highly capitalized, risky, globally competitive production of minerals from publicly-owned lands. While the Leasing Act royalty systems are not free from opportunities for mischief, there is no doubt they raise significant revenue for the Treasury in a relatively efficient manner.

Regarding how such a payment might be structured, I would point out that most proposals for reforming the Mining Law in this area levy a royalty on mineral production, but apply it only to mineral ore extracted from federal lands. It does not apply any kind of rental (other than the claim holding fee already in law) or royalty to the use of federal lands to support minerals that have already been patented. Yet it is very common for there to be a jumbled mixture of private, state and federal ownership of large hardrock mines. Sometimes all or most of the actual ore body is on non-federal land (often, because it has already been patented under the generous terms of the Mining Law).

Even where the U.S. no longer owns any part of the ore body, the federal lands play a key role in bringing the ore body into production-by providing lands for mineral processing, for dumping waste rock and mine tailings, and so forth. The United States should, in my judgment, receive a return for the use of its land in these circumstances that reflects its contribution, both past and present, to the overall operation.

Suppose, for example, that the ore body of a large producing mine was 75% in private ownership, having been previously patented under the Mining Law, and 25% federal land. And suppose that thousands of acres of federal land are being used as waste rock dumps and tailings piles for the mining operation. It seems to me that a royalty or payment to the Treasury which is limited to the 25% of the ore body still in federal ownership is inadequate return to the public for this use of the public's resources. Mine operators who use thousands of acres of federal land as a dumping ground ought to pay something more than a nominal fee. Their payment ought to reflect some measure of the value these federal lands contribute to the entire mining operation. I would be happy to work with the committee to try fashion something that would do that.

Answer 2. I agree Congress ought to consider legislation that clarifies the responsibilities and liability exposure of those who propose do restoration and environmental remediation work on abandoned mines. The general idea is simply stated: Laws and regulations ought to encourage such cleanup activity without the participants facing potential liability or responsibility for cleaning up problems they did not create, so long as the participants make things measurably better on the ground. But of course the devil is in the details. Such provisions need to be carefully designed to avoid creating legal loopholes in the existing fabric of environmental laws or other opportunities for mischief- particularly when new mining (or "remining") is proposed—because the end result could be to weaken necessary protections in existing law, and ultimately do more harm than good. I have not followed this topic closely and so I have no specific suggestions to make as to how to do this.

This general subject is related to reform of the Mining Law of 1872 because that Law's historic inadequacies and silence on environmental protection led directly to the large abandoned mined land problem. But it is fundamentally different in the sense that Good Samaritan proposals involve tinkering with the coverage and standards of modern environmental laws like the Clean Water Act. In short, while it is a problem well worth addressing by the Congress, I do not believe it has to be addressed as part of Mining Law reform. The Mining Law reform proposal that just passed the House (HR 2262) would deal with the problem of abandoned mines more directly and comprehensively, by levying a royalty on hardrock mineral production and dedicating a substantial portion of the resulting revenues to cleaning up abandoned mine sites on federal land.

RESPONSES OF DUSTY HORWITT TO QUESTIONS FROM SENATOR DOMENICI

Question 1. Can you tell us how many plans of operation have been submitted for the claims that are displayed on the maps that you showed us? (The maps included a state map of New Mexico, a state map of Colorado, a map of mining claims near Grand Canyon National Park and a map of claims in southern Utah and Colorado including claims near Arches National Park and Canyonlands National Park. The claims and mines on the maps were taken from the Bureau of Land Management's LR2000 Database, July 2007 download.)

Answer. There are 14 plans of operation within the state of New Mexico and 31 plans of operation within the State of Colorado. There are 23 plans of operation on the map showing Grand Canyon National Park and 22 on the map showing southern Utah and Colorado that includes Arches National Park and Canyonlands National Park. Some of these plans may be difficult to see without zooming in because they are intermingled with claims or other features.

(Please not that BLM's LR2000 database contains records of all claims on federal land but includes only those plans located on BLM land. Plans on Forest Service land are not included in the database and are not shown on the maps. Therefore, the maps likely under represent the total number of plans in the areas shown. The Forest Service keeps records of plans in locan ranger district offices. Because these records are not in a central database, records for plans on Forest Service land are more difficult to access.)

It takes mining on only a small percentage of claims to create pollution impacts that can last a lifetime . . . or longer. Some of today's contamination from California's Iron Mountain Mine-a federal Superfund Site-dates to mining activity in the 1800s. Pollution from Montana's Zortman-Landusky mine that dates to the 1990s may require perpetual water treatment.

Because of the catastrophic impacts that mining can have-it is our leading source of toxic pollution-land managers must have the ability to balance mining with other resources such as water quality just as they can for other extractive industries including oil and natural gas. Under current law, once a valid claim is staked, the federal government interprets mining law as providing virtually no way to stop hard rock mining at that site, short of buying out valid claims or other extraordinary intervention, even when mining is in plain view of national parks such as Grand Canyon or Death Valley.

"We are very concerned," Death Valley National Park Supt. James T. Reynolds told the Los Angeles Times on October 16 about the surge in claims near the Park. "I hope the public understands the destruction that will occur. Development will have far-reaching impacts that our grandchildren will have to address."

"Unfortunately, we don't have the authority to stop" any of the claims, Reynolds said.

He added that the biggest threat to the Park is the depletion of groundwater, which is affected by mining, farming and nearby residential development. "If too much water is pumped from the aquifer, then the seeps in the springs in Death Valley will no longer flow," he said. "Plants will die, animals will die and they would even have to truck in water to the valley's private resort."

Reynolds told the Times that he is in negotiations with two borite mining companies to convince them to donate their land to the park. Reynolds has strongly opposed the reopening of the Briggs mine, an open-pit cyanide operation in the Panamint Range on the park's western border.

Canyon Resources, the company that owns the Briggs Mine, says on its website that "re-starting the Briggs Mine in light of today's gold market is Canyon's top priority." Canyon Resources has a history of pollution in Montana. Its Kendall Mine was permitted in 1989 and has exceeded water quality standards according to the EPA. Canyon Resources led an unsuccessful attempt in 2004 to overturn a Montana state law, passed by voters in 1998, that bans open-pit cyanide heap leach gold mining. Previously, the company sued the state of Montana for "taking" its potential profits due to passage of the law.

Without changes to the mining law, land managers may face the same situation they did in 1996 when the federal government paid $65 million to buy out patented claims just three miles from Yellowstone National Park that would have been the site of a major gold mine. The mine would have been located at the headwaters of three streams that flow into the park.

Question 2. How often do mining claims become full-scale operations? We cannot calculate the number of claims that are included in each plan of operation or mine, but the percentage of total claims that become full-scale operations is likely small. Yet it takes mining activity on only a small percentage of claims to create devastating pollution problems.

Answer. Please refer to my response to Question #1.

RESPONSES OF DUSTY HORWITT TO QUESTIONS FROM SENATOR SALAZAR

Question 3. The issue of payment for the right to mine minerals from federal lands seems to be one of the areas where there are differences of opinion when mining law reform is discussed. Some advocate a royalty-based approach that would collect a fee based on the production of minerals from federal lands. Others have suggested a profit-based approach where payments would be tied to the income a com-

pany makes. It seems to me that one of the goals of collecting a payment is to fund the cleanup of abandoned mine sites. Can you share your views on how a payment for the right to mine might be structured that would guarantee adequate funding, while also ensuring a sustainable mining industry?

Answer. Because hardrock mining interests pay no royalty on the minerals they extract from federal land-in contrast to every other extractive industry-taxpayers have been deprived of a fair return on our resources and an important source of funds to help clean up abandoned mines. Mines have contaminated more than 40 percent of Western watersheds' headwaters according to the EPA and cleanup costs for all abandoned mines are estimated at $32 billion or more. Abandoned mines can also be an immediate hazard. In September, a 13-year-old girl died and her 10-year-old sister was seriously injured when they were riding an ATV and fell into an abandoned, unmarked mineshaft in Arizona-the type of accident that is all too common throughout the West. A fair royalty is critical to addressing these significant problems.

We believe that a royalty should be based on the gross proceeds that mining interests receive from selling their products. A variation on this type of royalty is known as "net smelter return" in which a royalty is paid on the amount of money a refinery or smelter pays the mine operator for the mine operator's product. The money paid to the mine operator is typically based on the current price of the mineral with deductions for costs associated with additional processing. The net smelter return, like the gross proceeds royalty, does not include deductions for operating costs.

We do not support the other type of royalty often discussed: a net profits or net proceeds royalty. In this model, the royalty is a percentage of the mine's gross income minus the expenses required to generate the income. The problem with this model is that companies can make the profits disappear simply through innovative accounting mechanisms, such as increasing expenses, leaving taxpayers with little money for abandoned mine cleanup. The Las Vegas Sun reported recently on a study by the mining watchdog group, Earthworks, which found that multinational mining companies had thus erased their royalties under Nevada's net proceeds model.

"The state's largest gold mines, operated by global giants Barrick and Newmont," the Sun reported, "have deducted about $500 million three times—at Barrick's Goldstrike in 2001 and 2002, and at Newmont's Carlin mines in 2005—wiping out their tax bill."

Between 2000 and 2005, Nevada's mining industry paid royalties to the state that amounted to just one percent of sales: $158 million on sales of $16.4 billion. Gold is the major metal mined in Nevada and, during this time period, its price rose 160 percent.

A fair royalty for hardrock mines would be eight percent or greater based on what coal mining companies pay to extract federal coal and based on the fact that the hardrock mining industry has negotiated similar rates in its private agreements. Underground coal operators on federal land pay an eight percent royalty on the gross value of the coal. Surface coal operators pay a 12.5 percent royalty on gross value. LKA International, a Washington State-based natural resources company, leases its Golden Wonder Mine in Colorado to Au Mining, Inc. in exchange for a 10 percent net smelter royalty. Canadian mining company, High River Gold, will pay a 15 percent gross royalty at its Taparko-Boroum mine in Burkina-Faso. And Newmont, the world's second-largest gold producer, pays what amounts to an 18 percent gross royalty on its Gold Quarry property in Nevada.

In addition, as Earthworks has noted, existing mines can afford an eight percent royalty or greater because metals prices have risen so much. Gold prices were roughly $270 per ounce in 2001 when most existing U.S. mines were either operating or in the planning process. Gold is currently worth almost $790 an ounce. The prices of other metals have also skyrocketed; uranium rose from less than $15 a pound in 2003 to more than $125 a pound earlier this year. With all other extractive industries paying a royalty, billions of dollars of cleanup needs and surging metals prices, there is no reason why the industry cannot pay at least an eight percent royalty on both existing and new mines.

Question 4. It seems that our country must address the past legacy of abandoned mines that continue to pollute the lands in the West. We know today that there are companies that are willing to step forward as "Good Samaritans" to help address the problems from past mining, but they may be hesitant to step forward because of concerns about the possibility of becoming fully responsible for cleaning up a problem they did not cause. Can you describe what changes you believe are necessary to make to existing laws to encourage Good Samaritans to help in addressing abandoned mine sites?

The general principle of our pollution laws-a principle that we endorse-is that the polluter pays for cleanup. Governments should enforce this principle. When others step in to attempt to clean up abandoned mines, including companies and state and local governments, they should be required to meet all applicable federal, state and local cleanup standards.

Although some view legal liability as an impediment to Good Samaritans who might otherwise undertake mine cleanups, legal liability drives cleanups more effectively than any Good Samaritan legislation could. As Velma Smith of National Environmental Trust told the House Committee on Resources last year, the Yerington mine in Nevada is being cleaned up-though serious problems remain-because the potential for Superfund liability provides significant motivation for potentially responsible parties.

There are other examples of mines being cleaned up within our current legal framework. In Alaska, the federal and state government have collaborated to restore an area near the Birch Creek National Wild River Corridor that had been used for placer gold mining from 1984 to 1990. In Idaho, the federal government, with help from a local Boy Scout troop, completed a cleanup at the Martin Mine that helped to stop a threat to water quality in Little Cottonwood Creek.

We must bear in mind that mining cleanups can be complex and unpredictable, as Smith noted; some attempts to mitigate mine pollution have met with mixed results. In 1997, for example, a mining company in Arizona attempted to cover a tailings impoundment with waste rock but the impoundment failed, sending debris into nearby Pinto Creek. Such cleanup activities ought to be conducted with full environmental standards.

The real issue is money: governments lack the funds needed to clean up abandoned mines that will cost $32 billion or more to remediate. We support a royalty and other funding mechanisms to pay for this important cleanup.

RESPONSES OF TIM SNIDER TO QUESTIONS FROM SENATOR SALAZAR

Question 1. The issue of payment for the right to mine minerals from federal lands seems to be one of the areas where there are differences of opinion when mining law reform is discussed. Some advocate a royalty-based approach that would collect a fee based on the production of minerals from federal lands. Others have suggested a profit-based approach where payments would be tied to the income a company makes. It seems to me that one of the goals of collecting a payment is to fund the cleanup of abandoned mine sites. Can you share your views on how a payment for the right to mine might be structured that would guarantee adequate funding, while also ensuring a sustainable mining industry?

Answer. The National Mining Association shares your dual objective of fashioning a royalty that raises funds for much-needed cleanup of abandoned mined lands, while at the same time making sure it is structured in a way that ensures a sustainable mining industry in this country. The industry has long supported a "net proceeds" royalty or production payment patterned on the Nevada net proceeds of mines tax which allows for deduction of the enormous ore beneficiation and processing costs and provides a fair return to the government in good times and bad times. When profit margins are higher due to volatile high prices, the royalty revenues would increase.

The industry opposes a gross royalty, such as the one contained in H.R.2262 because it would eliminate the vast majority of the industry's profit from longterm mining investments, detrimentally impact investments in new mines and would cause significant job losses, substantial revenue losses to state and federal treasuries, and mine closures. We attach testimony given by James F. Cress,* a mining lawyer with the firm Holme Roberts & Owen before the House Natural Resources Committee, which does an excellent job of presenting the problems with gross royalties.

Question 2. It seems that our country must address the past legacy of abandoned mines that continue to pollute the lands in the West. We know today that there are companies that are willing to step forward as "Good Samaritans" to help address the problems from past mining, but they may be hesitant to step forward because of concerns about the possibility of becoming fully responsible for cleaning up a problem they did not cause. Can you describe what changes you believe are necessary to make to existing laws to encourage Good Samaritans to help in addressing abandoned mine sites?

---

* See Appendix II.

Answer. You are correct that the mining industry has long been interested in promoting thevoluntary cleanup of abandoned mines. Although it may seem counterintuitive, existing federal and state environmental laws are the major obstacles that stand in the way of voluntary cleanups. A "Good Samaritan" that begins to remediate or even investigate a site could be potentially liable under the Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) for cleanup of the entire site to strict remediation standards, even though it did not create the contamination at issue. In addition, a Good Samaritan could be liable under the Clean Water Act (CWA) to prevent future discharges from an abandoned site to surface waters. These are liabilities and regulatory responsibilities that Good Samaritans are unlikely to voluntarily accept, particularly with respect to abandoned sites with significant environmental problems.

Legislation should ensure that mining companies that did not create the environmental problems associated with a particular abandoned mine qualify as "Good Samaritans". Companies have the resources, expertise, experience and technology to efficiently and appropriately assess problem sites. We are prepared to help.

Therefore, legislation should provide EPA with the discretion, on a case-by-case basis, to revise the regulatory and/or liability provisions of federal and state environmental law that might otherwise apply to the Good Samaritan. In order for the mining industry to participate in Good Samaritan efforts, there needs to be assurance that the mining company will not be subject to suits after the fact for having done exactly what was permitted by the EPA.

The industry also supports the opportunity to "remine" while performing a Good Samaritan cleanup. Abandoned mining sites are located in highly mineralized areas. Processing and reuse of historic mining material may often be the most efficient and least costly means of cleaning up a site. Allowing a company, particularly a company with operations near the abandoned site, to process such materials and wastes with adequate liability protection would provide a financial incentive for mining companies to remediate such sites. In addition, part of the net profits from the remining could be split with EPA to fund remediation at other abandoned sites.

RESPONSE OF TIM SNIDER TO QUESTION FROM SENATOR BINGAMAN

Question 3. In your testimony you state "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." What is the basis for this statement?

Answer. Bureau of Land Management 2000 Study, "Public Lands, On-Shore Federal and Indian Minerals in Lands of the U.S.: Responsibilities of the Bureau of Land Management." p 12.*

RESPONSES OF TIM SNIDER TO QUESTIONS FROM SENATOR DOMENICI

Question 4. How much mining activity on public lands is undertaken by foreign basedcompanies?

Answer. According to the environmental organization, Environmental Working Group (EWG), only 20 percent of the claims on federal lands in the U.S. are under control of foreign controlled corporations. See EWG Report, "Who Owns the West" at http://www.ewg.org/mining/report/index.php?stab=US&chapter=3.

[Responses to the following questions were not received at the time the hearing went to press:]

QUESTIONS FOR JIM BUTLER FROM SENATOR BINGAMAN

Question 1. In your view, can legislation legally impose new environmental requirements on existing claims that are not yet being mined?

Question 2. Can legislation legally impose new environmental requirements on existing claims that are being mined on the date of enactment?

Question 3. What transition rules should apply to any new environmental requirements?

Question 4. In your view, can legislation legally impose a royalty on existing claims that are not yet being mined?

Question 5. Can legislation legally impose a royalty on existing claims that are being mined on the date of enactment?

---

* Documents referred to in Mr. Snider's responses have been retained in committee files.

Question 6. What transition rules should apply to any new royalty?

QUESTIONS FOR JIM BUTLER FROM SENATOR SALAZAR

Question 1. The issue of payment for the right to mine minerals from federal lands seems to be one of the areas where there are differences of opinion when mining law reform is discussed. Some advocate a royalty-based approach that would collect a fee based on the production of minerals from federal lands. Others have suggested a profit-based approach where payments would be tied to the income a company makes. It seems to me that one of the goals of collecting a payment is to fund the cleanup of abandoned mine sites. Can you share your views on how a payment for the right to mine might be structured that would guarantee adequate funding, while also ensuring a sustainable mining industry?

Question 2. It seems that our country must address the past legacy of abandoned mines that continue to pollute the lands in the West. We know today that there are companies that are willing to step forward as "Good Samaritans" to help address the problems from past mining, but they may be hesitant to step forward because of concerns about the possibility of becoming fully responsible for cleaning up a problem they did not cause. Can you describe what changes you believe are necessary to make to existing laws to encourage Good Samaritans to help in addressing abandoned mine sites?

APPENDIX II

Additional Material Submitted for the Record

STATEMENT OF JAMES F. CRESS, ATTORNEY, HOLME ROBERTS & OWEN, ON H.R. 2262

Mr. Chairman and members of the Subcommittee, my name is Jim Cress, and I am testifying today as a mining lawyer in private practice on the subject of mining royalties. I am a partner at Holme Roberts & Owen, a 109-year old law firm that represented miners in Colorado in the late 1800s and today represents mining companies around the globe. I have specialized for nearly 20 years in U.S. and international mining law, as well as oil and gas and coal law. I have represented mining companies and landowners in negotiating royalties for gold, silver, copper, coal, uranium, oil and gas and other minerals, and have advised clients on royalty compliance for private, federal and state royalties and severance taxes. In my international practice, I have negotiated royalty and tax sharing agreements with governments from Asia to the Americas. I have taught in the Graduate Studies program in Natural Resources and Environmental law at the University of Denver Sturm College of Law, am a contributing author to the Rocky Mountain Mineral Law Foundation's American Law of Mining treatise, and am the former Chair of the Mineral Law Section of the Colorado Bar Association. Thank you for the opportunity to appear and speak on the important issue of hardrock mining royalties.

THE H.R. 2262 ROYALTY IS A GROSS ROYALTY, NOT A "NET SMELTER RETURN," AND IS NOT AN APPROPRIATE MEASURE OF FAIR VALUE FOR MINING ON FEDERAL LANDS

This hearing focuses on the royalty provisions of H.R. 2262. Section 102(a)(1) of H.R. 2262 provides for a royalty of 8 percent of the "net smelter return" from production from federal mining claims. The term "net smelter return" is defined in Section 102(i) as "gross income" as defined in Section 613(c)(1) of the Internal Revenue Code of 1986. This provision is used to define the depletion allowance under the tax code, and was not intended to capture a fair return for minerals mined from federal lands.

Let's call a spade a spade: the H.R 2262 royalty is a gross royalty, not a net royalty. The use of the term "net smelter return" in the bill is actually misleading, because this royalty is not a "net smelter return" royalty as customarily used in the mining industry.

A customary "net smelter return" royalty in the mining industry permits the deduction of the costs of smelting (and sometimes costs of leaching and other non-smelting processing methods), refining, transportation from the mine to smelter, transportation from refinery to market, as well as deduction of taxes paid to the government and royalties paid to landowners. The deduction of post-mining costs such as smelting and refining is, in fact, the hallmark of this type of royalty (thus the name "net smelter return").

The term "gross income from mining" under Section 613(c)(1) of the Internal Revenue Code is designed to capture the gross value of the mineral after the mining processes end and non-mining processing begin, contrary to the industry definition of "net smelter return." The intent of this provision of the tax code is to prevent mining companies from claiming a depletion allowance on the value added by the non-mining operations such as smelting and refining operations. Thus, the customary deductions for smelting, refining and other costs under an industry "net smelter return" royalty are actually prohibited under Section 613(c)(1). The result is essentially a gross royalty. A gross royalty is a blunt axe approach to royalty valuation that ignores the comparative value of the federal land base and the value added by subsequent beneficiation and processing of mineral products, and makes little sense in the context of hardrock mineral economics.

A GROSS ROYALTY IS NOT A FAIR MEASURE OF THE VALUE OF HARDROCK MINERALS IN FEDERAL LANDS

Any royalty payment to the United States for hardrock minerals should be based on the value of the United States' ownership interest in the land. That interest is limited to the minerals in the ground, and it cannot justifiably be extended to require a royalty to be paid on values added to the minerals after mining, by the mining company processing, refining and selling the mineral products. The United States makes available land, and any minerals in the land for development, but the United States contributes nothing to the costs and effort of producing and processing the minerals.

Gross royalties are inconsistent with the principle of sustainable development. A gross royalty reduces the volume of an ore deposit that can be recovered. Each deposit of metallic minerals will have varying grades of mineral, generally requiring extensive concentration and refining to be marketable. The portion of the deposit with grades too low to be recovered economically is either removed as waste or left undisturbed in the ground. Adding costs such as royalties raises the "cutoff point" between recoverable ore and waste, shortening the life of a mine by causing what otherwise would be valuable minerals below the cutoff point to be lost. These lost reserves generally can never be recovered, because once the mine is reclaimed, it is uneconomic to recover them.

If mining costs can't be deducted, a mining company would have to pay the royalty regardless of how high those costs may be for difficult mining situations or for low grade ores. This would require a mining company to continue paying a royalty even when it is operating at a loss, and that royalty could even cause the loss. No mine can be operated long at a loss. The result would be that some mines would shut down prematurely, creating loss of jobs, federal state and local taxes not paid, and suppliers of goods and services suffer. The result is lost economic vitality affecting both those directly involved in the mining activity and the governmental entities, including the United States, that are sustained by those activities.

HARDROCK MINERALS ARE DIFFERENT, AND SHOULD BE TREATED DIFFERENTLY THAN COAL AND OIL AND GAS

Why should hardrock minerals not be subject to the 8 percent or greater royalty imposed on oil & gas and coal? The dramatically different characteristics of the minerals themselves and the ways in which they are explored for and developed justifies different treatment.

Oil and gas are fluid and usually collect in sedimentary basins. Exploration for oil and gas usually consists of seismic studies to detect the type of structures where oil and gas are found. These studies are conducted at relatively low cost and usually without the need to acquire more than an easement over the property to be explored. When a promising prospect is identified leases are acquired, a well is drilled and core samples, drill stem tests and logs are taken to determine whether the well is successful. The costs of drilling can sometimes be quite high, but a single well can also drain a large area because of the fluid characteristics of oil and gas. Development of a field is usually accomplished through the initial exploratory well and one or more development wells that are drilled in locations reasonably expected, as a result of the information gathered from seismic studies and the initial wells, to draw from the same reservoir. Once a prospect has proved successful, identification of the size and shape of the reservoir can be conducted with relatively low risk and expense.

After extraction, oil must be processed and refined before it is ultimately consumed as vehicle fuel or other product. The royalty on oil produced under federal leases is not based upon the value of these refined products, however; it is measured by the value of the crude oil at the lease or wellhead, prior to such processing and refining. Unlike many other minerals, there is a market for oil in its crude, unrefined state and therefore a ready value for royalty purposes before the value added by refining and processing. Most oil is sold at the wellhead into this crude oil market and that wellhead sales price establishes the value of the oil for federal royalty purposes. Thus, it is somewhat misleading to call the federal royalty on oil a "gross" royalty. Because the royalty is typically based on the value of the crude oil prior to processing and refining, the royalty is, in essence, "net" of those costs.

Similarly, federal royalty on gas is also based upon the value of the gas at the lease. After gas is extracted, often the only thing required for consumption by the ultimate end-user is transportation (the cost of which, if paid by the producer, is deducted before royalties are calculated). Sometimes further processing is required to remove sulfur and separate gasoline, butane and other constituents from the gas. The royalty, however, remains payable on the value of the gas at the lease or well-

head and the processing costs incurred by the producer downstream of the lease are deducted under the federal rules before calculating royalty, to arrive at essentially a "net" value at the lease.

Coal is a solid mineral of generally uniform quality and composition. In the West, where most federal deposits exist, coal beds often consist of vast deposits of great thickness, in Wyoming averaging 80 feet and up to 200 feet. Little exploration for coal is required, and it is relatively easy to determine the quality of the coal and the thickness of a seam prior to mining. The western coal miner thus knows much about the characteristics of the mineral he has to sell prior to actual mining. At the same time, coal mining is an extremely labor and capital-intensive enterprise. Because of the need to construct facilities, obtain equipment, employ workers, and comply with substantial permitting requirements, it can take years to design, permit and construct a mine. For these reasons, coal from federal lands in the West has often been sold under fixed, longterm contracts entered into prior to construction of a mine. Based on the certainty of a market provided by these contracts, the coal miner can lease sufficient reserves to mine over the life of these long-term contracts and make the considerable capital investments required to construct the mine. Additionally, many long term coal contracts and state utility laws allow for the pass through of the royalty burden to the consumer, while no such pass-through is available for many hardrock minerals, which are sold and priced in global markets.

While the 12.5% royalty imposed on coal in 1976 was a considerable increase over the coal royalties typical at the time, the royalty did not take effect for many federal coal leases until they were readjusted, which occurred over a period of 20 years. In the meantime, the demand for low-sulfur western coal boomed due to the increasingly stringent requirements of the Clean Air Act, and transportation costs out of the Powder River Basin decreased, which permitted the large surface coal mines developed in Wyoming during this period to bear the increased royalty burden, which in any event was generally passed on to utilities (and consumers) under long term coal contracts. The higher-cost coal production in Colorado and North Dakota did not fare as well as Wyoming. Colorado's production initially plummeted, and North Dakota's fared little better, and only because North Dakota mines are associated with mine mouth power plants and because the state made efforts to prop up the industry by lowering taxes and discouraging import of coal from Wyoming. The higher BTU or heating value and low sulfur content of Colorado coal has allowed the market to rebound since that time, and to bear the 8% royalty applicable to Colorado's underground coal deposits (although some Colorado mines have operated under royalty reductions during economic downturns).

In addition, the federal coal royalty regulations permit the deduction of the most material costs, including coal washing where required, and transportation. Thus, the federal coal royalty is not a gross royalty in the strictest sense.

Oil and gas and coal are not the only leasable minerals on federal lands. Sodium, potash, and phosphate are also leasable minerals. These minerals are commonly occurring, low margin industrial and fertilizer minerals the economics of which cannot support a 12.5% or even an 8% royalty. The statutorily established base rate for phosphate is 5% and for sodium and potassium is 2%. That is because the nature of these commodities and the economics around their extracting and marketing differ from oil and gas and coal. In practice, these mines have operated under government-sanctioned reduced royalties during periods when economic conditions and foreign competition threatened to close the mines.

These examples demonstrate clearly why prevailing royalties differ from mineral to mineral. Specific analyses can be made for many other types of minerals. It is clear, however, that application of a gross royalty at a rate of 8% to hardrock minerals simply because that is what is done with coal and oil and gas would be dangerously naive.

Hardrock minerals are, by comparison, scarce and hard to find. Unlike oil and gas and coal, the size and geometry of a hard rock ore deposit, the quality of the ore, the mineral composition, the value of the mineral products, the metallurgical processes required, the mining methods, the commodity prices and the capital costs all vary for each operation. Commercial ore bodies may be found under as little as a few acres of land. Exploration is conducted through exploratory drilling which gives initial clues regarding the deposit, followed by many expensive development drill holes to define a deposit for development. Once a prospect is identified, development commences at considerable cost, with the capital and labor intensiveness of large coal mines, but without the geologic or metallurgical certainty of coal mines nor the economic certainty and incentive of long-term coal sales contracts, which are not customary for most hard rock minerals. The prices of hard rock minerals have historically been subject to great fluctuation. Because hardrock deposits were often con-

centrated by ancient subsurface magma flows which have been altered by subsequent faulting, the concentration of metals varies considerably over relatively small distances, unlike the relatively constant quality of western coal deposits. As a result, portions of a hardrock deposit may be economic while other portions may contain near- or sub-economic ore that is extremely sensitive to the addition of royalty and other burdens. The combination of price volatility and the variations in the concentration and the chemical and geological characteristics of the minerals within an ore body can turn a profitable mine into valueless rock with a sudden downturn in the market.

Hard rock minerals, therefore, require considerably different approaches to exploration and extraction than do oil and gas and coal. Oil and gas and coal are relatively plentiful, and occur over relatively large areas where found. Hardrock minerals are scarce and occur in small concentrations, and must be discovered by expending considerable money pursuing elusive prospecting clues. The period between exploration and extraction for hard minerals is much more lengthy than with oil and gas or coal, and since hard minerals prices are not stable, the risk of the project becoming uneconomic before production begins is substantial. These factors are some of the reasons that hard rock mining transactions and agreements are considerably different from each other and from those dealing with oil and gas and coal. These factors also weigh in favor of a royalty reduction provision in the bill, so that site-specific determinations can be made to reduce costs and achieve the maximum economic recovery from federal mineral deposits.

While individual royalties for specific commodities would theoretically be the best approach, such a system might be too difficult to administer. The most reasonable approach given the large number of commodities to be covered would be a uniform net royalty that permits deduction of mining and processing costs. The Nevada net proceeds tax provides a model that has been tested in practice, and you should consider a similar approach for federal lands.

IF MINING COMPANIES USE NET SMELTER RETURNS IN PRIVATE NEGOTIATIONS, WHY SHOULDN'T THE GOVERNMENT FOLLOW THAT APPROACH IF IT IMPOSES A ROYALTY?

A negotiated royalty between private parties is not analogous to the federal government's imposition of a royalty on millions of acres of unexplored federal lands. Private royalties are negotiated on a case by case basis for each property. Usually, the royalty negotiated depends on what information is known about the property at the time of the negotiation. The less that is known, the lower the royalty.

An 8% gross royalty for lands not proven to contain a mineral deposit is virtually unheard of. I am aware of only one royalty of this magnitude in 20 years of practice. In that case, there was a known ore body containing millions of ounces of gold on the property when the royalty was negotiated and the owner conveyed the mineral rights to the surrounding area (measuring roughly 25 miles by 15 miles), free from any royalty. Clearly, this is not the typical case on unexplored federal land.

Any particular private royalty is not the proper benchmark for setting the federal royalty for tens of millions of acres of federal lands. The purpose of the federal royalty is to encourage exploration and discovery on lands which are not yet proven to contain mineral deposits.

In privately-negotiated royalties, there are almost as many royalty rates and calculations as there are minerals. Each is dependent upon the nature of the product that is produced and sold, customs and practices in the industry, the strength of the market for the particular mineral, the mining cost/processing cost ratio, and many other factors. Use of a net royalty for the federal royalty avoids the need for extensive, mineral-specific legislation. All mines measure net revenues, or profits, and bear determinable operating costs. Therefore, a reasonable percentage net proceeds royalty can be applied and achieve a reasonable return for the use of federal lands, without disproportionate impacts on any particular mineral industry.

In my experience, other countries are paying considerable attention to the appropriate royalty and tax burden to encourage mineral exploration and development. The United States has relatively low grade deposits of many hardrock minerals, relatively high labor costs, and stringent environmental and operating requirements. These must also be balanced in determining whether a royalty is necessary on federal lands. The United States should not impose a royalty without careful consideration of the economic and competitive impacts.

BRITISH COLUMBIA'S FAILED EXPERIMENT WITH A "NET SMELTER RETURNS" ROYALTY IS INSTRUCTIVE

In 1974, British Columbia enacted the Mineral Royalties Act, which imposed royalties on mines located on Crown Lands and the Mineral Land Tax Act and sub-

jected owners of private mineral rights to royalties equivalent to those applied to Crown Lands. The government imposed a net smelter royalty of at 2.5% in 1974, and 5% thereafter.

The results were devastating for British Columbia mineral development. During the period the royalty was in effect, no new mines were developed, several marginal mines ceased operations, and non-fuel mineral output fell, despite increased prices. As a result, revenue collected from royalties on metal mines declined from $28.4 million in 1974 to $15 million in 1975. During the two year period the royalties were in effect, nearly 6,000 mining-related jobs were lost. In 1972, $38 million Canadian was spent on exploration expenditures. In 1975, exploration expenditures fell to $15.3 million Canadian (a 60% decline) while exploration expenditures in the Pacific Northwest—outside British Columbia —increased. New mine exploration and development spending (excluding coal) decreased from an annual average of $131 million in the years 1970–1973 to an estimated $20 million in 1975 (an 85% decline). In 1972, 78,901 new claims were staked. In 1975 the number of new claims staked fell to 11,791 (an 85% decline).

The royalty was repealed in 1976. After the royalty was repealed, BC Mine Minister Tom Waterland said that "[t]he Government's decision to introduce royalties in 1974 was the result of inadequate understanding of the realities of mineral resource development and the economic characteristic of that development.."

I thank the Subcommittee for the opportunity to address this important public lands issue, and I am happy to answer any questions you may have.

STATEMENT OF NANCY FREEMAN, EXECUTIVE DIRECTOR, GROUNDWATER AWARENESS LEAGUE, INC., GREEN VALLEY, AZ

URGENCY OF MINING LAW REFORM

LEGACY OF URANIUM MINING IMPACTS ON NATIVE AMERICAN LANDS COMPELS THE IMMEDIATE NEED FOR REFORM

INTRODUCTION

One of the most compelling reasons to enact significant mining law reform NOW is the rush to mine uranium on public land, including Native American land and their historical sacred sites. Nuclear power is now being touted as a relatively cheap, reliable and emissions-free solution to the world's insatiable demand for energy. Even some leading environmentalists have endorsed nuclear power as an antidote to global warming. More than 50 nuclear plants are planned or under construction in a dozen countries, according to the experts. The truth is nuclear power uses fossil fuel energy at every step: mining, milling, enriching, and conversion to solid—then carting the waste to a disposal facility. Further the problems with the radioactive waste still have not been solved.

The price of uranium is going up so the speculators who hope to make a quick fortune on its rise are coming out of the millworks-especially those from across our northern border. Our Canadian neighbors are in a frenzy to stake claims on free public land, accompanied by its free water, offered by their unsuspecting and uninformed taxpayers south of their border. The situation is so blatant on Native American lands in U. S. that on April 10, 2007, the United Nations Committee on the Elimination of Racial Discrimination (CERD) told Canada that it must rein in Canadian corporations operating on Native American land in the United States. [See Attachment One: UN Body Holds Canada Responsible for Corporations' Actions Abroad]

According to the meticulous records of the Environmental Working Group, Our research shows that in 12 Western states, the total number of active mining claims has increased from 207,540 in January 2003 to 376,493 in July 2007, a rise of more than 80 percent. Over an eight-month period, from last September to this May, the BLM recorded more than 50,000 new mining claims. Current claims cover an estimated 9.3 million acres. Many of the new claims are for uranium. The BLM reports that the estimated number of uranium claims staked in Colorado, New Mexico, Utah and Wyoming combined increased from less than 4,300 in fiscal year 2004 to more than 32,000 in fiscal year 2006.

I. WHAT ARE THE PROBLEMS?

I-1. Unreclaimed mine sites.—Currently, there are uranium mining sites on Native American lands that have not been properly cleaned up and reclaimed from the uranium boom of the 1950's to 1985.

I-2. Health concerns.—Environmental Protection Agency has released extensive testing on the carcinogenic nature of radioactive materials.

I-3. Technologically enhanced radioactive material.—The pervasive nature of uranium mining entering the air, water and soil of the environment as "technologically enhanced" radioactive material must be taken into consideration, particularly for health concerns.

I-4. Disposal of Toxic Waste.—Disposal regulations did not prevent the radioactive contamination of water and soil in Concord, MA or in Paducah, KY. Can we expect the people of Nevada and Utah to continue to storing the chemical and radioactive waste of the rest of the states?

I-5. Cultural impacts.—There are irreversible cultural impacts from living in a toxic zone. First, the relationship to the land and the wild food source are destroyed. Further, the reservation lands are flooded with hundreds of people with no knowledge of or respect for Native American culture.

I-6. Taxpayer burden.—The Environmental Protection Agency estimates that billions of dollars are needed to protect Western drinking water supplies from mine waste. They estimate that cleaning up the half a million abandoned mines across the country may cost $35 billion or more (EPA 2000) Under the Superfund Amendments and Reauthorization Act of 1986 (SARA), USEPA is required to select remedial actions involving treatment that "permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants" [Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 121(b)].

II. WHAT ARE SOME SOLUTIONS?

II-1. Permitting limitations.—Corporations and their subsidiaries that have not completed clean-up and reclamation mandated by Environmental Protection Agency (EPA) or Department of Environmental Quality (DEQ) of any State should not be allowed to file for mining claims and/or mining permits or permitted for new operations. A thorough list should be compiled by EPA and State DEQ's.

II-2. Health assessments.—Priority should be given to health concerns of communities who live in areas with uranium.

II-3. Waste disposal assessments.—Overall consideration of the ramifications of radioactive waste disposal on human and animal survival, including the necessities of clean water to drink, pure air to breath and uncontaminated soil to grow food crops, should be given priority consideration.

II-4. Sovereign Authority.—Native Americans should be given total rights and authority over minerals in their lands.

II-5. Create funds and bonds.—To insure proper reclamation of all mining sites.

III. CONCLUSIONS

Uranium is extremely toxic. The fact is that land, water and people are still suffering the effects of mining of uranium from the boom of the 1950's through the 1980's. When it comes to uranium mining, public land has a unique connotation: Most of the uranium is on wasteland, and those wastelands were the land forced on Native Americans, which are managed by the Department of Interior. This unique situation must be given special consideration in mining law reform to guard against a repeat of the past devastation on Native American lands.

Further, companies who have not complied with reclamation mandates on public and Native American lands should not be allowed to file permits for new operations on public or Native American lands.

A common misconception is the view that electricity generation is the whole energy supply. Electricity comprised about 16% of the total world energy consumption in 2005. Less than 16% of the world electricity is generated by nuclear power stations, so the total share of nuclear power is about 2.5% of the world energy generation, slightly less than that of hydropower. Even if the world electricity generation would be all nuclear, it would provide only 16% of the world energy demand. Report on the misconceptions of nuclear power. Nuclear Information and Resource Service: "Confronting a False Myth of Nuclear Power: Nuclear Power Expansion is Not a Remedy for Climate Change."

TEN REASONS WHY WE DON'T NEED TO BUILD MORE NUCLEAR POWER PLANTS

1. Nuclear reactors are pre-deployed weapons of mass destruction and pose an unacceptable risk. We need to eliminate, not proliferate them. An attack could render a city like Manhattan a sacrifice zone and kill hundreds of thousands within weeks.

2. There is a misconception that nuclear power produces no carbon dioxide (CO_2), when in reality the twenty steps of the fuel and plant cycle require immense

amounts of fossil fuel support. However, the misconception is that we would need 300 in the U.S. and 1,500 worldwide just to make a dent in greenhouse gas (ghg) emissions. One reactor takes about ten years to build. So, even if nukes were a good global warming solution, the time to construct a significant number of reactors would put off the solution for many years.

3. Devoting scarce resources to shore up nuclear takes away from the real climate change solutions-conservation, energy efficiency and renewables like wind and solar.

4. Building enough reactors to offset climate change is cost prohibitive. Reactors cost $4 billion or more each a decade ago and the price hasn't gone down.

5. Nuclear reactor proliferation means more waste with no place to put it. A new Yucca Mountain-style dump every four years would be needed if 1,500 new reactors were built.

6. Nuclear power is not emissions-free. From uranium mining, milling and enrichment to construction and waste storage, nuclear uses fossil fuels. Studies show that there will be a net energy loss-that is more fossil fuel support than electrical output, once our limited amount of high grade ore is depleted. Just like oil, uranium supplies are dwindling.

7. Even nuclear industry executives aren't convinced. One described nuclear expansion as "comatose" and an option that would give his chief financial officer and Standard and Poors "a heart attack."

8. More reactors send the wrong message abroad. The peaceful atom is a myth already exposed by the weapons programs of Indian, Pakistan, Israel, North Korea and Iran.

9. Reactors at the beginning and the end of their lifespan are at their most dangerous, prone to breakdown and accident. Most of the 103 operating now are nearing the end of their cycles. Adding new ones doubles the risk of accident.

10. Electricity is not the biggest problem. It's fossil fuel-powered vehicles. Adding nuclear won't address this or reduce these major ghg emitters. Electricity consists of only 1/6 of our total energy consumption. 83% of our energy consumption is in other areas like auto use, industrial manufacturing, mining, etc.

Information Source: Arizona Nuclear Energy Watch (ANEW), Steve Brittle, 6205 South 12th Street, Phoenix, AZ 85042, 602-268-6110.

The Nuclear Information and Resource Service has created a report: "Confronting a False Myth of Nuclear Power: Nuclear Power Expansion is Not a Remedy for Climate Change." [See Attachment Two: Confronting a false myth of nuclear power]

I. WHAT ARE THE PROBLEMS?

On September 9–11, 2003 Environmental Protection Agency sponsored a two-day workshop on Mining Impacted Native American Lands in Reno, Nevada. The workshop goals were to educate individuals involved with mining issues affecting reservation and other Native American lands in the U.S., to identify current approaches to these issues, and to provide a comprehensive annotation of those issues, which include mining and mine waste impacts, support mechanisms, cleanup processes, and other key areas of mining and reclamation.

The Workshop Committee members were U.S. Environmental Protection Agency; Office of Research and Development, National Risk Management Research Laboratory, Office of Solid Waste and Emergency Response and Regional Offices; Montana Tech & MSE-Technology Applications, Inc.; University of Nevada, Reno; Great Basin Mine Watch; Laguna Acoma Coalition for a Safe Environment (LACSE); Pyramid Lake Paiute Tribe; Gros Ventre and Assiniboine Tribes, Fort Belknap Indian Community; Cheyenne River Sioux Tribe; National Tribal Environmental Council; Mineral Policy Center; Natives Impacted by Mining (NIBM).

http://www.epa.gov/ttbnrmrl/miningimpact.htm. Information source and contact: Norma Lewis, U.S. EPA, NRMRL, 26 West Martin L. King Dr., Cincinnati, OH 45268, (513) 569-7665, lewis.norma@epa.gov.

Following is an except from the presentation of Manuel Pino, Chairman for The Laguna Acoma Coalition for a Safe Environment at The Sixth Session Of The United Nations Permanent Forum on Indigenous Issues, May 2007 under Agenda Item 3, Under the Special Theme: Lands, Resources and Territories, under the mandated issue of Environment, with the following signatories: The Seventh Generation Fund for Indian Development, Eastern Navajo Dine Against Uranium Mining (ENDAUM) Dineh Bidziil Coalition, Haaku Water Office of Acoma Pueblo, Black Mesa Water Coalition, Indigenous Environmental Network (IEN), International Indian Treaty Council (IITC), Western Shoshone Defense Project, Nuclear Free Future Award, Sierra Club's Environmental Justice Office in Flagstaff, and Southwest Research and Information Center.

DECLARATION OF THE INDIGENOUS WORLD URANIUM SUMMIT (EXCERPT)

> We, the Peoples gathered at the Indigenous World Uranium Summit, at this critical time of intensifying nuclear threats to Mother Earth and all life, demand a worldwide ban on uranium mining, processing, enrichment, fuel use and weapons testing and deployment, and nuclear waste dumping on Indigenous lands. Past, present and future generations of Indigenous Peoples have been disproportionately affected by the international nuclear weapons and power industry. The nuclear fuel chain poisons our people, land, air, and waters and threatens our very existence and our future generations. Nuclear power is not a solution to global warming. Uranium mining, nuclear energy development and international agreements (e.g., the recent U.S.-India nuclear cooperation treaty) that foster the nuclear fuel chain violate our basic human rights and fundamental natural laws of Mother Earth, endangering our traditional cultures and spiritual well being. We reaffirm the Declaration of the World Uranium Hearing in Salzburg, Austria in 1992, that "uranium and other radioactive materials must remain in their natural location." Further, we stand in solidarity with the Navajo Nation for enacting the Dine Resources Protection Act of 2005, which bans uranium mining and processing and is based on the fundamental laws of the Dine [Navajo]. And we dedicate ourselves to a nuclear free future. Indigenous Peoples are connected spiritually and culturally to our Mother the Earth . . .

For entire presentation, see http://docip.org/Permanent%20Forum/pf07/PF07manuel080.pdf. Information source and contact: Manuel Pino, 9000 E. Chaparral Rd., Scottsdale, Arizona 85256-2626, United States, Phone: 480-423-6221.

I-1. LACK OF CLEAN-UP AND RECLAMATION OF URANIUM SITES FROM THE 1950S THROUGH 1980S URANIUM BOOM

I.1.1) Navajo Nation Lands

The largest single source of uranium ore in the United States was/is the Colorado Plateau located in the "Four Corners" area: Colorado, Utah, New Mexico and Arizona. The U.S. Federal Government, the sole legal purchaser of uranium ore, paid discovery bonuses and guaranteed purchase prices to anyone who found and delivered uranium ore. The Feds twisted the arms of the tribes, principally Dino, with the promise of good jobs and even royalties (the Dino are still waiting for those checks) and by assuring them that it was the "patriotic" thing to do. The economic incentives resulted in a frenzy of exploration and mining activity throughout the Colorado Plateau from 1947 through 1959.

More than 1,000 old uranium mines and four abandoned processing mills are scattered across the Navajo Nation, which spans parts of Arizona, New Mexico and Utah. From 1944 to 1986, 3.9 million tons of uranium ore were extracted by private companies from the region. The tribe retained a former federal prosecutor Thursday to coordinate an effort to finish the cleanup and eventually to help Navajos made ill by exposure.

The biggest expulsion of radioactive material in the United States occurred July 16, 1979, at 5 a.m. on the Navajo lands. Moore than 1,100 tons of uranium mining tailings gushed through a packed-mud dam near Church Rock, N.M. With the tailings, 100 million gallons of radioactive water gushed through the dam before the crack was repaired. By 8 a.m., radioactivity was monitored in Gallup, N.M., nearly 50 miles away. The contaminated river, the Rio Puerco, showed 7,000 times the allowable standard of radioactivity for drinking water below the broken dam shortly after the breach was repaired, according to the Nuclear Regulatory Commission.

In April, 2005, Navajo Nation President Joe Shirley, Jr. signed a tribal law banning uranium mining and milling while dozens of community members and dignitaries looked on. The act finds that based on those fundamental laws, "certain substances in the Earth that are harmful to the people should not be disturbed, and that the people now know that uranium is one such substance, and therefore, that its extraction should be avoided as traditional practice and prohibited by Navajo law."

President Shirley commented, "As long as there are no answers to cancer, we shouldn't have uranium mining on the Navajo Nation. I believe the-powers-that-be committed genocide on Navajo land by allowing uranium mining. I don't want to subject any more of my people to exposure to uranium and the cancers that it causes. I believe we reinforced our sovereignty today."

See extensive EPA files and photos regarding sites: http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/22cc9f7bbf238b0a88257329007884d4/26fbc51aac6a659888257007005e9416!OpenDocument.

Abandoned Uranium Mines On The Navajo Nation: http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/c3b003b7d86365a4882573290078b569/4114c8585baae97c8825728b007ae50d!OpenDocument.

Information source and contact: EPA Site Manager, Andrew Bain, 75 Hawthorne, San Francisco, CA 94105, 415-972-3167, Bain.Andrew@epa.gov.

I.1.2) Laguna Pueblo

The Jackpile is now undergoing a $48 million reclamation program-paid for by ARCO and conducted by the Laguna tribe-aimed at restoring the landscape to resemble the way it appeared before the exploitation began. The reclamation estimate for complete restoration back to its original landscape, including filling all the pits and leveling all the piles was $400 million—but no one was willing to foot that bill.

Many at an environmental conference held in Laguna, New Mexico said the current reclamation effort was only partially completed and a lot of the uranium from the mine waste already had leached into the soil and water.

"Two tributaries near the mine and the Rio San Jose have already tested positive for radiation contamination," according to Manual Pino with the Laguna-Acoma Coalition for a Safe Environment. "It's one of the best kept secrets of the United States."

Purley, who lived less than 1,000 meters from Jackpile said she was not happy with progress of the reclamation project. "Every time the rain falls there is still this strange smell by the mine."

See Department of Energy, Energy Citations Database: Environmental-Social Aspects of Energy Technologieshttp://www.osti.gov/energycitations/product.biblio.jsp?osti—id=5882296.

Information source and contact: U.S. Department of Energy, Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge,TN 37831, 865-576-1188, reports@osti.gov.

I.1.3) Lakota-Sioux lands in the Black Hills of South DakotaRiley Pass Abandoned Uranium Mines

This mining area has the highest grade uranium ore in this country and even becomes more concentrated once burned on site using diesel fuel, then it was converted to 80% to 90% uranium oxide per pound. In its natural state, content is on the order of 3% to 10% per pound. Although these mines are highly toxic, the U.S. Forest Service has been deferring to the 1872 mining law and concedes that the mining companies are not obligated to remediate their strip mine. Therefore, the U.S. Forest Service requested the U.S. EPA to place the Riley Pass Abandoned Uranium Mine under Superfund for remediation. The Custer National Forest, Sioux Ranger District with the assistance of EPA and the State of South Dakota, has developed a final cleanup plan for the Riley Pass Abandoned Uranium Mine in the North Cave Hills.

The U.S. EPA gave $22 million to the U.S. Forest Service to remediate the abandoned uranium mine nearly two years ago. At this time, after some thirty years the work is scheduled to begin summer of 2007.

See Final Engineering Evaluation and Cost Analysis (EE/CA), Riley Pass Abandoned Uranium Mine Availablehttp://www.fs.fed.us/r1/custer/projects/Planning/nepa/Riley—Pass/index.shtml.

Information source and contact: Custer National Forest, Nancy Curriden, Forest Supervisor, 1310 Main Street, Billings, MT 59105, (406)657-6200, email: dlcook@fs.fed.us.

Standing Rock Site

Current water samples by the Standing Rock Sioux Tribe (SRST) indicate that during this drought period that radionuclide levels in the Grand River have averaged 5 picocuries/liter to 7 picocuries/liter. We assume that the radionuclides precipitate in water and become mobile during rainstorms and snowmelt, we feel that the SRST water samples are insufficient to conclude that the Grand River is "safe." We also assume that during extreme rainfalls and snowfalls that the levels increase exponentially. The SRST water samples also are nearly identical to the water samples taken by the State of South Dakota last year and, like the SRST, the State has not considered high precipitation events as a factor in their reasoning that the Grand River is "safe."

Information source and contact: Charmaine White Face, Defenders of the Black Hills, PO Box 2003, Rapid City, SD 57709, 605-399-1868.

Attachment Three: Uranium Mining and Nuclear Pollution in the Upper Midwesthttp://www.defendblackhills.org/joomla/index.php?option=com—content&task=view&id=98&Itemid=27

I.1.4) Washington State Spokane Reservation

The only uranium mining in Washington State was on the Spokane Indian Reservation: the Sherwood Uranium Mine and the Midnite Uranium Mine, owned by a subsidiary of Newmont Mining Company, Dawn Mining Company, which until 1981 operated the Midnite Mine on the Spokane Indian Reservation. The open-pit uranium mine, now a Superfund site, is the source of radiation and heavy metal contamination of Blue Creek, which flows into the Spokane River arm of Lake Roosevelt. For information on current situation.

Midnite Mine, located on the Spokane Indian Reservation eight miles from the Tribal complex in Wellpinit, is an inactive open-pit uranium mine closed in 1981, leaving behind 2.4 million tons of stockpiled ore (containing 2 million pounds of uranium oxide) and 33 million tons of waste rock. Two of the six excavated pits are open and partially filled with water. Exposed rock from the ore piles generate acid rock drainage. Radionuclides and heavy metals have contaminated groundwater, seeps and surface water, including Blue Creek.

Radionuclides of concern at the Midnite mine and in downstream watersheds include Uranium-238 decay series isotopes such as Uranium-238, Radium-226, Thorium-230 and Radon-222. Heavy metal contaminants of concern include: Aluminum, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Uranium, Vanadium, and Zinc. The waste rock piles and the ore remaining in the open pits at the Midnite mine have significant sulfide content leading to acid generating conditions that release heavy metals and other pollutants into surface and ground water.

The Midnite Mine operated from 1955–1981 under the ownership of a subsidiary of Newmont Mining Corporation: Dawn Mining Company. Today the mine looks like an open wound in the heart of the Spokane Indian Reservation. Dawn abandoned the pits and 33 million tons of waste rock they created without conducting reclamation work to either rehabilitate the site or prevent release of pollutants. As a result, radionuclides, heavy metals and other pollutants have spread several miles beyond the mine site, leaving a toxic trail in downstream creeks and valleys and in downwind plants and hillsides in the central part of the Spokane Indian Reservation. It is now designated as a federal Superfund site requiring a $280 million cleanup. The design phase of the clean-up has been completed; however, the work has not started because EPA has not been able to get Newmont Corporation to fund the work. This means that the clean-up costs would fall to the taxpayers to do so.

Recently, the site made news when a helicopter, fighting a forest fire, took two bucket loads from the unfenced pond about 40 miles northwest of Spokane on the Reservation. The tailings pond, about a half-mile from the fire, holds waste from uranium ore processing by a former Dawn Mining mill at the site. The manager of the mining company asserted, "You wouldn't anticipate an aerial breach of security," he said. He didn't bother to mention that you wouldn't expect a toxic lake of radioactive material to sit out in the open for 30 years either. How many birds and creatures have made the same mistake the fireman did.

This site is a perfect example of a mining company-Newmont Mining Corporation—that should not be allowed another mining permit until this site has been cleaned and reclaimed.

See EPA Files regarding site:

http://yosemite.epa.gov/r10/CLEANUP.NSF/738cdf3a6d72acce88256feb0074f9f4/25f296f579940d8b88256744000327a5/$FILE/ROD-Midnite06.pdf

2) www.epa.gov/EPA-IMPACT/2006/September/Day-06/i14686.htm

Information source and contact: United States Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., MC 2843, Washington, DC 20460, (202) 564-2592.

I.1.5) Tohono O'dham Nation, Arizona

The Cyprus Tohono Mine, on Tohono O'dham land, is operated by Phelps Dodge/Freeport-McMoran. In 2005, EPA issued an administrative order requiring the company to clean up tailings containing toxic salt and uranium on a 450-acre area of its 10,505-acre mine site. This site leached uranium into the groundwater and fouled a tribal community's drinking water well. The public water well was relocated to an area untouched by the contamination. Two of the evaporation ponds and

the mill tailings impoundment are considered to have contributed to groundwater contamination of an aquifer that was previously the sole source of drinking water for the North Komelik community.Removal of the salts and tailings is now underway. These wastes are being piled on a plastic pad, which will then be capped so that no water can get in to move the toxic radioactive materials.

Area residents have also reported that in certain wind conditions dust from the mine blows up into North Komelik, creating potential inhalation of particulate contamination. Contaminated soil will be excavated, placed on a liner, and covered with a soil cap. The work will cost an estimated $18 million will be completed by the mining company.

EPA Files regarding site: http://yosemite.epa.gov/opa/admpress.nsf/c0a363bb3b2bde7e852572a000652ed4/d6d8874eece8434985257209007253 6c!OpenDocument

Information source and contact: U.S. EPA Region 9, John Hillenbrand, 75 Hawthorne Street, San Francisco, CA, 94105, hillenbrand.john@epa.gov, 415/972-3494.

I.1.6) Hopi Land, Yuba City, AZ

Based upon information provided by life-long residents, the Hopi Water Resources Program, Environmental Protection Office (Hopi EPO), and Navajo Nation Environmental Protection Agency (NN EPA) are investigating whether the Tuba City Open Dump site may contain radioactive and hazardous waste. This mixed waste (radioactive and hazardous waste) was allegedly dumped during the operation of the former Rare Metals Corporation of America, a uranium mill tailings facility located approximately six miles northeast of Tuba City. The Rare Metals facility processed uranium ore into high-grade uranium from as early as 1962 to 1968 to support U.S. military efforts.

For entire report, see: http://www.epa.gov/region09/waste/solid/tubacity.html.

Information source and contact: Pui Man Wong, U.S. EPA Community Involvement Coordinator, 75 Hawthorne St. (SFD-3), San Francisco, CA 94105, (415) 972-3242 or Toll Free (800) 231-3075, wong.puiman@epa.gov and Gayl Shingoitewa-Honanie, Hopi EPO (Primary Hopi Contact), P.O. Box 123, Kykotsmovi, AZ 86039, (928) 734-3631, GHonanie@hopi.nsn.us.

I-2. HEALTH CONCERNS

I.2.1) EPA Regulations

The physical problems, such as lung cancer and various respiratory problems were caused by working in the mines. However, the general populace in the vicinity of the mines also were affected by dust blown from the mines and tailings. Some of the symptoms took years to appear—and the chromosomal damage done was even slower to show up. There's no doubt that the U.S. Government and its agencies have done a poor job in helping the affected communities recover from economic, health and environmental contamination. The financial compensation from the Department of Energy that has been doled out after long investigations and copious paperwork manifested long after most of the miners were dead.

Information of health effects from radionuclides from EPASource: Environmental Protection Agency, Stephen Johnson, Administrator, Office of the Administrator, Ariel Rios Building, Room 3000, 1200 Pennsylvania Ave NW, Washington, DC 20468, 202-564-4700.

RADIONUCLIDES (INCLUDING RADON, RADIUM AND URANIUM)

HAZARD SUMMARY-CREATED IN APRIL 1992; REVISED IN JANUARY 2000

Uranium, radium, and radon are naturally occurring radionuclides found in the environment. No information is available on the acute (short-term) non-cancer effects of the radionuclides in humans. Animal studies have reported inflammatory reactions in the nasal passages and kidney damage from acute inhalation exposure to uranium. Chronic (long-term) inhalation exposure to uranium and radon in humans has been linked to respiratory effects, such as chronic lung disease, while radium exposure has resulted in acute leucopenia, anemia, necrosis of the jaw, and other effects. Cancer is the major effect of concern from the radionuclides. Radium, via oral exposure, is known to cause bone, head, and nasal passage tumors in humans, and radon, via inhalation exposure, causes lung cancer in humans. Uranium may cause lung cancer and tumors of the lymphatic and hematopoietic tissues. EPA has not classified uranium, radon or radium for carcinogenicity.

Please Note: The main sources of information for this fact sheet are EPA's—

1) Integrated Risk Information System (IRIS)www.epa.gov/iris/subst/0259.htm, which contains information on oral chronic toxicity;

2) the RfD (inhalation reference concentration): www.epa.gov/ttn/uatw/hlthef/hapglossaryrev.html#rfdfor uranium; and

3) Agency for Toxic Substances and Disease Registry's (ATSDR's) Public Health Service, US. Toxicological Profiles for Uranium, Radium, and Radonwww.atsdr.cdc.gov/toxprofiles/tp150.htmlwww.atsdr.cdc.gov/toxprofiles/tp144.html

HEALTH HAZARD INFORMATION

- Acute Effects
  - —No information is available on the acute effects of uranium, radium, or radon in humans. (2-4)
  - —Animal studies have reported inflammatory reactions in the nasal passages and kidney damage from acute inhalation exposure to uranium. (2)
  - —Acute animal tests in rats, mice, and guinea pigs, have shown uranium to have low to moderate toxicity from inhalation exposure and high toxicity from oral exposure. (2)
- Chronic Effects (Non-cancer)
  - —Several studies have found no increased deaths in uranium workers due to kidney disease, however, one study of uranium mill workers chronically exposed to uranium showed kidney dysfunction. (2)
  - —Animal studies have reported effects on the kidney from chronic inhalation and oral exposure to uranium. (2)
  - —EPA has not established a Reference Concentration (RfC) for uranium (soluble salts or natural). (5,6)
  - —ATSDR has established a chronic inhalation minimal risk level (MRL) of 0.0003 milligrams per cubic meter (mg/m^3) for uranium (soluble salts) based on renal tubule lesions in dogs. The MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse non-cancer health effects over a specified duration of exposure. Exposure to a level above the MRL does not mean that adverse health effects will occur. The MRL is intended to serve as a screening tool. (2)
  - —The Reference Dose (RfD) for uranium (soluble salts) is 0.003 milligrams per kilogram body weight per day (mg/kg/d) based on body weight loss and moderate nephrotoxicity in rabbits. The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious non-cancer effects during a lifetime. It is not a direct estimator of risk but rather a reference point to gauge the potential effects. At exposures increasingly greater than the RfD, the potential for adverse health effects increases. Lifetime exposure above the RfD does not imply that an adverse health effect would necessarily occur. (6)
  - —EPA has medium confidence in the study on which the RfD was based since it was well designed, but used a small number of experimental animals; medium confidence in the database because there are adequate studies on the effects of uranium in various species; and, consequently, medium confidence in the RfD. (6)
  - —Chronic exposure to radium in humans, by inhalation, has resulted in acute leucopenia, while oral exposure has resulted in anemia, necrosis of the jaw, abscess of the brain, and terminal bronchopneumonia. (3)
  - —Chronic exposure to radon in humans and animals via inhalation has resulted in respiratory effects (chronic lung disease, pneumonia, fibrosis of the lung, decreased lung function), while animal studies have also reported effects on the blood and a decrease in body weights. (4)
  - —EPA has not established an RfC or an RfD for radium or radon. (7,8)
- Reproductive/Developmental Effects
  - —Limited evidence from epidemiological studies suggests that uranium or radon exposure may result in a decreased ratio of live male to female births in humans.μ However, it is not certain if the effect is from uranium or radon exposure because the workers were also exposed to other compounds (2,4)
  - —Animal studies have reported reduced number of offspring, reduced fetal body weight and length, and an increase in skeletal malformations from oral exposure to uranium in animals. (2)
  - —No information is available on the developmental or reproductive effects of radium in humans or animals. (3)
- Cancer Risk

—Radium and radon are potent human carcinogens.μ Radium, via oral exposure, is known to cause lung, bone, head (mastoid air cells), and nasal passage tumors. Radon, via inhalation exposure, causes lung cancer. (3,4)
—Smokers exposed to radon are at greater risk for lung cancer (approximately 10 to 20 times) than are nonsmokers similarly exposed. (1)
—Studies in uranium miners have shown an increase in lung cancer and tumors of the lymphatic and hematopoietic tissues from inhalation exposure. However, it is not known whether the cancer risk is from uranium itself, or from radon or other confounding factors. (2)
—EPA has not classified radium, radon or uranium for carcinogenicity. (2-4)

For full report: See www.epa.gov/ttn/uatw/hlthef/radionuc.html

I.2.2) Health Problems in Native American populations exposed to uranium mining and its radioactive contamination

For more than forty years, the people of South Dakota, Washington, Arizona and New Mexico have been subjected to radioactive polluted dust and water runoff from hundreds of abandoned open pit uranium mines, processing sites and waste dumps. The following is from a General Accounting Office report on the amounts paid out to through the radiation exposure program. There is a preponderance of Native Americans being compensated because less safety precautions were used on mines on their lands. There is anecdotal information about this reality. It should be studied further.

GAO GIVES UPDATE ON RADIATION EXPOSURE COMPENSATION PROGRAM STATUS

Uranium worker data from April 1992 through June 30, 2007

Category	Claims approved	Claims denied	Claims pending	Total payments
Uranium Miner	4,560	2,661	208	$455 million
Uranium Miller	1,000	239	33	$100 million
Uranium Ore Transporter	217	70	7	$22 million
TOTAL	5,777	2,970	248	$577 million

Download GAO Report: Radiation Exposure Compensation Act: Program Statushttp://www.gao.gov/cgi-bin/getrpt?GAO-07-1037R.

I.2.2.1) Navajo Land, Arizona

The Indian Health Service data shows that cancer death rate on the reservation from the early 1970s to the late 1990s. Researchers admit that exposure to mining byproducts in the soil, air and water almost certainly contributed to the increase in Navajo cancer mortality.

However, the government has never conducted a comprehensive study of the health effects of uranium mining on the reservation. But individual scientists working on their own have documented that cancer rates are higher near old mines and mills. Not only uranium, but other toxic by-products of mining common in the Southwest, such as arsenic and heavy metals, have been found in one out of five drinking-water sources sampled.

See Navajo Uranium Radiation Victims: http://sonic.net/~kerry/uranium.html.

U.S. Army Corp of Engineers Report: See Two-year uranium mine project benefits Navajo Nation.

www.spl.usace.army.mil/cms/
index.php?option=com__content&task=view&id=317&Itemid=2.

I.2.2.2) Acoma and Laguna Pueblos, New Mexico: Testimony given my Manuel Pino, Acoma Pueblo, New Mexico to the Swedish Parliament in 2006

Acoma Pueblo's neighbor to the east is Laguna Pueblo, and about 15 miles from where their borders meet is the Jackpile mine, North America's largest open pit uranium mine from 1952 until 1982.

"Living in close proximity to that mine, we disproportionately suffered from the environmental impacts, such as water contamination, air quality impacts, and environmental degradation to the soil and to domestic and wild animals," Pino said.

"The contaminants from the Jackpile mine spread throughout the landscape. It came on the wind to our grazing areas, through the jet stream and the wind and air patterns, which affected our air quality. Then the monsoons would fill the arroyos and carry the contaminants to major tributaries that seeped into the underground water table."

Documented cancer clusters among the Navajo, Acoma and Laguna tribes eventually led to the Uranium Workers Act of 2000, designed to compensate miners for exposure to radioactive contaminants. It is actually an amendment to 1990's Radiation Exposure Compensation Act, which held standards of exposure to such heights that former workers and their families were not eligible for compensation. Pino has worked for years helping Native miners file claims under the UWA.

For full report, see: www.scottsdalecc.edu/news/manuel—pino—consults—swedish—parliament07.html.

Information source and contact: Manuel Pino, 9000 E. Chaparral Rd., Scottsdale, Arizona 85256-2626, United States, Phone: 480-423-6221.

I.2.2.3) Acoma Pueblo, New Mexico

In addition to impact of Jackpile mine on the east side of the Pueblo, on the west side, there is an impact of "down-winder" syndrome from the inhalation of radioactive particulate from mining waste. High desert winds of up to 70 mph bring dust from the tailings ponds of the Home stake mine, which inundate the Pueblo regularly. Although there is not an actual mine site on their land, the Acoma people have lost a generation of their people to cancer. A new diagnosis of cancer or a death by cancer occurs on a weekly basis even today. The Homestake and Mt. Taylor mines are upstream from a perennial creek that flows through the Pueblo, creating a potential threat to the water supply of the Pueblo.

Information source and contact: Laura Watchempino, Water Quality Specialist, P.O. Box 309, Acoma, NM 87304, 505-552-6604.

I.2.2.4) Spokane Reservation, Washington

"People do not know to stay out of the site because of health dangers," Deb Abrahamson of SHAWL Society said, telling of a tribal hunter who recently shot a llama near the site.

"Although uranium mining made the United States what it is today, there was no analysis of the impact on our people," said Deb, whose father, grandparents and uncles worked on the site.

"Our people never had a full say in establishing the mine because of internal marginalization," she explained. "After the Homestead Act opened reservation land to homesteaders, many people were adopted into the tribe. That helped disempower and disenfranchise our people.

"Few old-timers remain. The median age of the 2,300 people is now 26," she said. In addition, the tribe did not have the money or education to battle it. Our grandparents, parents, uncles and aunts never knew about the danger.

"They worked in the mine and brought back yellow cake. My father, who worked double shifts, was not told he was bringing that radioactive material home," Deb said. "The tribal health educator and teachers either lacked information or were in denial.

"We did not link deaths to the mine. Our primary care provider, Indian Health Services, was a government arm, so why would it gather data for baseline health survey on radiation?"

Information source and contact: Deb Abrahamson, SHAWL Society, P.O. Box 61, Wellpinit, Washington 99040, United States, Phone: 509-747-3115, SHAWLSociety@yahoo.com.

I-3: TECHNOLOGICALLY ENHANCED RADIOACTIVE MATERIALS

The pervasive nature of uranium mining entering the air, water and soil of the environment as "technologically enhanced" material must be taken into consideration, particularly for health concerns.

EPA Report: Technologically Enhanced Naturally Occurring Radioactive Materials in the Southwestern Copper Belt of Arizona

Information source and contact: U.S. Environmental Protection Agency, Office of Radiation and Indoor Air, Radiation Protection Division, 401 M St., SW Washington, D.C. 20460, October 1999.

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency has been working over the past several years to better understand the nature and extent of TENORM that may become concentrated at copper mining sites. This document presents the information that EPA has compiled on this issue to date. The literature on the subject indicates the presence of uranium and thorium in minerals associated with porphyry copper deposits in Arizona. Copper extraction and beneficiation operations may concentrate these radioactive materials. Samples taken by the ADEQ from several copper mines indicate that TENORM has been found to occur above background levels in surface water and in some mining process and waste streams. The data also show evidence of TENORM in surface water, groundwater and soils. The data suggest that dump leaching operations and solvent extraction-electro-winning procedures, as well as the practice of recycling raffinate at copper mines, extract and concentrate soluble radioactive materials. The results show increases of up to two orders of magnitude over background levels for samples of all radio-chemicals tested except Rn-222. Radiological data in this report represent a sampling of mine wastes at specific facilities and do not necessarily represent other copper operations. Based on the data presented herein, there is an increased likelihood that copper leach operations and their associated solvent extraction—electrowinning circuits in Arizona concentrate TENORM.

FINDINGS

In 1992, ADEQ shared with EPA data on TENORM emanating from copper mines. EPA has continued to work with ADEQ to assemble the available data. As part of its groundwater and surface water protection programs, ADEQ requires mining companies to submit APPAs containing facility-specific radiochemical characterizations. As a result, ADEQ and EPA have accumulated in excess of 3200 analyses of radionuclides at 15 mining sites in the copper industry. This report reviews the current information on the occurrence and distribution of TENORM at mines in Arizona and contains tables of all the available data as of 1997.

Tables 1 through 5 summarize the data according to media, including: groundwater, surface water, soil-sediment, process solutions, and process wastes. Instances when the average levels of radioactivity exceed the federal maximum contaminant levels (MCLs) or Arizona guidelines are shown in bold. The groundwater media included about 2220 analyses from about 176 wells at nine mines. The surface water media included about 197 analyses from nine mine audits, eight washes, and six creeks at seven mine sites. As many as 25 soil samples were taken from four mines to support 110 analyses.

Levels in excess of the federal MCLs and state guidelines were found in groundwater and surface water samples, as well as soil and sediment samples at abandoned and active copper mines. TENORM exceedences were also found in groundwater at active and inactive copper mines. Uranium byproducts were recovered from heap leach dumps and in-situ operations that feed SX-EW and ion exchange circuits at several copper mines. Radioactivity was discovered in copper mineral processing waste streams. Elevated levels of radioactivity were also found to occur in the process solutions and process wastes. . . . .

Data presented within this report represent a sampling of copper mines and facilities, and may not necessarily represent all copper operations in the state. The impacts of copper mining are noteworthy because of unique conditions, such as the presence of trace uranium minerals and the mining and extraction methods that unintentionally extract radioactive materials and enhance its environmental mobility. Tables 1–5 present data on the mining sites where TENORM has been documented by ADEQ. These sites are: Cyprus Bagdad (CB), Cyprus Twin Buttes (TB), Cyprus Sierrita (CS), Phelps Dodge Copper Queen (CQ), Pinto Valley (PV), Mineral Park (MP), Phelps Dodge Morenci (MM), Phelps Dodge New Cornelia (NC), American Legion (AL), De la Fontaine (DF), Hillside (HS), Three R s (TR), Magma Florence (MF), Santa Cruz (SC), and Magma San Manual (SM). Groundwater, surface water, process solution and process waste data in Tables 1–5 are expressed in pCi/L, while soil and sediment data are expressed in pCi/g.

Table 1: Groundwater Statistical Data (except Morenci) (pCi/L)

Radiochemical	Mine Sites	Number	Min.	Max.	Avg.	Std. Dev.
Gross Alpha	CB,TB,CS,CQ,PV,MP,NC	129	0	1500	**60.3**	150.8
Gross Beta	CB,TB,CS,CQ,PV,MP,NC	116	0	500	**44.4**	72.6
U-238	CB,CQ,NC	63	0.06	38.6	5.9	7.6
U-234	CB,CQ,NC	63	1.3	60.4	**12.8**	14.8
U-235	CB,CQ,NC	56	0	2.9	0.4	0.5
Total Ra	PV	16	0.8	122	**10.8**	30.5
Ra-226	CB,TB,CS,CQ,PV,NC	117	0	130	3.0	13.4
Ra-228	CB,TB,CS,CQ,PV,NC	111	0	122	4.1	12.7
Total-U	IB,CB,CS,CQ,PV,NC	119	0	209	**12.0**	24.9
Rn-222	CB,CQ,PV	23	16	3980	216	1309
Total	7 MINES	813				

*Note: Levels of radioactivity in excess of federal MCLs or Arizona guidelines are shown in bold

Table 2: Surface Water Statistical Data (pCi/L)

Radiochemical	Mine Sites	Number	Min.	Max.	Avg.	Std. Dev.
Gross Alpha	MP,MM,CB,TR,AL,DF,HS,NC	54	0	1240	83.5	188.4
Gross Beta	CB,MP,MM,TR,NC	32	0	128	27.1	34
U-238	CB,TR,AL,HS,NC	19	0.1	678	**83.8**	168.2
U-234	CB,TR,AL,HS,NC	19	0.2	577	**80**	141.8
U-235	CB,TR,NC	9	0.04	2.9	1.1	0.9
Ra-226	CB,MP,NC	29	0	71.8	**6.4**	13.8
Ra-228	MP,CB,TR,AL,DF,HS,NC	18	0	55.5	**5.6**	13.1
Total-U	MP,CB,TR,NC	12	0.01	32.9	6.6	10.9
Rn-222	MP	3	39	120	68.3	44.9
Total	8 MINES	195				

*Note: Levels of radioactivity in excess of federal MCLs or Arizona guidelines are shown in bold

Table 3: Sediment and Soil Statistical Data (pCi/g)

Radiochemical.	Mine Sites	Number	Min.	Max.	Avg.	Std. Dev
Gross Alpha	AL,DF,HS,MM	25	0.5	395	**63.1**	90.0
Gross Beta	AL,DF,HS,MM	25	22	248	**69.4**	52.3
U-238	AL,DF,HS	20	0.7	63.3	**7.9**	14.2
U-234	AL,DF,HS	20	0.9	60.8	**10.0**	16.6
Ra-226	AL,DF,HS	20	0.7	82.6	**10.4**	19.7
Totals	4 Mines	110				

*Note: Levels of radioactivity in excess of federal MCLs or Arizona guidelines are shown in bold

Table 4: Process Solutions Statistical Data (pCi/L)

Radiochemical	Mine Sites	Number	Min.	Max.	Avg.	Std. Dev.
Gross Alpha	MP,MM,MF,SC	43	1.3	8649	**1841**	1850
Gross Beta	MP,MM,MF	41	3.0	3683	**975.6**	881.7
U-238	MF	2	248	1611	**929.5**	963.8
U-234	MF	2	254	1745	**999.5**	1054.3
U-235	MF	2	11.6	598	**304.8**	414.7
Ra-226	MF,SC	4	19.5	193	**86.3**	79.1
Ra-228	MF,SC	4	2.0	19	7**.8**	8.0
Total-U	MF,CS,TB	6	0.8	4362	1895.9	1532.9
Rn-222	MF,SC	4	243	3760	1805.7	1593.5

For entire report, see: http://www.epa.gov/radiation/docs/tenorm/402-r-05-007-rev0607.pdf.

I.4. DISPOSAL OF TOXIC WASTE

Uranium Mill Tailings Radiation Control Act

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 allows the U.S. Department of Energy (DOE) to regulate cleanup activities at inactive uranium

tailings disposal sites. The statute provided for the Uranium Mill Tailings Remedial Action Project, which identified 24 inactive uranium sites (two of which have been delisted) at which the DOE monitored the contamination, ground water, and maintenance. These sites also will be part of the Long-Term Surveillance and Maintenance Program, which provides for surveillance, ground water monitoring, and maintenance of sites cleaned up under the UMTRCA Program. In addition, DOE cleaned up properties in the vicinity of the sites contaminated with residual radioactive materials. DOE's Office of Environmental Management now calls it "DOE's oldest and most successful environmental restoration project."

UMTRCA amended the Atomic Energy Act by directing EPA to set generally applicable health and environmental standards to govern the stabilization, restoration, disposal, and control of effluents and emissions at both active and inactive uranium and thorium mill tailings sites. The standards limit air emissions and address soil and ground water contamination at both operating and closed facilities (42 USC 2022 et seq.).

Title I of the Act covers inactive uranium mill tailing sites, depository sites, and vicinity properties. Under this Act, EPA must set standards that provide protection as consistent with the requirements of RCRA as possible. The standards must include ground water protection limits. Title II of the Act covers operating uranium processing sites licensed by the NRC. EPA was directed to promulgate disposal standards in compliance with Subtitle C of the Solid Waste Disposal Act, as amended, to be implemented by NRC or the Agreement States. The 1993 Amendments to UMTRCA further directed EPA to promulgate general environmental standards for the processing, possession, transfer, and disposal of uranium mill tailings. The NRC was required to implement these standards at Title II sites.

In 1983, EPA developed standards to protect the public and the environment from potential radiological and non-radiological hazards at abandoned processing sites. These standards include exposure limits for surface contamination and concentration limits for ground water contamination. DOE is responsible for bringing surface and ground water contaminant levels at the 22 sites (two sites were delisted) into compliance with EPA standards. DOE is accomplishing this through the UMTRCA Surface and Ground Water Projects.

1) U.S. Environmental Protection Agency Abandoned Mine Lands Team Reference Manual: www.epa.gov/aml/tech/amlref.pdf

2) Radioactive Waste Disposal: An Environmental Perspectivewww.epa.gov/radiation/docs/radwaste/402-k-94-001-umt.htm

3) Field Demonstration of Permeable Reactive Barriers To Remove Dissolved Uranium From Groundwater, Fry Canyon, Utahwww.epa.gov/radiation/docs/cleanup/402-c-00-001.pdf

Information source and contact for above three reports: United States Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., MC 2843, Washington, DC 20460, (202) 564-2592.

II-5. CULTURAL IMPACTS

Public attention is now being given to the cultural impacts on the indigenous peoples, not only in U.S., but throughout the world. Many Native American tribes still depend on natural resources for food. Throughout the world, indigenous peoples in particular have seen their centuries-old traditions razed by the introduction of industrial-scale business. From Alaska to Nevada, mining projects have left native tribes plagued by contaminated waterways and forests, health problems, upsurges in violence from the influx of outsiders, neglect of local traditions, and community infighting between those who want jobs at any price to the environment and those who want to preserve a way of life that has persevered for several thousand years.

UNITED NATIONS ADOPTS DECLARATION ON RIGHTS OF INDIGENOUS PEOPLES, 13 SEPTEMBER 2007

The General Assembly today adopted a landmark declaration outlining the rights of the world's estimated 370 million indigenous people and outlawing discrimination against them—a move that followed more than two decades of debate.

The United Nations Declaration on the Rights of Indigenous Peoples has been approved after 143 Member States voted in favor, 11 abstained and four—Australia, Canada, New Zealand and the United States—voted against the text.

A non-binding text, the Declaration sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education and other issues.

The Declaration emphasizes the rights of indigenous peoples to maintain and strengthen their own institutions, cultures and traditions and to pursue their development in keeping with their own needs and aspirations. It also prohibits discrimination against indigenous peoples and promotes their full and effective participation in all matters that concern them, and their right to remain distinct and to pursue their own visions of economic and social development.

For complete information, see: http://daccessdds.un.org/doc/UNDOC/LTD/N07/498/30/PDF/N0749830.pdf?OpenElement.

Information source and contact: The Secretariat of the UN Permanent Forum on Indigenous Issues, Secretariat of the Permanent Forum on Indigenous Issues, United Nations, 2 UN Plaza, Room DC2-1772, New York, NY, 10017, Tel: 1 917 367 5100.

Attachment Four: On the Cultural Impacts of Mining

ATTACHMENT 1.—ARTICLE FROM CULTURAL SURVIVAL, APRIL 10, 2007

UN BODY HOLDS CANADA RESPONSIBLEFOR CORPORATIONS' ACTIONS ABROAD

by Mark Cherrington, Managing Editor

http://www.corpwatch.org/article.php?id=14458

In a groundbreaking decision, the United Nations Committee on the Elimination of Racial Discrimination (CERD) has told Canada that it must rein in Canadian corporations operating on Indian land in the United States.

The finding, issued in early March, was in response to a petition filed by the Western Shoshone Defense Project about the actions of Canadian resource-extraction companies operating on the tribe's land in the western United States. Among other things, the Convention on the Elimination of Racial Discrimination, which has been ratified by both Canada and the United States, requires states to "guarantee the right of everyone . . . in the enjoyment of . . . economic, social, and cultural rights ... and the right to public health." The Shoshone petition claimed that these are the areas in which the Canadian companies are affecting them.

The petition especially targets Barrick Gold Corporation, the largest gold mining company in the world. Gold mining uses large amounts of toxic mercury and creates cyanide-laced leaching ponds, both of which threaten Shoshones' right to health. The blasting used to open mining sites destroys sacred areas, which violates the tribe's cultural rights to culture, and mining roads disrupt wildlife, undermining their traditional ways of finding food. Gold mining also requires vast amounts of water, which dries up springs and other water sources that the Shoshone need for health. The Betze mine alone uses 70,000 gallons per minute, and it is hardly alone. Western Shoshone lands are the third-largest gold producing region in the world, and there are six other Canadian gold companies besides Barrick operating there, with more applications for leases already under consideration.

The Shoshone have targeted Canada in part because the United States has failed to take any action to protect Shoshone lands. On the contrary, the U.S. government has declared most of Shoshone territory to be federal public land open to resource extraction and other commercial activities. The treaty protecting the original Western Shoshone territory—some 60 million acres from southern Idaho to California's Mojave Desert—is still valid, but the government has gotten around the treaty by invoking a principle it calls "gradual encroachment." This legal tautology has been discredited by the Inter-American Commission on Human Rights, but the United States has ignored those findings.

In fact, the government has been seeking ways of making their lands even more available to encroachment. Until now, extraction industries have been operating under a federal lease arrangement, but in 2004 Republican congressman Richard Pombo introduced an amendment to a budget bill that would allow foreign companies to buy this "public" Shoshone land for $1,000 an acre. (The bill was passed by the House of Representatives but defeated in the Senate.) And a second bill, introduced by Republican congressman James Gibbons (now governor of Nevada), would have offered more than 60,000 acres of Shoshone land for sale to the Canadian company Placer Dome, now owned by Barrick Gold.

The racial discrimination treaty is a binding agreement for Canada, which, like all state parties, has to submit to biannual review by the CERD Committee, the treaty's enforcement body. CERD reviews the country's report (and any accompanying unofficial "shadow reports" like the Western Shoshones') and issues observations and recommendations like the one regarding Canada, which read in part: "The committee encourages the state party to take appropriate legislative or administrative measures to prevent acts of transnational corporations registered in Can-

ada which have a negative impact on the enjoyment of rights of indigenous peoples in territories outside Canada. In particular, the committee recommends to the state party that it explore ways to hold transnational corporations registered in Canada accountable."

Will Canada act on that recommendation? One hopeful sign in that regard is a report published on March 29 by Canada's National Roundtables on Corporate Social Responsibility and Canadian Extractive Industries in Developing Countries. Among many recommendations in this comprehensive government report, are several that stress the need to protect the rights of indigenous peoples in the areas where Canadian companies operate.

ATTACHMENT 2.—ARTICLE FROM NUCLEAR INFORMATION AND RESOURCE SERVICE, MAY 3, 2006

CONFRONTING A FALSE MYTH OF NUCLEAR POWER: NUCLEAR POWER EXPANSION IS NOT A REMEDY FOR CLIMATE CHANGE

http://www.nirs.org/climate/background/climatetalk__mary__un__050306.htm

May 3, 2006 New York—Nuclear power is being widely promoted as a "solution" to global climate change. Unfortunately nuclear power is not a solution and it is further counterproductive to any real remedy for human impacts on climate.[3] Those selling the expansion of nuclear power are on a par with any salesman of counterfeit medicine; one must closely examine the motives of anyone associated with nuclear schemes of any kind.[4]

In the service of this disinformation campaign U.S. Vice President Cheney has publicly stated [5] a falsehood: he asserted that nuclear power is carbon-free. Nuclear power is not free from carbon emissions. A number of recent studies have found that when mining, processing, and extensive transportation of uranium in order to make nuclear fuel is considered, the release of carbon dioxide (CO_2) as the result of making electricity from uranium is comparable to burning natural gas to make electric power.[6] Additional energy required for decommissioning and disposition of the wastes generated increases this CO2 output substantially.[7]

Nuclear power is not only dependent upon fossil fuels for the production of uranium fuel, decommissioning, and the disposition of wastes generated: it is also dependent upon a grid that is powered by other sources of energy, typically coal. This is due to the simple fact that nuclear reactors cannot "black start"[8] —in other words, they depend on electric power from the external power grid to be able to come on-line. Transition away from the combustion of fossil fuels cannot be accomplished solely by the expansion of nuclear power since it depends on the grid being powered up before reactors can come on-line.[9]

A second false facet of the promotion of nuclear power as a "solution" hinges on the claim that nuclear energy is clean.[10] The implication: if you cannot see it, there is no pollution. In truth nuclear power can only operate because it enjoys some of the most lenient public "protection" standards in the world.[11] The destructive activity of radioactivity is to disrupt the structures of living cells, especially DNA.[12] The international regulatory regime for exposure to radiation results in an unfortunate level of human sacrifice. Considering only the exposure of "standard" adult males in the US civilian population to "permissible" levels of radiation, one official esti-

---

[3] Amory Lovins, More Profit With Less Carbon, Scientific American: September 2005.

[4] See for instance, Dr. Helen Caldicott, Nuclear Madness, (updated edition) W.W. Norton 1994.

[5] Cheney was speaking on C-Span in 2004 when he made the statement that there is already an alternative fuel developed that "is carbon-free"—incorrectly referring to nuclear power.

[6] Felix Christian Matthes, Nuclear Energy and Climate Change, 2005. Issue Paper # 6, Heinrich Boll Foundation & World Information Service on Energy, at: http://www.nirs.org/ch20/publications/nrandclimate.htm

[7] Andrew Sims, Mirage and Oasis—Energy Choices in an Age of Global Warming, 2005. Posted at: http://www.neweconomics.org/gen/uploads/sewyo355prhbgunpscr51d2w29062005080838.pdf

[8] See Wikipedia on line at: http://en.wikipedia.org/wiki/Black—start

[9] See also Lovin's footnote #44 in Amory Lovins: Nuclear Power Economics and Climate Protection Potential 2005, Rocky Mountain Institute, E-05-08, posted at: http://www.rmi.org/images/other/Energy/E05-08—NukePwrEcon.pdf.

[10] Nuclear Energy Institute advertising campaign.

[11] Mary Olson, the Myth of the Millirem, 2004. See http://www.nirs.org/factsheets/mythmiliremfctsht.htm

[12] Cindy Folkers, Radiation Basics, 1999. See http://www.nirs.org/radiation/radiationbasics.pdf

mate of risk finds that of every 57 men exposed, one will suffer fatal cancer.[13] Obviously this same level of radiation exposure will produce more cancers in children and others who are more vulnerable[14] US worker standards have recently been revealed to produce cancer in 1 in 4 workers.[15] Recent revelations of massive tritium releases from US reactors, contaminating groundwater in residential neighborhoods, exposes the lie that nuclear power is "clean."[16]

The vast majority of radioactivity in nuclear waste worldwide is from the production of electricity. Even in the United States, where for decades a robust nuclear weapons program operated, more than 95% of the total radioactivity is in waste from commercial nuclear power.[17] Reactor waste contains materials with half-lives measured in tens of thousands, and some in millions of years. More than 12,000 human generations—are required to reduce the hazard of these materials to acceptable levels. The most concentrated waste is irradiated fuel from electric power reactors, and the residual wastes from attempts to "recycle" or reprocess the fuel.[18] Other wastes include the entire massive reactor structure itself when the facility is shut down.[19]

In addition to radiological pollution, nuclear power also contributes massive thermal pollution to both our air and water. [20] It has been estimated that every nuclear reactor daily releases thermal energy-heat—that is in excess of the heat released by the detonation of a 15 kiloton nuclear bomb blast.[21] In addition to horrendous direct impact of this heat on aquatic ecosystems, nuclear power contributes significantly to the thermal energy inside Earth's atmosphere, making it contraindicated at this time of rapid global warming.

A fundamental element in finding that nuclear power is a false solution to climate change is that the economics of nuclear power are not sound—in open markets nuclear cannot compete.[22] Since splitting atoms is not a cost-effective source of electric power, it is even less cost-effective in preventing greenhouse gas emissions. Life cycle costs for nuclear power generation (in the USA) have been estimated at 12 cents a kilowatt hour, whereas life cycle costs for wind power in the same analysis is estimated at 4 cents a kilowatt hour.[23] Others find that expanding nuclear generating capacity is about twice as expensive as expanding generating capacity through investment in wind power.[24] Since the same money will buy 2–3 times more electric power when used to purchase wind generated electric power, it is clear that prevention of greenhouse emissions will also be 2–3 times greater when buying wind generated electricity.

Wind energy is the fastest growing form of electric power generation in the world.[25] This technology leads the portfolio of renewable energy options, and solar power is also making enormous strides with significant annual drops in cost of photovoltaic hardware.[26]

---

[13] US Nuclear Regulatory Commission, published in the Federal Register: Below Regulatory Concern Policy Statement 1990 establishes that the US radiation standard of 100 millirems a year would result (at government assessed levels of risk) in 1 in 286 people exposed suffering fatal cancer. US regulations promulgated in the Code of Federal Regulations, Chapter 10, Part 20 allow the public to be exposed to up to 500 millirems a year from combined sources of air, water and sewage, raising the cumulative level of risk, as assessed by that agency (which assumes a linear dose-response relationship) to 1 in 57.

[14] Cindy Folkers and Mary Olson, Radiation and Children: The Ignored Victims, 2004. See http://www.nirs.org/radiation/radiationandchildren.pdf

[15] National Academy of Sciences, Biological Effects of Ionizing Radiation VII, 2005. Also, Cindy Folkers, US Panel Recognizes No Safe Dose of Radiation, 2005. See: http://www.nirs.org/radiation/radtech/nosafedose072005.pdf

[16] See: http://www.nirs.org/radiation/tritium/tritiumhome.htm.

[17] US Department of Energy, Integrated Spent Fuel Database, 1994.

[18] See High-Level Nuclear Waste Fact Sheet, 1997, http://www.nirs.org/factsheets/hlwfcst.htm

[19] See Low-Level Radioactive Waste Fact Sheet, 1992, http://www.nirs.org/factsheets/llwfct.htm

[20] Paul Gunter and Linda Gunter, et al, License to Kill, 2000. See: www.nirs.org/reactorwatch/licensedtokill/LiscencedtoKill.pdf

[21] See news report posted at: http://www.closeindianpoint.org/articles/tjn—071103.htm

[22] Amory Lovins, Mighty Mice, Nuclear Engineering International, December, 2005. http://www.rmi.org/images/other/Energy/E05-15—MightyMice.pdf There are many other citations given by Lovins in his recent review article on economics of nuclear power, see note #51.

[23] Nuclear Economics, Safe Energy Communication Council, 1992. This figure does not reflect full costs of long term waste disposition, or any health impacts.

[24] Lovins, More Profit with Less Carbon, see note #3.

[25] Jim Moltivalli, Catching the Wind, E Magazine, January 2005. http://www.emagazine.com/view/?2176

[26] See http://www.eande.tv/transcripts/?date=092805

In the USA, the ongoing waste of electric power makes investment in energy efficiency[27] protocols and hardware an even more cost-effective way to reduce carbon emissions. Amory Lovins[28] finds that a combination of assertive efficiency programs combined with decentralized industrial cogeneration of electric power from waste heat results in 7 times more reduction of CO_2emissions than a comparable investment in expanding nuclear power. A comprehensive strategy for the USA—a real remedy for reducing greenhouse gases—is contained in the "Sustainable Energy Blueprint: A Plausible Strategy for Achieving a No-Nuclear, Low-Carbon, Highly Efficient and Sustainable Energy Future."[29]

The finding that nuclear energy is not profitable, that it is not compatible with public health, and that it releases massive heat directly contradicting climate goals, calls into question the basis upon which individuals, governments and corporations are seeking to invest public funds in nuclear expansion. Inquiring minds will ask if there is an additional agenda underlying this gambit to "revive" nuclear power. Before offering some conjecture about such motives, there remain several points about why nuclear power is not qualified to remedy our climate fever.

An extensive 2003 study by the Massachusetts Institute of Technology[30] investigated the future of nuclear power, including its potential to combat climate change. MIT's nuclear boosters project that expanding nuclear generating capacity worldwide to 1000 billion watts would be required to address the climate problem to any meaningful degree. This would roughly mean adding one new reactor every two weeks until 2050. In the USA, some of the last reactors to be built (Vogtle 1 & 2) cost more than $4 billion each! The industry has recently asserted that it will be possible to build reactors for $ 2 billion[31]—1/2 the previous actual figure; this however, is speculative. Even taking the $2 billion industry "guestimate," it would require trillions of dollars to implement this supposed "fix." It is plain that a similar investment in efficiency in the USA and other energy-hog nations, and investment in wind energy worldwide would be a far more cost-effective use of capital. One can only imagine the results if a fraction of the residual funds were invested in technology development in solar, appropriate hydro, appropriate biomass and other sustainable power innovations!

The economic factors outlined above do not consider the considerable risk associated with operating facilities that are effectively pre-deployed nuclear weapons.[32] In the USA the prospective costs associated with such risks are effectively relegated to future victims.[33]

The financial analyses, as unfavorable as they are already, assume that splitting uranium is a bona-fide source of energy. There is the assumption that one does, in fact, achieve the production of new energy over and above the investment of energy required to create, fuel, and run the reactor. An in-depth analysis by Jan Willem Storm van Leeuwen and Philip Smith[34] challenges this assumption. These authors find that operating a nuclear power reactor does not always result in new power production. When all of the energy used to produce uranium fuel, build the reactor and decommission it (not including long term waste disposition) are considered, some of the scenarios show that no new energy is achieved—in some cases no matter how long the reactor is run! Outcome of the calculations is directly tied to the

---

[27] Efficiency and conservation are not the same. Conservation is the suspension of use—efficiency is wise use. The opportunity to develop using energy efficient hardware, protocols and strategies is the opportunity to avoid emissions through wise use and relative reduction in overall demand.

[28] See note #3

[29] Sustainable Energy Blueprint: A Plausible Strategy for Achieving a No-Nuclear, Low-Carbon, Highly Efficient and Sustainable Energy Future. See: http://healthandenergy.com/sustainable—energy—blueprint.htm

[30] J. Deutsch and E. Moniz (co-chairs), The Future of Nuclear Power, MIT, 2003.

[31] Seattle Times, April 28, 2006, Nuclear Power's New Generation. http://seattletimes.nwsource.com/html/nationworld/2002958091—nuclear28.html

[32] On September 18, 2001 Mohamed El Beredei was quoted in the world press admitting that if a jumbo jet hit a nuclear reactor it would result in a Chernobyl level release of radioactivity and that in fact, no reactor in the world could withstand such a hit. Unfortunately it does not take an airplane to cause a major reactor accident as has been portrayed in a number of dramatic presentations including China Syndrome; Meltdown; 24 (2005) and West Wing. See also Frank von Hippel, Revisiting Nuclear Power Plant Safety, Science 291:201, 2003.

[33] The USA relies upon a publicly administered insurance program for nuclear power (the Price-Anderson Act) that provides a system whereby all reactor operators pay in the event of any one unit having a major accident—and a liability cap, beyond which the industry does not have to pay. It is of interest that while an act of terror would be covered by the program, acts of war are not. The Bush War on Terror has neutralized all liability for the industry.

[34] Jan Willem Storm van Leeuwen and Philip Smith, Nuclear Power: the Energy Balance, 2002 (revised and posted in 2005 with updates at: http://www.stormsmith.nl/)

quality of the uranium ore used. Clearly it does not make sense to spend trillions of dollars on a technology that does not reliably produce the desired product—energy. Given the steep curve on technology costs associated with implementing hydrogen as a transportation fuel, using uranium as the base for producing hydrogen production may simply amplify this black-hole effect.

Storm and Smith show that uranium, similar to oil, is subject to a "peak" in the availability of high-grade uranium ores, and that these premium ores are already being exhausted. "Peak uranium" is a driver in the push to "close the fuel cycle" and move to plutonium as the fuel in atomic reactors. Plutonium may be used either in combination with uranium—as MOX (mixed oxide) fuel,[35] or alone in high-temperature breeder reactors, both of which are vulnerable to diversion of plutonium for nuclear weapons proliferation. [36]

2005 marked a deeply disturbing turn in US nuclear policy toward a plutonium economy.[37] The Energy Policy Act of 2005[38] awarded billions of dollars in direct tax subsidy, tax credits, guaranteed loans[39] and other inducements to spawn a new generation of (partially) publicly funded commercially owned nuclear power reactors in the US. Nonetheless a major Wall Street credit analyst, Standard and Poors[40] responded to the legislation stating that nuclear power is still "a risky business practice" and suggested that it would require "progress" in traditional problem areas, such as long-term nuclear waste disposition for Wall Street to jump into new reactor investments. High-level nuclear waste is currently stored on corporate reactor sites.

For the past two decades the nuclear waste program in the US has been based on the goal of deep geologic burial. Reprocessing was tried (and abandoned) 40 years ago— to disastrous environmental and economic consequences in West Valley, New York.[41] The industry found reprocessing to be unprofitable, and US Presidents Ford and Carter banned it thanks to the demonstration by India that this technology results in the separation of nuclear weapons-usable plutonium-239 from the waste.[42]

In November 2005 Congress reversed US policy on reprocessing —in part driven by the technical failure of the Yucca Mountain repository program,[43] and perhaps in part by a desire on the part of the French nuclear interests (AREVA, Cogema, Framatome) to access the US tax base. The French have been leaders in nuclear fuel reprocessing and yet their plutonium MOX fuel business has run dry—lacking international customers.[44] In any case, this reversal of decades of US commitment to a "once through" fuel program is deeply disturbing. Aside from global security issues, plutonium generates even more heat for our planet to absorb,[45] has even worse emissions, and in the event of "a Chernobyl" would be twice as deadly.[46]

Finally, as a crowning point— nuclear power is not qualified to operate in extreme weather. As cited above, nuclear reactors—all of them—depend on energy from the grid to operate. Since the core of a reactor continues to generate heat for years, even "off-line," it is vital that emergency cooling equipment be operable around the clock. As is sensible, every reactor site is equipped with back-up power, most often in the form of diesel generators. Unfortunately these generators, in part because of intermittent use, are not terribly reliable.[47] When both the grid and the back-up power fail, the site is said to be in "station blackout." According to the US Nuclear Regu-

---

[35] See Basic Info on MOX Fuel: http://www.nirs.org/factsheets/basicmoxinfo.htm

[36] Frank von Hippel, No Hurry to Recycle, May 2006 Mechanical Engineering.

[37] Margaret Meade and Rene Dubos, The Plutonium Economy: A Statement of Concern, 1974 for the US Council of Churches, resulted in a 1976 resolution calling for a moratorium on plutonium fuel use.

[38] Energy Policy Act of 2005—Conference Report—http://energy.senate.gov/public/—files/ConferenceReport0.pdf

[39] Mary Olson, Nuclear Power: The Next Degeneration, 2005.

[40] See: http://www.mineweb.net/sections/energy/783025.htm

[41] Kevin Kamps, Radioactive Wreck, The Nuclear Monitor, 2006. See: http://www.nirs.org/mononline/nm643.pdf

[42] Plutonium does not occur on Earth except in trace residues, where it is produced in tonnage quantities inside all nuclear reactors that use uranium fuel. In the USA irradiated reactor fuel contains about 1% plutonium.

[43] See note 41.

[44] Cogema is a partner in the US MOX fuel program, ostensibly for the "disposition" of weapons grade plutonium in partnership with Russia. AREVA is a full partner in the new Bush/Cheney Global Nuclear Energy Partnership.

[45] See: MOX at a Nuclear Power Reactor Near You, http://www.nirs.org/factsheets/moxandreactor.htm

[46] Dr. Edwin Lyman—Public Health Consequences of Substituting Mixed-Oxide Fuel For Uranium Fuel in Light Water Reactors, 1999. Nuclear Control Institute—http://www.nci.org/k-m/moxsum.htm

[47] Summary of findings given in: http://www.nirs.org/reactorwatch/mox/nirsmcguirecatawbacontentions.htm

latory Commission, station blackout contributes a full one-half of the total risk of a major reactor accident at US nuclear power stations.[48]

Recent years have seen an escalation in all kinds of extreme weather: intense heat, drought, blizzards, tornados, and perhaps most compelling—hurricanes and cyclones. All of these conditions may contribute to electric grid failures. The loss of grid power will not necessarily trigger a nuclear crisis, but there is an elevated risk. Overall blackout risk increases as the number of outages increases. Nuclear energy is an enormous liability in these turbulent times.

Nuclear power is also incapable of operating in hot water, as evidenced by the heat waves of 2004. A number of nuclear reactors in France were not operable.[49] The reactors were at low power not because of nuclear safety issues—but rather because of the basic design of a nuclear reactor. Essentially an expensive, dangerous "tea pot," a nuclear power reactor harvests the heat from splitting atoms to make steam, to turn a turbine. The closed loop system relies on the heat differential between the temperature of the steam, and the temperature of a condenser, to turn the steam back into liquid to repeat the process. When the water used to cool the condenser gets too warm this differential is lost. The steam no longer condenses back to liquid. When river and lake water gets too hot, electric power cannot be generated.[50] As temperatures rise, nuclear power will be less and less qualified as a means to even try to generate electric power.

Now some conjecture about why anyone would campaign for the "revival" of an unprofitable, unreliable, dangerous, even fraudulent technology like nuclear "power." In a nutshell: to retain centralized control of the supply of energy, as well as control over the timing of the availability of any "alternative."

Fossil fuels—and uranium—are traditionally centralized energy production models. Efficiency is the ultimate in "decentralization" since the factors that will optimize efficiency are unique to each operation. Wind, solar and other renewable resources can be centralized, however the inherent value of distributed generation has become clear in helping to increase overall efficiency of power usage and minimization of power loss throughout the distribution system. Distributed generation is also recognized as means to increase grid stability.[51] Given the urgency of the climate challenge we face, it is vital to note that energy efficiency, wind, appropriate hydro, biomass and solar are all viable, and available at industrial scale NOW.[52] However for those holding the reins on fossil fuels—particularly oil—there is a distinct (and highly profitable) advantage to forestalling the implementation of any alternative until the full impact of the oil "peak" and resulting energy shortages are experienced.[53] While oil is primarily tied to transport, it is important to note that the Bush administration projects the use of nuclear power reactors to make hydrogen for use in vehicles.[54] Since wind makes more electricity per dollar invested, it is also cost-effective at generating hydrogen than nuclear. Electric cars charged on the grid would vastly increase the demand for electric power—far exceeding traditional electric energy guzzlers like hot water heaters.

Those who promote nuclear expansion are simultaneously promoting a deeper agenda to dominate civil society with a model of central control. Given the security issues associated with nuclear power, (even more so with the use of plutonium fuel) this control may exceed compatibility with democracy. Yet one more reason to oppose this false solution.[55]

ATTACHMENT 3.—FACT SHEET

URANIUM MINING AND NUCLEAR POLLUTION IN THE UPPER MIDWEST

1. Uranium mining in South Dakota, Wyoming, Montana, and North Dakota began in the middle of the 1960s. World War II, which ended with the nuclear bomb, introduced the use of nuclear energy for the production of electricity and caused the price of uranium to rise. As the economy of the Midwestern states de-

---

[48] U.S. Nuclear Regulatory Commission, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," NUREG-1150, 1990.

[49] French reactors off line 2004

[50] David Lochbaum, Union of Concerned Scientists

[51] See article by Amory Lovins cited in note # 9

[52] Renewables are Ready— a guide to teaching about renewable energy, published by Union of Concerned Scientists.

[53] It should be noted that not all subscribe to the necessity or value of experiencing peak oil—see Amory B. Lovins: Winning the Oil Endgame, 2004. Cosponsored by the US Pentagon.

[54] Cindy Folkers: Hydrogen Production By Nuclear Power, 2003. See www.nirs.org/

[55] See also, NIRS/WISE, Nuclear Power: No Solution to Climate Change, published in the Nuclear Monitor, February, 2005 posted at: http://www.nirs.org/mononline/nukesclimatechangereport.pdf

pends primarily on agriculture, when uranium was discovered in the region, many get-rich-quick schemes were adopted. Not only were large mining companies chopping off the tops of bluffs and buttes, but small individual ranchers were also digging in their pastures for the radioactive metal. Mining occurred on both public and private land, although the Great Sioux Nation still maintains a claim to the area through the Fort Laramie Treaties of 1851 and 1868.

2. In northwestern South Dakota, for example, the Cave Hills area is managed by the US Forest Service. The area currently contains 89 abandoned open-pit uranium mines. Studies show that one mine alone has 1400 mR/hr of exposed radiation, a level of radiation that is 120,000 times higher than normal background of 100 mR/yr. There are no warning signs posted for the general public anywhere near this site! It is estimated that more than 1,000 open-pit uranium mines and prospects can be found in the four state region from a map developed by the US Forest Service.

3. The following agencies are aware of these abandoned uranium mines and prospects: US Forest Service, US Environmental Protection Agency, US Bureau of Land Management, SD Department of Environment and Natural Resources, the Bureau of Indian Affairs and the US Indian Health Service. Only after public concern about these mines was raised did the USFS and the EPA pay for a study of one mine this year, 2006. No studies have been completed on the health effects to humans or the environment.

4. The water runoff from the Cave Hills abandoned uranium mines empties into the Grand River which flows through the Standing Rock Indian Reservation. Three villages are located on the Grand River and their residents have used the water for drinking and other domestic purposes for generations. One village still uses the water for drinking and domestic purposes. The water runoff from the Slim Buttes abandoned uranium mines empty into the Morreau River which flows through the Cheyenne River Indian Reservation. Four villages are located on the Morreau River; however, no data is currently available about their use of the Morreau River water. Both of these rivers empty into the Missouri River which empties into the Mississippi River.

5. In 1972, President Richard Nixon signed a secret Executive Order declaring this four State region to be a "National Sacrifice Area for the mining and production of uranium and nuclear energy."

6. In southwestern South Dakota, the southern Black Hills also contain many abandoned uranium mines. Nuclear radiation near Edgemont, SD, has already polluted the underground water of the Pine Ridge Indian Reservation according to a study completed in 1980 by Women of All Red Nations. The US Air Force also used small nuclear power plants in their remote radar stations and intercontinental ballistic missile silos which also number in the hundreds in this four State region.

7. In Wyoming, hundreds of abandoned open-pit uranium mines and prospects can be found in or near the coal in the Powder River Basin. Yet plans are being made to ship more of that coal to power plants in the Eastern part of the United States. Radioactive dust and particles will be released into the air at the power plants. Federal tax dollars totaling more than $2.3 billion dollars as a loan are planned to be given to a private business, the Dakota, Minnesota and Eastern Railroad, to increase the amount of coal hauled to the power plants.

8. More than 7,000 exploratory wells have been drilled in South Dakota and Wyoming surrounding the Black Hills which contain many sacred places and burial sites. In this process many of these sacred sites have been destroyed. The wells are 500–800 feet in depth and have already introduced uranium into the underground aquifers. Now, new mining companies are trying to avoid South Dakota's slow legislative process to monitor "In Situ Leach Mining" by seeking permits before the regulations are complete.

ATTACHMENT 4.—ARTICLE FROM MOTHER JONES MAGAZINE, JUNE 7, 2006

By April Dembosky

ON THE CULTURAL IMPACTS OF MINING

NEWS: At Alaska's proposed Pebble Mine site, the focus is on environmental and economic outcomes. But what about the Native culture and community?
http://www.motherjones.com/news/featurex/2006/06/mining.html

Jobs, jobs, jobs. When mining projects attract criticism from environmental activists, their most reliable defense has always been the thousands of jobs the company will provide to an otherwise economically depressed community. In the battle over the proposed Pebble gold/copper mine in the Lake Iliamna region of Southwest Alas-

ka, the debate is no different. Northern Dynasty, the Canadian company developing the site, is boasting 2,000 jobs during the initial construction phase and 1,000 permanent jobs for at least 30 years after that. The promise of an economic boom is very appealing to the locals, who have watched their traditional fishing economy suffer from falling salmon prices and rising fuel costs. But numerous locals and advocacy groups have complained that the potential environmental damage far outweighs any promises of prosperity: toxic mining chemicals, they say, might seep into sensitive salmon spawning streams; transport roads will cut through pristine Alaskan wilderness; noise of heavy machinery and vehicles will disrupt caribou and moose migration.

But it's not just the land and animals that are under threat.

For the Native Alaskan tribes that depend on these natural resources for food, their very livelihood is at stake. Throughout the world, indigenous peoples in particular have seen their centuries-old traditions razed by the introduction of industrial-scale business. From Peru to Ghana to Nevada, mining projects have left native tribes plagued by contaminated waterways and forests, health problems, upsurges in violence, destruction of local traditions, and community infighting.

There is little reason for southwest Alaskans to think things will be any different for them. Herman Nelson, a tribal leader in Koliganek, downstream from the proposed Pebble site, echoes the concerns of surrounding tribes. "Jobs don't impress me very much. The mine is going to deplete the resources," he says. "It's going to change the feel of the community, the way we live."

The Pebble Mine is "a textbook example," says Alaskans for Responsible Mining advocate Scott Brennan, who has worked closely with Native tribes battling mines throughout the U.S. "When this scale of development comes in, first you lose wild food sources. Next you begin to lose your relationship with the land. Then your home territory is flooded with thousands of people from somewhere else. The end result is erosion and degradation of native culture."

More than half the world's mines are built on indigenous lands. Some problems are particular to the geography of the land and the particular traditions of the tribes, but there are several broad trends that unite them.

"At first, people only see dollar signs," says Dean Stiffarm, environmental liaison for the Fort Belknap tribe in Montana. But promises of jobs, cheaper electricity, and reduced property taxes proved empty for the Montana Fort Belknap tribe. Despite guarantees of job priority, tribal members were routinely passed over for highly technical jobs. Then when the mining company declared bankruptcy after 20 years of operation, the natives were left to pay for the upgraded electricity system and the environmental clean-up.

Negative health impacts are a more subtle outcome. At the Laguna reservation in New Mexico, 60 miles west of Albuquerque, naturally growing plants that were a common part of the native diet and medicinal tradition were destroyed by construction and radioactive dust pollution from a nearby uranium mine. Supermarkets and a Western medical clinic took their place. People weren't used to manufactured medicines, which made some sick and often didn't work. Store-bought high-cholesterol foods led to rapid increases in heart disease and diabetes. Air and water pollutants dramatically increased rates of childhood asthma and kidney infections.

Around Iliamna Lake, locals believe the wild fish and game, rich in omega 3 oils, keeps them healthy and youthful. If there is an accident that harms wildlife habitats—chemicals leaching into groundwater, acid runoff—or, so health aide workers believe, if people get accustomed to the convenience of store-bought foods, high cholesterol and diabetes rates will go up. Cecilia Suskuk, an aide at the Iguigig clinic says that already among local people "there's more high cholesterol, because they're incorporating more processed meats into their diet." In several communities, the fear alone that resources have been contaminated stops locals from consuming local water supplies, plants, or animal stocks. Instead, they rely on less healthy packaged foods and their kids lose interest in traditional hunting and cooking.

There are other social impacts, like those observed in Wayne Garcia's native community in New Mexico. When the Anaconda Company built the Jackpile uranium mine next to the Laguna reservation, there came a flood of alcohol and methamphetamine with the thousands of new workers. Garcia, who is the Chairman of the Yerington Paiute Tribe, has visited the communities around Alaska's Pebble site to share his experiences. He believes rates of drug abuse and alcoholism among Natives at Laguna went up over the 30 years the mine was in operation, which in turn led to increases in domestic violence, child abuse, and child neglect. "It was the ripple effect," Garcia says.

Manuel Pino, a member of the Acoma Nation, neighboring Laguna, believes the drinking problems and other changes were due to the shifts in lifestyle. "We went from being agriculturalists and livestock raisers to wage earners," he testified at the

World Uranium Hearings in 1992. "People prioritized their eight-hour-a-day-job over participating in the ceremonies. Our Elders cry today that the generation below us cannot speak our language."

Bonnie Gestring, an advocate in the Northwest office of the environmental group Earthworks, points out that the rise in violence puts added strain on small rural public health care and law enforcement systems. "It takes a while for services to come up to speed with increased demand," she says. Theoretically, Iliamna Lake residents could prepare in advance for the changes. But with so much attention focused on potential environmental hazards and job creation, health needs are low on the priority list. Northern Dynasty won't complete its cultural impact study until well after the project is fully developed, several more years down the road. For now, and when the mining project ends after 30 to 50 years, it is the communities themselves that are left to cover the expanded services and public health costs on their own.

No amount of preparation can account for what Wayne Garcia called the worst effect of mining in his community: fighting within the tribe. "We were always taught that family is unity and we have to depend on each other for support." But when money and material possessions took over as symbols of status and power, an ethic of competition began to dominate. "These outside influences come in and you've got jealousy and greed that erode the family value. Soon you see family against family."

Northern Dynasty's COO Bruce Jenkins insists such problems will be mitigated by company policies. To keep the number of outsiders limited, for example, hiring preference will go first to local Alaskans, so long, he adds, as they are "interested, willing, and able."

But who exactly are all these local workers who will fill the 1,000 to 2,000 jobs? In the entire Lake and Peninsula Borough, which includes 14 towns spread across 24,000 square miles, the population is just over 1,600. More than 43 percent of the population is under 18 or over 65 years of age; three quarters are Alaskan Native. Even if all those eligible for a job at the mine take one, the communities around Iliamna Lake can expect a mass influx of outsiders—enough to more than double the current population—and all the problems they bring.

Jenkins swears these things won't happen at Pebble. Workers who are flown in from outside the area or state will be housed in dorms secluded from pathways frequented by locals, he vows. There will be zero contact with natives. Alcohol and drugs will be strictly prohibited, as will fishing and hunting.

"This is still America," counters Brian Kraft, coordinator for the Bristol Bay Alliance, a coalition opposing development of the Pebble Mine. Employees work in shifts, two weeks on and then two weeks off. When they're off the clock, Kraft argues, "they can do whatever they want"—and that includes taking recreational substances or fishing and hunting the stocks that locals depend on for food. With a new road, lake harbor, and port, and cheaper air fares expected to make travel in and out of the region easier for employees— and tourists—the company's rules and promises can go unbroken for only so long.

Still, the allure of a steady income is attractive to many locals. "I love my people, but I got to tell you something, it is a struggle to live," says Myrtle Anelon of Iliamna. "You cannot pay your electric bill, you cannot pay your fuel bill unless you have money." She is hesitant to dismiss the Pebble proposal so early in the development stages. "If we don't give them a chance, we won't have nothing."

Greg Anelon of Newhalen, the administrator of the Iliamna Lake regional clinic, testified at a Borough hearing that the area villages desperately needed a new ambulance, fire trucks, and EMS system. A tax on the Pebble mine could be "a tool to finance [these] needs." To date, six tribal councils out of more than a dozen have voted in favor of the mine; several others are waiting for updated mine development plans before casting judgment for or against.

Dean Stiffarm cautions against such optimism. "In the beginning, we didn't see the whole picture, what the mine was going to do to our environment, our way of life." Now, when he meets with tribal representatives from Alaska who are grappling with how to reconcile their traditions with a bleak economic outlook, he says, "I try to get them to look at the long term impact."

April Dembosky, a former Mother Jones editorial fellow, is a freelance writer in San Francisco.

○