

RCRA SPECIAL WASTE

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HEARING
BEFORE THE
SUBCOMMITTEE ON
TRANSPORTATION AND HAZARDOUS MATERIALS
OF THE
COMMITTEE ON
ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES
ONE HUNDRED SECOND CONGRESS
FIRST SESSION
ON

WASTES RESULTING FROM OIL AND GAS EXPLORATION AND
PRODUCTION, MINING, AND MINERAL PROCESSING

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RCRA SPECIAL WASTE

Wastes Resulting From Oil and Gas Exploration and Production, Mining, and Mineral Processing

THURSDAY, SEPTEMBER 12, 1991

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON TRANSPORTATION
AND HAZARDOUS MATERIALS,
Washington, D.C.

The subcommittee met, pursuant to notice, at 1:27 p.m., in room 2167, Rayburn House Office Building, Hon. Al Swift (chairman) presiding.

Mr. SWIFT. The subcommittee will come to order. This afternoon, the subcommittee will examine the need to develop additional Federal regulatory programs under RCRA for two categories of RCRA special wastes, oil and gas exploration and production waste and mining and mineral processing waste.

As you all know, when Congress amended RCRA in 1980, it adopted the Bevill amendment, which exempted four categories of so-called special wastes from subtitle C regulation, pending EPA completion of comprehensive studies of these wastes. These studies were to have been completed by 1982 and, within 6 months after completion, EPA was to make regulatory determinations as to whether any of these wastes should be regulated as hazardous.

EPA was a little late completing the studies. The first mining waste report to Congress did not come out until 1985. The oil and gas report came out in 1987, and the second mining waste report was submitted this year. When it did submit the reports to Congress, EPA did make the regulatory determinations for those wastes within the required 6 months.

In both the 1986 mining waste determination and the 1988 oil and gas determination, EPA promised to develop subtitle D regulatory programs for these categories of wastes. Unfortunately, 5 and 3 years, respectively, have passed since that promise was made and still EPA has not promulgated new regulatory programs for these major waste categories. Today I want to find out why.

We will examine important environmental and economic issues associated with these wastes, as well as the significance of the Federal/State relationship in environmental regulation. I understand that these issues are controversial and that there are no easy answers. The time to resolve these issues is now, as we undertake yet

another RCRA reauthorization—making the opportunity more apparent.

It has been more than a decade since the Bevill amendment was passed. It is time to get on with it. I hope today's hearing will help move this debate forward into constructive action.

With that, I recognize the gentleman from Pennsylvania for an opening statement.

Mr. RITTER. I want to thank you, Mr. Chairman, for holding this hearing. The minority had written a letter to you requesting this hearing, due to the importance of this issue, for a RCRA reauthorization effort. I am pleased at the chairman's response to our concerns and the spirit of cooperation that marks this reauthorization effort.

Today we address the potential expansion of the RCRA program to over a million facilities and 5 billion tons of waste in the oil and gas and mining industries. According to EPA reports, this potential new universe contains 200 times the number of facilities and 20 times the volume of waste regulated under current RCRA hazardous waste program. Any such expansion must be carefully considered, in terms of national, environmental, fiscal and energy policy.

As we consider expanding the RCRA program, we need to ask three critical questions. First, what is the scope and effectiveness of existing Federal and State programs that regulate mining waste and oil and gas production waste. In particular, we need to establish whether existing programs cover the range of environmental risks posed by these activities and whether their standards are appropriate for the nature of those risks. In addition, we need to establish whether State programs are being adequately enforced.

Second, what are the potential gains, in terms of environmental protection from proposed new Federal programs under RCRA, as opposed to existing State programs. In particular, we should determine whether a new Federal program would be a waste of resources, reinventing a wheel already built by the States, or whether it would address an unmet and important priority, environmental need.

Finally, we should ask what the impact will be of any new program of limited Federal, State and industry resources. We must look at costs and at all costs avoid the creation of a program that looks good on paper, but lacks realistic possibility of being enforced and simply creates new high-volume havoc in the regulatory arena.

With these thoughts in mind, Mr. Chairman, I look forward to hearing from today's panel, from our distinguished witnesses, to provide some answers to these important questions. I yield back the balance of my time.

Mr. SWIFT. I thank the gentleman. The Chair wants to commend the members of the subcommittee for their cooperation in limiting opening statements throughout this year. This is an issue that is of considerable importance to individual members of the committee, and I want to accommodate them today. I was hoping we could have opening statements held until after this panel, because we had to change the timing of this hearing and that has caused a conflict for Mr. Clay. We would like to accommodate him as much as we possibly can.

The gentleman from Louisiana I know has a hearing of his own to chair at 2 o'clock. I would like to recognize him briefly at this time and will see whether the gentleman from Colorado could defer or not. We want to accommodate him as well.

I recognize the gentleman from Louisiana.

Mr. TAUZIN. Mr. Chairman, let me thank you for that courtesy. I will have to leave, as you pointed out, to chair a 2 o'clock hearing and hope to get back here in time for as much of this hearing as possible. It is an important one, and I commend you for moving forward with it. It is important because the question of how to properly regulate oil field waste is not only a serious environmental question, but can seriously impact upon the twin issues of energy security for America and jobs.

There are some who would like to equate oil field waste directly and exactly as we equate and regulate hazardous waste in America. That kind of a decision could clearly have the impact of shutting down at least 60 to 80 percent of oil field activity in America, and perhaps even more than that in the State of Louisiana.

The State of Louisiana, like many States who have had to wrestle with the problem of oil field waste, absent a Federal decision in the matter, has been very active in the last 5 or 6 years engaging in new regulatory initiatives and new enforcement initiatives to, if you will, clean up our own act, in the best way the State of Louisiana determined that would be proper and efficient and at the same time preserve oil field activity, jobs and energy security for this country.

I believe the State has made enormous progress. I have only learned yesterday that this committee has invited someone from our attorney general's office, Mr. Fontenot, whom I know as a dear friend, to come and testify at this hearing. I would like to point out to this committee that Mr. Fontenot represents one State official in Louisiana, the attorney general, who has announced, by the way, that he is not running again for reelection, and who has taken a position years ago that he wanted oil field waste regulated as a hazardous waste.

Mr. Fontenot comes with that attorney general's position as his position, and will present his testimony, I am sure—I am only looking at it for the first time now—with that position clearly in mind. I should point out to this committee that Mr. Fontenot does not represent the Department of Environmental Quality in Louisiana, that he does not represent the Natural Resources Department in Louisiana, and does not necessarily represent the view of many other officials in the State of Louisiana.

My own personal opinion—and we will examine Mr. Fontenot's testimony, I hope, when I am able to return here, in detail—is that the State had been making enormous progress—that rule 29(b), in Louisiana, is being perfected on an almost daily basis—that continual revisions of that rule has produced a much better and much more efficient regulation of oil field waste in Louisiana without the necessity of classifying those wastes as hazardous and producing the kinds of consequences that Mr. Guste apparently is willing to produce for this State and this Nation.

Mr. Chairman, I am going to return from my hearing as fast as I can, so that I can be a part of that discussion when Mr. Fontenot

arrives. As I pointed out, he is a dear friend. I think his position is not one shared by many in Louisiana—many State officials and Federal officials—and I think we ought to have a small discussion of that matter when and if we have that opportunity.

Thank you, Mr. Chairman.

Mr. SWIFT. May I ask whether it would be inconvenient for the gentleman to defer his opening statement until after the panel?

Mr. SCHAEFER. Mr. Chairman, if you would yield. I want to commend you for the cooperation in everything that we are doing on this at this point in time. If the gentleman would allow me, at a future point, to give my opening statement, I would be glad to cooperate with the chairman and Mr. Clay.

Mr. SWIFT. I thank you very much. You and any other members of the committee who are hear at the end of this panel, will be given an opportunity for an opening statement.

Mr. TAUZIN. Mr. Chairman?

Mr. SWIFT. Yes.

Mr. TAUZIN. There was one small matter, however, which should not be deferred, and that is a recognition, by the members of this panel and by the audience, that the chairman is celebrating another, God bless him, birthday. We ought to at least wish him a happy birthday.

[Applause.]

Mr. RITTER. Mr. Chairman. Would the chairman yield?

Mr. SWIFT. Yes, I yield to the gentleman.

Mr. RITTER. In the interest of time, I will not request the singing of happy birthday.

Mr. SWIFT. I always hated that song. As the years go on, I dislike it more and more.

With that, we are happy to welcome two witnesses on our first panel, Mr. Don Clay, Assistant Administrator for Solid Waste and Emergency Response of EPA and Mr. T.S. Ary, who is Director of the Bureau of Mines of the Department of Interior. With that, we will recognize Mr. Clay first.

STATEMENT OF DON R. CLAY, ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY SYLVIA LOWRANCE, DIRECTOR, OFFICE OF SOLID WASTE; AND T.S. ARY, DIRECTOR, BUREAU OF MINES, DEPARTMENT OF THE INTERIOR

Mr. CLAY. Thank you, Mr. Chairman. I am pleased to be here this afternoon to continue our dialogue on the RCRA program. With me today is Sylvia Lowrance, who is the Director of EPA's Office of Solid Waste.

EPA and the States have spent considerable effort over the last year studying these wastes to determine if regulation as hazardous waste is in fact warranted. Today I want to share some of the results of EPA's studies. We will also discuss the status of State activities to address safe management of these wastes. Finally, we will summarize the principles that should govern the debate over the need for statutory changes regarding these wastes.

A bit of a background—as you pointed out, Congress recognized in 1984 that these two industries are in fact unique. They produce

large volumes of waste, estimated at about 5 billion tons per year for both mining and oil and gas. The risks posed by these wastes vary, however, most risk is environmental rather than human health. Both the mining and the oil and gas industries utilize unique production processes, and each occupies an important phase in the national economy. States, historically, have played a large role in regulating these industries.

Turning first to the oil and gas production waste: key findings of EPA's 1987 report to Congress. We found that the oil and gas production industry is extremely large and varied in all aspects of exploration, development and production. It also differs from region to region, and from State to State. It is important to recognize that these wastes are currently regulated at the State level, under RCRA subtitle D. In addition, we have identified 62 cases of environmental damage caused by these wastes, most relating to contamination of surface and groundwaters, and soil. Finally, we made a regulatory determination that subtitle C regulation was not warranted, even though some regulatory gaps exist.

We have adopted a three-tier approach to fill those gaps. First, improving this approach involves Federal programs by using existing statutory authorities which, in some cases, can be more stringent than any RCRA elements contemplated by this bill. Second, we will be working in partnerships with States to encourage changes in their regulatory and enforcement programs. And third, we will work with Congress to develop any additional statutory authorities that may be required.

Included among our current activities with respect to improving Federal programs is the promulgation of effluent guidelines and regulations that address discharges of specific oil/gas production wastes into surface waters. In addition, we have established an advisory committee to address potential regulatory improvements for 150,000 deep injection wells associated with oil/gas exploration and production wastes, the so-called "class II" wells in our underground injection control program. We are also continuing the RCRA study of the oil/gas industry to gain more and upgrade existing information.

I want to emphasize that the States have also been very active since our regulatory demonstration. Under an EPA grant, the Interstate Oil & Gas Compact Commission has developed guidelines for State oil and gas management programs. Building upon the success of this effort, we have renewed the grant for additional tasks, such as develop a State review process. This task requires cooperation efforts by State oil and gas regulatory agencies, industry, environmental groups and EPA. I expect this to be a very successful program, and one that will yield a lot of beneficial results. The grant also provides for the development of training for State regulatory personnel, and of a nationwide computer database. So, we look forward to working with the IOGCC on each project and we expect results will be successful as our previous efforts were.

We are also working with Alaska to develop a manual for oil field support facilities, as well as completing our State field observation reports. I think these activities are yielding improvements in oil and gas waste management, therefore, progress is, in fact, being made.

Turning to the mining and mineral processing wastes, this is the largest category of special waste with volumes of approximately 3.6 billion tons per year. We found in our study of these wastes that the scale or size of these operations presents unique technical challenges—the average unit is 10 times larger than the average hazardous waste unit. Mine sites are typically located in remote areas, thus these wastes pose lower potential risks to human health because of less exposure.

Our study also found that traditional hazardous waste management controls may be economically impractical because of the large volumes of wastes.

Federal and State agencies currently regulate mining waste, and integration of traditional hazardous waste management controls with existing programs would be extremely difficult. Based on these factors, EPA requested comments on the "strawman approach," a tailored, risk-based program under RCRA subtitle D, which provides needed site-specific flexibility.

Currently, we are Federal regulator, actions, such as the development of effluent new guidelines and emission standards that enhance Federal controls at mining sites. We are also developing a tailored subtitle D program—strawman I and II—that involves ongoing dialogue with States, environmental groups, and industry. Furthermore, the recently chartered Policy Dialogue Committee established under the Federal Advisory Act will continue to facilitate the exchange of information and ideas, and identify areas of agreement. We are extremely pleased with this dialogue and consensus building process and we look forward to future progress.

In conclusion, EPA and the States are committed to improving management of special wastes. The individual States and companies are moving ahead to improve programs and practices, and progress is being made. Certainly EPA will continue to work with States and others in this effort.

Several principles should govern debate over the need for new legislation. In general, I think it's safe to say that the risks to human health posed by these wastes are, in fact, low compared to some of the other risks that we regulate. However, some environmental risks of concern do exist.

The unique nature of these industries should be recognized: they are large in size, number, and produce large volumes of waste. Any requirements, therefore, need to be flexible.

The programs should neither duplicate nor interfere with existing Department of Interior or Agriculture programs. States should continue to play the principal implementation role, and where needed, existing State programs can be improved.

To the extent that Federal standards are warranted, EPA needs to use considerable discretion to tailor standards to diverse needs and areas of significant risk. We believe, however, it is premature to define specific legislative needs until the work underway is completed.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Clay follows:]

PREPARED STATEMENT OF DON R. CLAY, ASSISTANT ADMINISTRATOR, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. Chairman and Members of the Subcommittee. I am pleased to appear here before you today. With me is Sylvia Lowrance, Director of EPA's Office of Solid Waste. I appreciate the opportunity to continue our dialogue on the RCRA program and to share with you our views on mining and mineral processing waste and oil and gas exploration and production waste.

I welcome the Subcommittee's interests in these special wastes. As you are aware, EPA and many of our State colleagues have spent considerable effort over the last several years studying these wastes and have successfully taken steps to improve waste management practices in these industries. As you know, States have primary responsibility for management of these wastes and EPA believes that they should continue to do so.

Today I will share with you the results of EPA's studies on these wastes. I will detail what we know about their risks and what is needed to ensure safe management of these wastes. I will also discuss the status of EPA and State activities to address these needs. Finally, I will summarize the principles we believe should govern development of a program addressing special wastes.

Before addressing oil and gas and mining and mineral processing wastes individually, I would like to address how EPA views special wastes in relation to other types of wastes.

BACKGROUND

EPA has spent considerable effort over the last decade developing a cradle-to-grave national program to control hazardous wastes under Subtitle C of RCRA. We estimate that about 270 million tons of hazardous waste generated each year merits full control under the hazardous waste system. These wastes are those that pose a significant risk and, therefore, merit the most stringent of controls.

At the other end of the spectrum are wastes governed by Subtitle D, the largest volume of which are industrial solid wastes. These wastes are not well characterized at this time, but our best estimate is that over 12 billion tons are produced each year.

By law, the so called "special waste" category occupies a unique position in RCRA. Under the statute, these wastes were conditionally exempt from the Subtitle C hazardous waste system of RCRA until EPA studied them and determined whether the exemption should remain based upon EPA's consideration of a series of factors laid out in the statute. As I will discuss in more detail later, a number of waste streams from the mineral processing category merited regulation under Subtitle C of RCRA; however, EPA determined that the majority of wastes from mining and mineral processing and oil and gas exploration and production did not merit regulation under Subtitle C. These wastes could be managed effectively as solid wastes under Subtitle D or through other environmental laws. Thus, we now view oil and gas and mining and mineral processing wastes as a special and very significant category of industrial solid waste.

This significance stems from the number of generators and annual waste production volumes as well as the diversity of Federal and State programs already in place to control some or all of the effects of these operations. Of the 12 billion tons of industrial solid waste, we estimate over 5 billion tons of mining and mineral processing and oil and gas wastes are produced annually. We estimate that there are approximately 1500 mining facilities and 850,000 operating oil and gas wells which generate these wastes. It should be noted that about 30,000 oil and gas exploration wells are also drilled annually and they also contribute to the total waste volume just noted. The magnitude and attendant management challenge presented by this group is obvious from these numbers. The majority of waste produced by these industries occurs in comparatively few States under varying geographic and climatic conditions. These States either have strong programs in place or are trying to develop strong programs to manage the facilities, operations, and wastes associated with these industries. Moreover, as Congress recognized in the 1984 amendments, these two industries are unique. Each produces large volumes of wastes. They utilize very unique production processes and present special economic issues. As you consider the special waste issues in RCRA reauthorization, it is critical to keep the following points in mind: the characteristics of these wastes; the strong and expanding role States are playing in regulating these industries; the singularly important position both occupy in our national economy; the fact that these wastes generally pose some environmental risks, but the risk to human health is generally low; and the current

efforts by EPA, other Federal agencies, States, environmental groups, and industry to fashion an appropriate program for managing these wastes.

I will now discuss mining and mineral processing and oil and gas wastes individually and relate to you EPA's findings on these wastes and our continuing efforts to improve their management.

OIL AND GAS PRODUCTION WASTES

A. EPA'S STATUTORY MANDATE

RCRA section 3001(b)(2)(A) requires EPA to study drilling fluids, produced waters and other wastes associated with the exploration, development and production of crude oil or natural gas to determine whether regulation of such wastes under Subtitle C of RCRA is warranted. RCRA Section 8002(m) requires the study to include: defining the sources and volumes of wastes, present disposal practices, potential danger to human health and the environment, documented cases which prove or have caused danger to human health and the environment, alternatives to current disposal methods, the cost of such alternatives, and the impact of such alternatives on the oil and gas industry.

EPA's Report to Congress was issued in late 1987 and was followed in June of 1988 with a Regulatory Determination.

B. THE 1987 REPORT TO CONGRESS

The Report to Congress identified 1.5 billion tons of oil and gas exploration and production wastes produced annually at 30,000 exploratory wells and 850,000 producing wells. These wastes include: 1.4 billion tons of produced water; 63 million tons of drilling fluids; and 2 million tons of associated wastes.

The Report to Congress made several key findings regarding the industry and these wastes. I'd like to highlight several significant ones:

- First, the oil and gas production industry is extremely large and varied. In 1985, there were approximately 842,000 producing oil and gas wells in the U.S. distributed throughout 38 States. (In 1989, there were 2.7 percent fewer wells.) They produced 8.4 million barrels of oil, 1.6 million barrels of natural gas fluids, and 44 billion cubic feet of natural gas daily. The petroleum exploration, development, and production industries employed approximately 421,000 people in 1985.
- Second, all aspects of exploration, development, and production vary markedly from region to region and from State to State. Well depths range from as little as 30 feet to over 30,000 feet. Pennsylvania has been producing oil for 128 years while Alaska has been producing oil for only 15 years. Maryland has approximately 14 producing wells; Texas has over 269,000 and completed another 25,721 in 1985 alone. Production from a single well can vary from a high of about 11,500 barrels per day (the 1985 average for all wells on the Alaska North Slope) to less than 10 barrels per day in many thousands of "stripper" wells.
- Third, wastes from the oil and gas industry are currently being regulated at the State level and are also regulated in part under the Federal Clean Water Act and the Federal Safe Drinking Water Act. State programs varied widely in scope and dedicated resources. EPA found that some State programs controlling the management of high-volume wastes have improved significantly over the recent past.
- Fourth, the Report identified 62 specific cases of environmental damages caused by exploration and production wells. Most damages relate to the contamination of surface and ground waters, soil contamination, and adverse effects on aquatic and terrestrial systems.

These and other factors in the Report to Congress supported EPA's regulatory determination that these wastes did not warrant regulation under Subtitle C of RCRA. EPA did note that some regulatory gaps existed, however. Accordingly, the Agency indicated that these wastes should continue to be considered under Subtitle D of RCRA, with the possibility of regulatory enhancement to fill gaps using Federal and State authorities. This approach was preferred for six (6) primary reasons:

- (1) Safe management of oil and gas wastes does not require the large number and type of regulatory requirements found under Subtitle C; moreover, Subtitle C does not provide sufficient flexibility to consider costs and avoid the serious economic impacts that such regulation would create for the industry, an important concern of Congress as reflected in the statute and legislative history.
- (2) Existing State and Federal programs are generally adequate, and the gaps that have been identified can be addressed with regulatory or other improvements, and by working with the States.

(3) Permitting requirements under Subtitle C would delay the start of operations at new facilities, and could be particularly disruptive to the exploration phase of oil and gas development.

(4) National capacity for managing hazardous wastes could be severely strained by introducing these wastes into the Subtitle C system, given the volume of these wastes.

(5) Implementing Subtitle C requirements for some or all of these wastes would result in disruption, and, in some cases, duplication, of the authorities of State and Federal land managers now in administering programs through organizational structures tailored to the oil and gas industry.

(6) Finally, the permitting burden which would result for regulatory agencies if even a small percentage of these sites were regulated under Subtitle C would overwhelm our ability to manage even existing facilities regulated under that Subtitle.

Against this backdrop, EPA adopted a three-tiered approach to fill these gaps. It involves: (1) Improving Federal programs by using existing authorities under Subtitle D of RCRA, the Clean Water Act, and the Safe Drinking Water Act; (2) working in partnership with the States and Federal land managers to encourage changes in their regulatory and enforcement programs to improve the effectiveness of implementation; and (3) working with Congress to develop any additional statutory authorities that may be required.

C. CURRENT ACTIVITIES

I'd like to relate to you our recent activities to fulfill these goals:

1. Federal Program

Clean Water Act: Under the Clean Water Act, the Agency has promulgated effluent guidelines for: requiring zero discharge wells with production greater than 10 barrels of oil per day; effluent guideline limitations for all coastal offshore wells regardless of size; onshore discharges; and regulations controlling storm water discharges from both active and inactive oil and gas facilities. The Agency also plans to develop additional guidelines for discharges from offshore and coastal point source discharges. The additional offshore guidelines are scheduled for June 1992, and the coastal guidelines are scheduled for proposal in 1995. As part of the coastal guidelines effort, stripper wells (producing less than 10 barrels of oil per day) located in coastal areas will be studied.

Safe Drinking Water Act: The UIC program under the Safe Drinking Water Act regulates 150,000 Class II wells. The Agency conducted a Midcourse Evaluation that focused on where improvements could be made. These included, among other things, well construction and financial responsibility requirements. These areas are now being addressed by the UIC program. In particular, the Office of Water has established an Advisory Committee under the Federal Advisory Committee Act to help the Agency address these issues. Since the Committee was chartered on June 6, 1991, two public meetings have been held and a third is planned for September 24 and 25 of this year.

RCRA: Under RCRA, we are continuing to study the oil and gas industry to gain more information on the types of wastes generated, current waste management practices, and current regulatory and nonregulatory approaches used by the States to control these wastes. We are updating and upgrading information collected during the preparation of the Report to Congress and will be examining in greater detail the various facets of the industry including: economic aspects, opportunities for pollution prevention, training for operators, and changes in State programs since the issuance of the Report to Congress. We will continue to work closely with States.

2. State-Related Activities

A major thrust of EPA's program is to improve State programs. EPA and States are spending an extraordinary amount of effort to improve State programs. (This guidance was released in December 1990.) Of particular note are the following:

- Under an EPA grant, the Interstate Oil and Gas Compact Commission [IOGCC] has developed guidance for State oil and gas management programs which includes baseline performance standards for the handling and disposal of oil and gas field wastes. The IOGCC is beginning a comparative review of selected State regulatory programs using these guidelines as a bench mark to ascertain whether the State programs can meet or already meet the IOGCC guidelines. This IOGCC review is being conducted in a public forum using a multi-interest group comprised of representatives of public interest groups, State agencies, industry, EPA and other Federal agencies. We believe this important effort will contribute significantly to fostering

improvements in State programs and expect it will be highly successful in this regard.

- Two additional new IOGCC projects: training programs for State inspectors, and State program data base development.

- The State of Alaska, with EPA support, is initiating a two-year project (through 1993) to develop a Best Management Practices manual for oil field support facilities.

- Late this year, OSWER will complete State field observation reports designed to document our observations of waste management practices in selected States.

We believe these activities will greatly enhance the waste management practices in this industry, and provide significant progress in fulfilling the first two elements of our plan. These activities are already yielding improvements. For example, a number of States have significantly improved their waste management programs to control oil and gas wastes—such as the State of Montana, which has recently proposed revisions to its oil and gas regulations and the State of Alaska, which is no longer issuing permits for discharge of reserve pit liquids to tundra or for use in road spreading. In addition, IOGCC has had several States volunteer to participate in the IOGCC State program review.

In view of EPA's work to date, we believe that it is still premature for EPA to define a position on a need for legislative change. We are continuing to explore a national program for oil and gas waste that will accommodate site diversity and traditional State roles. Specifically, we are considering whether and how the following components might be incorporated into a national program:

- The potential hazards associated with oil and gas waste vary widely depending on the process and the particular environmental setting. The environmental and human health impacts fall across a wide spectrum, from significant to minimal to essentially none.

- There are many factors that will influence waste management approaches for a national oil and gas waste management program. These include: the negligible risks generally involved; the fact that these waste generally include some environmental risks rather than human health risks; the enormous quantities of waste; the wide range of existing regulatory controls; the wide range of environmental settings in which operations are located; and the very large numbers of waste-generating facilities.

- A national program for oil and gas wastes should consider both regulatory and nonregulatory approaches. Nonregulatory approaches, either separately or combined with traditional regulatory schemes, can lead to the development of programs that are flexible, are sensitive to the costs of compliance, and provide for enhanced protection of human health and the environment.

- A national program for oil and gas wastes should encourage the use of innovative technologies and practices. Often, these technologies and practices involve waste minimization, offering cost saving opportunities as well as environmental protection.

As we continue our work with the States and other interested parties, we would be glad to share specific details with the Subcommittee.

MINING AND MINERAL PROCESSING WASTES

A. EPA'S STATUTORY MANDATE

Mining and mineral processing wastes is the largest category of special waste. About 3.6 billion tons of waste are generated each year at mining sites and at mineral processing facilities. Like other special wastes, RCRA mandates an EPA study of these wastes and a determination regarding appropriate controls for them. EPA has performed these studies in two phases. The first phase dealt with wastes from extraction and beneficiation. Extraction and beneficiation wastes are composed of several different types of wastes. Mine waste is the soil or rock that is generated during the process of gaining access to the ore or mineral body. Tailings are the wastes generated by several physical and chemical beneficiation processes that may be used to separate valuable metal or mineral from the interbedded rock. Dump/heap leaching wastes result from spraying ore with very dilute acid or cyanide solutions to leach out metals.

The second phase dealt with wastes from processing of minerals. Mineral processing wastes include slimes related to ore refining, ash from gasification, a wide variety of slags from smelting, blast furnace slags and dusts, mineral processing wastewaters, and air pollution control dusts and sludges. Wastes from these two categories are managed in a variety of ways. Approximately half of mine waste is disposed of in piles, while approximately 60 percent of the tailings are disposed of in

tailings ponds. The vast majority of leaching wastes are either collected on site and reused, or neutralized and disposed of on site. Mineral processing wastes are usually disposed of in piles (slags, dusts) or in ponds (process wastewaters, sludges). Most mine waste and tailings are managed in unlined piles and ponds. However, the mining industry, particularly in the precious metal sector, are increasingly using lined tailings ponds and installing leachate collection systems under waste rock piles. In addition, States have strengthened their programs for managing these wastes since the mid 1980's when EPA collected the information for its reports and regulatory determinations.

The scale or size of the operations involved with extracting, beneficiating, and processing an ore body present a unique technical challenge. Mining waste disposal units dwarf hazardous waste units in size. For example, hazardous waste landfills average ten acres, while mining waste piles average 126 acres—10 times larger on the average. Also, hazardous waste surface impoundments average six acres, while tailing ponds average about 500 acres. The largest tailing ponds run about 10,000 acres in size.

Against this backdrop I will now describe our analysis of these wastes and efforts to improve their management.

B. THE AGENCY'S 1985 REPORT TO CONGRESS ON EXTRACTION AND BENEFICIATION WASTES AND 1990 REPORT TO CONGRESS ON MINERAL PROCESSING WASTES

EPA submitted its Report to Congress on Extraction and Beneficiation Wastes in 1985; shortly thereafter, the Agency issued its regulatory determination. EPA found that the mining waste pose some environmental risks, but the risks to human health are generally low. Compared to Subtitle C facilities, mine sites are typically located in remote areas where they pose lower potential risks to human health. For example, EPA estimated that mine sites have average populations of less than 200 within one mile of sites, while hazardous waste sites average over 2,000 people within the same distance. However, while human health risks generally are much lower for mining wastes than for hazardous wastes, some mine sites are located in areas with resident populations of threatened or endangered species. EPA also noted that traditional hazardous waste management controls may be economically impractical for mining sites and could impose substantial cost to the industry. For example, EPA estimated that the costs of Subtitle C regulation for mine waste could be as great as \$850 million and result in many mine closures. Moreover, many Federal and State agencies already have regulatory programs that address mining wastes; integration of the hazardous waste controls for mining wastes with these programs could be extremely difficult. Based on these factors, EPA proposed development of a tailored, risk-based program for these wastes under Subtitle D. Such a program provides the site-specific flexibility to address the diversity and unique nature of mining wastes. The current Subtitle C program does not allow for such flexibility.

For processing wastes, EPA recently completed both a Report to Congress and a regulatory determination which addressed 20 major processing streams. In making this determination, EPA assessed each waste to determine whether Subtitle C regulation was appropriate. For each waste, EPA initially determined the intrinsic hazard of each waste stream, and whether current or potential future management practices posed human health and environmental risks. For wastes that pose potential risks, EPA then assessed whether more stringent regulation was necessary or desirable. Finally, where additional regulation was determined to be necessary, EPA considered what would be the operational and economic consequences of regulation under Subtitle C.

Based upon this study method, EPA determined that Subtitle C regulation was inappropriate for all 20 of the special wastes associated with mineral processing. EPA intends to address 18 of these wastes under Subtitle D, and develop and promulgate a program for the other 2 wastes under several possible authorities, including several possible authorities including TSCA.

C. CURRENT ACTIVITIES

EPA has undertaken a number of efforts to fulfill the commitments made in the regulatory determination. First, several Federal regulatory actions have been taken to enhance Federal controls at mining sites.

The Agency promulgated effluent guidelines for mining and beneficiation in 1982. In November 1990, EPA published storm water regulations which apply to both active and inactive mines. In 1984 EPA published guidelines for nonferrous metals and in 1982 guidelines for iron and steel manufacturing. The Agency also promul-

gated emission standards for metal smelters and iron ore blast furnaces. As a result of concerns over emissions from lead smelters, those regulations were tightened a number of years ago. The Agency is now reevaluating emissions standards in the mining industry per the new Clean Air Act to determine whether new regulations are needed.

Second, we have focused intensively on developing a tailored D program for mining and mineral processing wastes. This project involves intensive ongoing dialogue with other Federal agencies, the States, environmental groups and industry. EPA's first result from this dialogue was the issuance of a staff-level draft Strawman approach for controlling mining wastes. These Strawman documents are not proposed rules and do not reflect an Administration position on what form a mining waste program might take; rather, they were staff-level documents developed to solicit specific comments from all interested parties on a national program. Strawman II crystallized the issues that had to be resolved to develop a national program.

Based on comments received on Strawman II, in May, 1991, EPA chartered a Policy Dialogue Committee on Mining, under the Federal Advisory Committee Act. The purpose of this Policy Dialogue Committee is to further facilitate the exchange of information and ideas among the interested parties, refine and further develop issues related to noncoal mining, and identify any areas of agreement and consensus. Some of the specific areas this group is examining include what role the Agency should have in States with approved State plans; whether national technical standards are needed; how to implement a national program without adversely affecting ongoing State programs; and finally, how to develop the program so it enhances the programs currently administered by the Federal land managers. Members of the mining industry, States, environmental groups, and other Federal agencies serve as representatives on this Committee.

I am extremely pleased with the mining dialogue process and look forward to its progress. I can point out, however, that in EPA's discussions during the dialogue we have identified two elements we believe are essential to any mining program. First, we are committed to States having a principal role in developing and implementing a regulatory approach for mining wastes. Second, any program developed must be flexible in order to accommodate the wide range of risks and diverse settings in the mining industry and the existing State and Federal laws in place to address them.

The Policy Dialogue process has not identified specific principles that would relate to developing a national program as of yet. We do not wish to preempt discussions of such principles in the Policy Dialogue forum. Therefore, it is premature for us to define a legislative position at this time. We are pursuing a series of activities to determine whether there is a need for specific legislative remedies. As we are participating in those activities, we believe there are several principals that should govern during those discussions:

- The hazards associated with mining and mineral processing waste vary widely depending on the process and the particular environmental setting. The environmental and human health impacts fall across a wide spectrum, from significant to minimal to essentially none.

- There are many factors that will influence waste management approaches for a national mining and mineral processing waste management program. These include the enormous quantities of waste, the wide range of existing regulatory controls, and the wide range of environmental settings in which operations are located.

As we continue our work with the States and other interested parties, we would be glad to share specific details with the Subcommittee.

CONCLUSION

As you can see, EPA and the States are committed to improvements in management of these special wastes. I am particularly pleased with the enormous progress EPA, industry, States, and citizens are making toward defining a national mining waste program. While these activities are occurring, it is clear that individual States and companies are moving ahead to improve programs and practices. EPA will continue to work with States and others to assure these improvements continue.

At this time, we believe it is premature to define a position on new legislation. We are pursuing a series of activities to help determine our position. As we pursue discussions in this area, we believe there are several principals that should govern:

- In general the risks to human health pose by these waste are low, but these wastes do pose some environmental risks of concern.

- The unique nature of the industries generating these wastes should be recognized. Unlike other manufacturing facilities, these facilities are large in size and

number and produce huge volumes of wastes. This diversity dictates then that any requirements must be tailored to the industry and flexible enough to accommodate waste and site differences.

- Both the Departments of Interior and Agriculture already regulate hundreds of mine sites on lands they manage. Special waste programs should not duplicate or interfere with these existing authorities or programs.

- States should have a principal role in developing, regulating, and implementing special waste programs. We believe that where needed, State programs can be improved under existing authorities and constitute the most efficient means of regulating these wastes.

- To the extent Federal standards are warranted, EPA needs considerable discretion to tailor standards to diverse needs and significant risks. Any Federal implementation should be designed primarily as a backup to State efforts. I reiterate, however, that I believe it is premature to address these State/Federal relationship issues legislatively until work underway is completed.

In conclusion, EPA is committed to continuing to provide leadership for a coordinated Federal response to these issues. We look forward to continuing our efforts with States, industry, and citizen's groups. We will be pleased to continue to share the results of those efforts with the Subcommittee for use in its deliberations.

Mr. SWIFT. Thank you very much, Mr. Clay.

Mr. Ary has been kind enough to agree to defer his testimony, so that we might ask Mr. Clay questions and help comply with his schedule. And I thank you very much, Mr. Ary, for that courtesy.

I would thank both of you and the full committee, too, and I ask unanimous consent that the complete testimony of this and all witnesses today be included in the record.

Without objection, so ordered.

I also ask unanimous consent that a statement from the Louisiana Department of Environmental Quality be included at an appropriate point in the record.

Without objection, so ordered.

Mr. Clay, in the draft regulatory determination sent up for high-level management review prior to the final July 1988 publication in the Federal Register, EPA staff recommended that the low-volume, high-toxicity oil and gas waste known as associated wastes be regulated as hazardous under RCRA subtitle C, and that draft said:

The agency has determined that regulation under RCRA subtitle C of associated wastes is warranted. Associated wastes are generated in very small quantities, and the likely economic impact of regulation of these wastes under subtitle C is very small. Mismanagement of these wastes has resulted in some of the most severe cases of documented damage to human health and the environment included in the report to Congress.

The agency has also noted that associated wastes are "similar in chemical composition and/or toxicity to other wastes currently regulated under subtitle C."

Now we all know how things disappear on their way to final approval, but I would like to know somewhat more specifically what happened to the recommendation and why you apparently determined that that was inaccurate.

Mr. CLAY. Well, obviously, it was before my time, but I have looked into the matter and found that the language was a low-level staff recommendation unified as it went through management review.

The criteria for determining if it was a hazardous waste was spelled out by Congress, which asked that balancing of several factors occur. One of these factors was cost. In this case, as I under-

stand it, the estimated cost for oil and gas waste universe was somewhere between \$1.2 and \$7 billion per year, and for the associated wastes \$500 million per year. This estimated cost did not include costs associated with corrective action or the land ban, costs which would be significant. So, based upon the potential for exposure to associated wastes, their intrinsic hazard, and the cost of subtitle C regulation, all of which had to be balanced, agency management at that time concluded regulation under subtitle C was not warranted.

Mr. SWIFT. So what you're saying is, it was a judgment call based primarily on cost?

Mr. CLAY. It was a judgment call based upon the criteria spelled out by Congress.

Mr. SWIFT. But primarily on cost.

Mr. CLAY. It is my understanding that cost was one of the pivotal factors in the decision.

Mr. SWIFT. But one would not assume that they were totally out of their minds in making the judgment that they had in the draft report. I'm simply—I understand it's a judgment call, and the agency has every right in that process to do it. But what I'm trying to get at is: Is the conclusion that was made at that staff level something that you feel is wholly without any foundation, or whether there is some merit? Could reasonable people argue that case?

Mr. CLAY. Well, obviously, reasonable people. Again, I wasn't there at the time—but I believe that it was a reasonable decision. Apparently people at the senior level did not believe you could differentiate the damage from associated wastes from any other part of the oil and gas wastes. You can't just keep categorizing smaller and smaller and smaller. You have to look at the whole waste picture, and that was also part of the consideration.

Mr. SWIFT. Does it seem reasonable to you to suggest that you might want different regulatory schemes for high volume, low toxicity on the one hand and low volume, high toxicity on the other? It seems to me they present different problems.

Mr. CLAY. It does. But the size of the waste universe is always a problem in any regulation. I have another regulation in the agency where we keep defining something down smaller and smaller and smaller and then finally conclude that it's not worth regulating, because the risk isn't high enough. So it works both ways.

So it was a judgment call, based also on how the waste universe should be considered for regulation. The criteria was spelled out in the statute. Agency management at the time made the decision, looked at it. My understanding is the high cost was persuasive, and in particular the end additional costs of corrective action and the land ban figured heavily in their minds.

Corrective actions requirements are coupled with permit requirements under subtitle C. So, to qualify for a permit, you've got to agree to clean up the whole facility, not just the part of the facility for which you are getting the permit. It's very hard to start differentiating wastes once you start down that track.

Mr. SWIFT. In your testimony today, you state that EPA believes it is still premature for EPA to define a position on the need for

legislative change. It's been over a decade, and that kind of suggests maybe you've got a new definition for premature.

How do you still feel it is premature more than a decade after the Bevill amendment was passed and fully 3 years after the regulatory determination stated EPA's intention to work with Congress to develop new statutory authority?

Mr. CLAY. I think we are looking at the development of a whole program, working with the States.

The first element of the program has always been, in our minds, one implemented by the States. We've been working with the States. We believe that the State programs are, in fact, getting better. Until we see how much better they get, we think it's premature to say that we need legislative changes. Our work with the IOGCC is very successful.

Mr. SWIFT. One of the things that troubles me a bit about how the Administration has been approaching RCRA in general and this issue, in particular. In a sense, they're saying: We don't want to participate in the legislative effort, which suggests that Congress has got to go it alone. And I just think we're going to end up with a better product if we are cooperating with and getting the input from the Administration.

If it's premature to suggest to us legislative options, I would presume the Administration is not going to complain about the legislative options we come up with ourselves without the Administration's input.

Mr. CLAY. I would never bind future Administrations to not complain about what Congress does, but it's fair to say, that our position is that legislation is premature at this time.

Mr. SWIFT. Well, I think that it is far to say that it is not Congress' position, and it's a case of whether you want to get onboard this train before it leaves the station or not.

If you choose to stay off, I'm not going to strongarm you, but I'll tell you, I'm going to pay very little attention to any observations you would care to offer Congress after the fact.

Now is the time to help us understand all the things that we need to understand with regard to RCRA, this in specifics, RCRA in general.

The Administration seems very, very reluctant to do so. So we're going to go ahead. We do not think it is premature. We'd love to have your input. If you choose not to do it, I'm not going to hold a gun to the head of the President of the United States, but I will go ahead without him.

The gentleman from Pennsylvania.

Mr. RITTER. Thank you, Mr. Chairman.

I would like to get some description from you, Mr. Clay, on just where you view the hazards and risks at these facilities. You mentioned that one of the reasons the decision was taken not to characterize the associated waste generated at, I guess, 800,000 sites in the oil and gas industry alone. That is 800,000 potential permits at 2½ to 4½ years per permit. In deciding this, you took into account the risks and hazards of the associated waste. Could you give us a little more background on how the toxicity of exposure was taken into account? Because, after all, it is safety, it is health, it is poten-

tial environmental damage that really should be driving what we are doing here. Could you give us some idea about that?

Mr. CLAY. Sure. Anytime that you have a hazard, it is made up of two parts, one of which is the intrinsic toxicity of the material you are talking about, the other part is always exposure. It is my understanding that, in looking at the risk and balancing the statutory factors, that we concluded that sometimes the inherent toxicity could in fact be high, but, based upon the location of the waste and the opportunity for exposure, the overall assessment of risk is low—particularly low, compared with other risks that EPA looks at. So, in terms of oil and gas waste, the agency concluded that on a relative risk basis, that the human health risk of oil and gas waste was in fact fairly low.

Mr. RITTER. What kind of examples?

Mr. CLAY. Well, perhaps I could defer to Ms. Lowrance, for examples.

Ms. LOWRANCE. Certainly, I would be glad to give examples. In looking at the oil and gas production area, we found great diversity and variability, in addition to the generally low opportunity for exposure. We found great variability across the country, in terms of management practices. Some of the types of practices that we forward and stated in the report to Congress needed improving, had two aspects.

The first aspect was where there were existing State requirements and existing Federal requirements, but they were not being complied with. That was situation in the majority of the damage cases in the study. So, based on this aspect, we concluded there is a need to improve implementation of existing regulations.

In the second instance, we found some gaps in terms of Federal and State regulatory coverage. For example, some States did not require lining of reserve pits, thus threatening groundwater. There were direct discharges allowed into certain surface water bodies that were not covered by Federal law. We are taking steps to improve such situations now, at both the State and Federal level.

Mr. RITTER. So, what we hear is essentially violations of existing State law, as opposed to a gap in what is the regulatory policy, or am I missing something?

Mr. CLAY. Your understanding is correct. A big problem was violations of existing State laws.

Mr. RITTER. So, in other words, if there were more effective enforcement of these State laws, and if EPA could be working with some of the State agencies to enhance this process, we would not need to duplicate or create a newly redundant, expensive and time consuming, cost generating, Federal regulatory schema. Is that something that makes sense?

Mr. CLAY. We would agree with that. Yes.

Mr. RITTER. I thought you might.

Mr. CLAY. It is not as if we are doing nothing. We are working with States. We think the States have the lead. We are working with the IOGCC.

Mr. RITTER. How long is the IOGCC in operation?

Mr. CLAY. I believe it was the IOCC until recently, and started out in the mid-1930's.

Mr. RITTER. Okay.

Mr. CLAY. I am not an exact student of history.

Mr. RITTER. It has been around a long time. So, some of these improvements that are required—people can say, well they have been around a long time, and they have not made these improvements; therefore, we need a new Federal regulatory overlay. What is your response to that?

Mr. CLAY. My experience is that things are getting much better. The fact that Congress is talking about it, certainly inspired some people to pay more attention to it at the State level. We have found them very cooperative. The original task was defining what should be in the State program; I think the results are very good. We have to encourage States to do self-evaluations, using the help of other States, environmental communities, and ourselves, to look at State programs in detail and suggest improvements. They are anxious to improve their programs. Until they are improved all the way, I think it is premature to go in and say there are gaps that need to be filled legislatively.

Mr. RITTER. So, you have seen then, in recent years, some increase in the pace of improvement of the State program; is that correct? It is not just business as usual with the State? There is active engagement with the States and the States, themselves, to improve these programs—to see that violations of existing law do not occur? Is that true? Because, if not, then we do need a Federal regulatory program.

Mr. CLAY. Well, we have some examples. I think in 1988 Alaska stopped issuing permits for discharging reserve pit fluids into the tundra. In 1991 Colorado announced its plan to conduct a comprehensive evaluation of its oil and gas management programs. I think States are, in fact, hearing the message that they need to improve their programs. I think they are improving. I think that because of the tremendous variability in the problems faced by individual States I would certainly like to see the States have the first chance to solve those problems, if in fact it ultimately leads to good solutions.

Mr. RITTER. One last question. What factors are going to influence EPA as it approaches potential tailored programs for special wastes?

Mr. CLAY. Well, what we are always interested in is protection of human health and the environment. That is our goal.

Mr. RITTER. Which is basically the interest of the chairman, to see to it that human health and environment are protected.

Mr. CLAY. We would also clearly like to see a State lead program and a tailored program that fits the—

Mr. RITTER. A State lead program?

Mr. CLAY. Yes.

Mr. RITTER. State programs.

Mr. CLAY. Yes. We think that a State program will have to be tailored to the particular problem at hand.

Mr. RITTER. What is the appropriate Federal/State relationship? I guess what I am thinking of is if we could protect human health and the environment without getting into even the associated wastes being in subtitle C wastes, we would be doing ourselves a great favor in actually cleaning up America. Because once you turn it into a Superfund or a tremendous fight with the bottleneck in

the RCRA permitting process, what happens is the place does not get cleaned up.

Where can EPA assure us, so that the chairman could, not necessarily win over both sides of the committee on this particular issue—or that the chairman, himself, could be convinced that sufficient progress would be made, so as not to create a mass of new Federal regulatory redundancy?

Mr. CLAY. I think that the traditional Federal role in this type of relationship would be in providing technical assistance. We usually will have that kind of capability. In particular, helping the States to target the risk and helping them, as we have done with the IOGCC report by providing guidance on what is a good program. So, technical assistance and helping them target risk, I think, are probably—

Mr. RITTER. That may not convince members of Congress though. Is there something somewhat slightly stronger to ensure that the States do go forward at a rapid rate? It would seem to me that it would be great incentives for the States to get this job done, and try to avoid the heavy hand of subtitle C characterization for their in-State industries.

Mr. CLAY. I would agree. I assume you have a State panel coming. I hope they will be telling you that too.

Mr. RITTER. Again, just to reiterate my concern, that conceivably up to 800,000 facilities would get stuck in the quicksand of subtitle C.

Thank you, Mr. Chairman. I yield back at this time.

Mr. SWIFT. the gentleman from Colorado is recognized for questions.

Mr. SCHAEFER. I thank the Chair.

Mr. Clay, I appreciate the fact that you were inconvenienced today and that you are still here. I know that you and EPA have talked a number of times about some of these issues. I would just like to say that you should be commended for recognizing the importance of the State involvement, particularly in the development of these mine waste regulatory proposals.

The Western Governors Association in the ongoing Policy Dialogue Committee—through that the EPA has demonstrated that the input of the States is critical to the process, and as some of my colleagues were saying, in getting the ultimate done—and that is as little of a depository out there as we could in the cleanup.

Could you let us know the status of PDC and how you see this as worth while, as far as we in Congress, in trying to consider or reconsider RCRA? I think the benefit of your knowledge on this certainly could help us in these discussions.

Mr. CLAY. Well, the Policy Dialogue Group grew out of the "strawman" process. In the strawman we described two potential models, neither of which were sanctioned as part of official EPA policy, but just something we put on the table for discussion purposes. We decided that we had taken that approach about as far as we could, so we chartered this Policy Dialogue Committee, under the Federal Advisory Committee Act as a logical step.

We have been making progress with that group. We have had a total of, I believe, three meetings so far. We have clearly identified the issues. We have subcommittees working on each issue. We are

looking for a report at the end of early next year. We should have a report back, and we will certainly share with the committee when we have such a report.

We think that the dialogue and consensus building is not a waste of time, as some have accused; it is very important to get all of the stakeholders at the same place, at the same time, and talk about these issues in a meaningful way. We have found it a very positive experience.

Mr. SCHAEFER. I am going to look forward to seeing what the results of that—I am sure the rest of the committee are, when this comes out.

In the 1986 regulatory determination on mine waste, the EPA mentions the great diversity, and as you mentioned, in the mining industry and the unique nature of the so-called waste that is produced. As I look through your office's briefing papers for OMB, it is easy to understand how you have certainly reached these conclusions, and for a couple of instances.

You mentioned that mining generates 1.5 billion tons of waste annually, or 90 percent more than all other waste regulated under subtitle C. It is generated anywhere from 10,000 to 500,000 tons on a per day basis.

Finally, you mention that the size of the mining waste management units vary from 1 acre to 10,000. Don't these facts point out that we have a need for regulatory flexibility and, to some degree, a lot of State primacy in it?

Mr. CLAY. Yes. That has been our general conclusion. They are very large, in fact, the scale is perhaps an order of magnitude larger than the other things we see. We certainly believe it needs to be a tailored and flexible approach, and we certainly believe the State-level program is appropriate.

Mr. SCHAEFER. In the hearing last year, Chris Holmes, the Deputy Assistant Administrator in your office said, and I quote:

What has impressed me in going to so many of the mine sites is how seriously they are taking their environmental responsibilities.

Would you or Mr. Ary care to comment on that statement? I mean, it is kind of backing up what you are saying here, Mr. Clay.

Mr. CLAY. Christian was my Deputy last year, and I certainly agree with what he said. I have not been out to as many of the mine sites he has been; but he was very impressed.

Mr. SCHAEFER. Mr. Ary.

Mr. ARY. Yes. I would agree that the mining companies have been taking and are continuing to take the environmental and waste disposal problem very seriously, and have done a very good job.

Mr. SCHAEFER. I guess, I would assume that whatever bad policies that were out there during the late 1800's and a lot in my own State of Colorado, where you can still see remnants of it, and in through the early part of this century, has begun to be changed and that they are now moving into the environmental aspects.

Mr. ARY. I think you will find that the companies have had a lot of changes in the individual company policies, as well as in the overall industry policy. The idea that you can either develop the public lands or maintain a quality environment is no longer accept-

able in the mining industry. We have been doing both, and we will continue to do both.

Mr. SCHAEFER. I thank the Chair. I have no other questions. I will yield back the balance of my time.

Mr. SWIFT. I thank the gentleman.

I recognize the gentleman from Texas.

Mr. FIELDS. I will begin by thanking you, Mr. Clay, and I will thank you, Mr. Chairman, for having this hearing today. For me, it is probably the most important aspect of this entire RCRA debate, and I think also for our country, so I appreciate the chairman calling the hearing.

Mr. Clay, I want to try to understand what you mean by "premature", because if I understand what you mean, my understanding is different from the chairman. And correct me if I'm wrong, but under RCRA, as it was originally written, EPA was required to make a determination as to whether the exemption is preserved or lifted, and as I understand what has occurred and your statement today, that determination has been made by EPA.

Mr. CLAY. That's correct. It was made in a report to Congress several years ago.

Mr. FIELDS. So coming back to your use of the word "premature", I don't take the use of the word to mean that you're trying to avoid debate or not trying to join the process, but instead I understand your use of the word "premature" as saying that there is not sufficient reason or evidence for further regulation.

Mr. CLAY. That's correct. We think the States are making a lot of progress, and we'd like to see that run its course before we take a final position. But, yes, a lot is going on. We also have some other activities under some other Federal laws.

Mr. FIELDS. Well, going a little further, and if I understood what Ms. Lowrance was saying also, she commented that EPA is active at this particular time in working with States.

And if I understood what you said, Ms. Lowrance, you were talking about improving implementation. You were talking about filling in gaps, and if you could, I'd like you to give us some examples, so that we understand as a committee that EPA has been proactive, that EPA has not been reactive, and the EPA has followed the mandate and the requirement that was originally given by Congress in 1980.

And then after that, Mr. Clay, I'd like for you to go a little further, because you talked about the technical assistance and targeting risk, which again to me says that EPA has not just been sitting there for a decade but has been active in trying to improve the situation with the States.

Ms. LOWRANCE. I'd be glad to give you some examples of what we've done to fulfill those commitments made in the report to Congress. There were several commitments made in terms of gap filling. We identified several gaps under both Federal as well as under State laws.

In terms of EPA activities with regard to the Federal statutes that we administer, we have undertaken rulemaking under the Clean Water Act to improve some of the discharge limitations. We have, in our effluent guidelines, scheduled additional activities that we're undertaking there.

In terms of the RCRA program, we are working with the States to review State programs, to share amongst the States how they are improving their programs, so that each State, as they work with their legislature, can benefit from the experiences of other States. We're doing that through a series of forums where the State regulators are participating and working with one another to mutually improve State programs.

Mr. FIELDS. Are there any States not working with EPA either in filling in gaps or improving their implementation?

Ms. LOWRANCE. No. We're getting cooperation from all of the States that we think have a major interest in these areas.

Mr. CLAY. I'm not sure I can add a whole lot. I think we are working with the States and progress is being made. And I think Sylvia has described it well.

[The following material was supplied:]

Question. What is EPA doing on Naturally Occurring Radioactive Materials [NORM] and how has EPA assessed the threat, if there is a threat, from these wastes?

Answer. In May 1991, EPA's Office of Radiation Programs [ORP] issued a draft report titled "Diffuse NORM Wastes—Waste Characterization and Preliminary Risk Assessment". The purpose of the draft report is to solicit comments and additional information characterizing the sources and risks from the use and disposal of NORM wastes. The draft report characterizes the inventory and average radionuclide for eight materials, including petroleum production scale and sludge and evaluates the risks from the management of these materials. It should be noted that the characterization of NORM waste analyzed in the draft report are based on limited information and data. Accordingly, there is a need to better characterize the radiological and physical properties of the wastes, and evaluate NORM waste disposal and application rates. In addition, although the OPR report is based on limited data and a number of assumptions, we believe that the results can be interpreted to indicate the potential risk may be significant enough to warrant additional characterization of NORM waste generation and disposal practices in order to further refine risk assessment analyses.

Although there are currently no universally applicable NORM regulations, some States do address NORM: for example, the State of Louisiana has enacted emergency controls for regulating NORM in the oil and gas industry. NORM has been found in production activities located along the Gulf Coast. In order to evaluate options for the cleanup and disposal of these materials, OPR and the State of Louisiana are currently undertaking a study to assess risks from this NORM waste stream.

Mr. FIELDS. One issue that's been raised in this debate is the issue of naturally occurring radioactive material, and, of course, that's linked to the question of oil and gas production waste.

What is EPA doing on this, and how has EPA assessed the threat, if there is a threat, from the waste?

Mr. CLAY. I may provide something for the record, but the Office of Radiation Programs under the Office of Air and Radiation Programs, in fact, put out a draft report describing what they know about the problem of naturally occurring radioactive material problem in order to solicit comments.

It characterizes the inventory and average radionuclide levels for certain materials. I know they are working with the State of Louisiana. That report is out for comments. I do not know the exact time when it will be finalized, but I'll be happy to augment the record.

But the agency is aware of the problem. We have a report out. We're soliciting comments, and we're working with Louisiana.

Mr. FIELDS. Mr. Chairman, if I might ask, I would like for Mr. Clay to provide to all the members a chronology of what EPA has

done over the last year in the area of implementation, targeting, the technical assistance, and filling in the gaps, because as you've done throughout this RCRA process in trying to bring as much information to members of the committee, I think this is extremely important, particularly when we have a major agency which is charged with a specific responsibility, required to report. I think it's very important that we have that information, and I would like for that information to be made a part of the record.

Mr. SWIFT. I think if this would satisfy the gentleman, I would just generally like to ask Mr. Clay if he would be willing to respond to questions in writing from the committee and that those be made a part of the record, and the minority staff can either send those directly or run them through a general the committee request of compilation of what other questions we might have.

Mr. CLAY. I'd be pleased to, Mr. Chairman

Mr. FIELDS. Thank you, Mr. Chairman.

[The following material was supplied:]

Question. What has EPA done over the last year in the area of implementation, targeting, and technical assistance on oil and gas to fill the gaps?

Answer. EPA has undertaken a number of steps to implement the strategy described in the oil and gas regulatory determination to fill gaps and address issues posed by these wastes.

Improving Federal Programs

Clean Water Act. EPA's Office of Water promulgated regulations in 1990 that require both active and inactive oil and gas facilities to obtain NPDES permits for storm water discharges. The Office of Water also has developed a schedule for writing effluent guidelines regulations under the CWA for offshore (1992) and coastal (1995) operations and intends to develop guidelines for the stripper subcategory (no schedule). Work is underway on data collection for coastal and offshore rules.

Safe Drinking Water Act. The Office of Ground Water and Drinking Water (formerly the Office of Drinking Water) has completed a Mid-Course Evaluation of the Underground Injection Control program, focusing on topics such as construction requirements, are of review and corrective action requirements for abandoned wells, mechanical integrity testing requirements and operating, monitoring and reporting requirements. In addition, the Agency recently established a committee under the Federal Advisory Committee Act [FACA] to assist in further refining the program. A meeting was held in Washington, DC on April 17 and 18, 1991 to conduct scoping of the issues for the FACA Committee. The FACA Committee was chartered on June 6, 1991. The Committee's charter expires on January 31, 1992. Three Committee meetings were held: June 11-12, 1991 in Washington, DC; July 16-17, 1991 in Denver, Colorado; and September 24-25, 1991 in Alexandria, Virginia. The next meeting is tentatively scheduled to be held in Austin, Texas in October. The FACA Committee is focusing on the preparation of three guidance documents: (1) Follow-Up to Class II Well Mechanical Integrity Failures under 40 CFR 146.8; (2) Operating, Monitoring and Reporting Requirements for Class IID Commercial Salt Water Disposal Wells; and (3) Management and Monitoring Requirements for Class II Wells in Temporary Abandonment Status. The Agency is attempting to complete these guidance documents by December 1991. The Committee also is continuing its discussion of construction requirements and "Area of Review" requirements.

Subtitle D of RCRA. EPA is currently conducting data collection activities to update and supplement Report to Congress data, particularly for associated wastes.

Improving State regulatory programs. Under an EPA grant, the Interstate Oil and Gas Compact Commission [IOGCC] developed, with input from all interested parties, a guidance document for State oil and gas waste management programs. This guidance document was released in December 1990 and is intended to be an aid both to regulators and to industry in improving management practices and regulatory programs.

EPA worked closely with the IOGCC on this guidance and is funding followup work (initiated in September 1996) to provide assistance to the States in making improvements to their regulatory and enforcement programs. This assistance will take the form of programmatic audits that will result in recommendations for specific improvements in State programs. The audits will be conducted under the auspices of

IOGCC and involve all interested parties: State officials, as well as representatives of industry, environmental groups, EFA and other Federal agencies. The first State program review took place in Wyoming in June 1991; a report containing the results of this review should be available in October. The second review is tentatively scheduled to take place in Pennsylvania in November 1991. EPA is also funding and assisting IOGCC in the development of a training program for State inspectors. A pilot presentation of the training program is tentatively scheduled for late October 1991 in Pennsylvania.

EPA is also in the process of working through the EPA Regions to issue grants directly to selected States to provide further assistance in improving State programs. For example, the State of Alaska, with an EPA grant, will begin in the fall of 1991 to develop a Best Management Practices manual. Montana also has been provided a grant in support of its oil and gas program.

Mr. SWIFT. For the members who were not here before, I would simply like to suggest that we have been trying to accommodate Mr. Clay, whose schedule was thrown into a turmoil by our having to reschedule this hearing, and he was supposed to leave 12 minutes ago.

With that caution, I recognize the gentleman from Ohio.

Mr. ECKART. Thank you, Mr. Chairman.

Mr. Clay, I have two very quick questions for you at this point.

In California, I understand, associated wastes are not exempt from hazardous waste regulation; is that correct?

Mr. CLAY. I don't know.

Ms. LOWRANCE. It is correct.

Mr. CLAY. It is correct, according to Ms. Lowrance.

Mr. ECKART. Do you have any information that suggests that stripper wells in California are closing prematurely or that this lack of an exemption is causing business dislocation there?

Mr. CLAY. Neither Ms. Lowrance or I know the answer at this time. I'll look into it and get back to you with an answer for the record.

Mr. ECKART. I'd appreciate that.

[The following material was supplied:]

Question. Do you have any information that suggests that stripper wells are closing prematurely in California? Is the lack of an exemption (in California for associated wastes from hazardous waste regulation) causing business dislocation there?

Answer. The Agency presently has no information that indicates or suggests whether stripper wells in California are closing prematurely due to any solid and hazardous waste laws and regulations; in addition, EPA presently has no information that indicates whether the "lack of an exemption" from hazardous waste regulations in California for associated wastes is causing business dislocation. However, the Agency believes that there may be some confusion as to whether there is an exemption for certain types or classes of exploration and production [E&P] operations in California (e.g., stripper wells). Therefore, the Agency will soon begin a study of California state (and selected county, and local) legal authorities and their implementation to clarify whether there are any general or specific exemptions from environmental requirements afforded the State's E&P industry. The Agency plans to be finished with this study by mid-1992.

Mr. ECKART. The second question very briefly is: Louisiana's discharge permit for coastal waters states that the technology system called the closed loop or closed cycle drilling fluid system has been recommended by EPA region VI.

Is it your understanding that the technology is reasonably available under those circumstances?

Mr. CLAY. Yes, we believe it is.

Mr. ECKART. Do you believe that Congress should encourage its use in other similar circumstances?

Mr. CLAY. I'm willing to endorse encouraging the use. How the use is encouraged, I wouldn't go quite that far, I don't think, at this time.

Mr. ECKART. All right. We will discuss this matter under other circumstances another time, and I thank you for being here.

Mr. CLAY. I appreciate the chairman's cooperation with my schedule.

Mr. SWIFT. We have one other member, and we'll try to get you out as quickly as possible.

The gentleman from New Mexico.

Mr. RICHARDSON. Yes. Just one question: strawman II, what do you think, Mr. Clay? Do you think we should adopt legislation that allows EPA to promulgate it as a mine waste rule?

Mr. CLAY. No. The strawman was never meant to be the official EPA position. It was something that was put on the table in order to solicit comments. So, no, we're not ready to, nor were we at the time we put it out, ready to say that was the answer.

Mr. RICHARDSON. It was pretty controversial, wasn't it?

Mr. CLAY. Yes, I think that's fair.

Mr. SWIFT. I thank the gentleman from New Mexico.

I had one other question, but I will defer it. I think we can take that up with some other members of the panel. I would simply note at this point in the record that what the appropriate Federal role is, which has been discussed here at some length, has some other perspectives which we will get to later on in the hearing.

Thank you very, very much. I appreciate your accommodating our having to change the schedule.

Mr. CLAY. I appreciate your accommodating my requirements, too.

Thank you, Mr. Chairman, and members of the committee.

Mr. SWIFT. Mr. Ary, you have been extraordinarily gracious in helping us to accommodate. As I say again, it was not Mr. Clay's fault that his schedule is jammed. It was because we had to move our hearing. You've been most generous, and I'd be happy to recognize you at this point for your testimony.

STATEMENT OF T.S. ARY

Mr. ARY. Thank you much.

Mr. Chairman, we appreciate the opportunity to come and discuss this matter, especially on mine waste and mine beneficiation waste. I've submitted a formal statement, and I would like to request that it be accepted for the record.

Mr. SWIFT. Without objection.

Mr. ARY. I'd like to summarize the statement in a short oral statement, if I might.

The mining and beneficiation wastes are fundamentally different from other solid wastes and represent about 40 percent of the Nation's total volume of solid waste by weight.

An effective regulatory program for mining and beneficiation wastes is possible under the Resource Conservation and Recovery Act or RCRA, but it is going to require looking beyond traditional

approaches involving strong Federal involvement and rigid technology-based requirements.

It is further important to note that waste generated during mining and beneficiation tends to have less potential to be harmful to human health and the environment than do wastes from many other industrial sources.

In 1985, EPA reported to Congress on these wastes and found that only 1 percent exhibit hazardous characteristics. Each time Congress has considered RCRA, mining and beneficiation wastes have received special attention. The Bevill amendment in 1980 and later the Simpson amendment provided for exclusions from hazardous waste regulations until the characteristics of these wastes, the relative hazards, and the current regulatory provisions were fully understood.

We need to understand that there are significant differences between mining and beneficiation wastes and the wastes generated by other industrial facilities and municipalities. Also, the problems and issues associated with mining and beneficiation waste are quite different from those related to more familiar municipal and other industrial waste.

The unique characteristics of these wastes present special challenges to the regulatory processes now available for solid waste management. American industry generates about 270 million metric tons of hazardous waste annually. In comparison, the mining and beneficiation operations generate some 2 billion metric tons per year of solid waste. Further, nearly half of these wastes is mining overburden that needs to be removed to gain access to the ore body and is not processed in any way, but it is generally returned to the approximate original location during the reclamation program which follows mining.

The regulation and management of mining and beneficiation wastes should be primarily the responsibility of State and local governments. The role of the Federal Government should be to set criteria under existing RCRA subtitle D authority to evaluate the effectiveness of State mining solid waste programs in protecting human health and the environment.

To the extent that the Federal regulation of mining and beneficiation wastes is needed, the opportunity to do so exists now under RCRA.

The Administration strongly and firmly believes that RCRA and other existing statutes provide all of the authority necessary to develop an appropriate program addressing these wastes. Any Federal regulation promulgated under existing authority should not be based on strong Federal environment and rigid technology-based requirements. It should be based on three general principles: One, regulation of these wastes should be primarily State-based and site-specific; two, State and local authorities should have the primary responsibility to develop effective and flexible programs; and three, there should be recognition of the specific roles and responsibilities of the Federal land management agencies and Indian tribes in the regulation of mining and beneficiation activities on public lands.

Mr. Chairman, this completes my statement, and I would be pleased to respond to any questions.

[The prepared statement of Mr. Ary follows:]

PREPARED STATEMENT OF T.S. ARY, DIRECTOR, BUREAU OF MINES,
U.S. DEPARTMENT OF THE INTERIOR

INTRODUCTION

I appreciate the opportunity to discuss at this oversight hearing issues pertinent to the relationships between the State and Federal regulatory roles for the management of noncoal mining and beneficiation wastes. These wastes are fundamentally different from other solid wastes and represent about 40 percent of the Nation's total volume of solid wastes by weight. An effective regulatory program for mining and beneficiation wastes is possible under the Resource Conservation and Recovery Act [RCRA]. It requires looking beyond traditional approaches involving strong Federal involvement and rigid, technology-based requirements.

We need to understand that there are significant differences between mining and beneficiation wastes and nonhazardous wastes generated by other industrial facilities and municipalities. Mining and beneficiation wastes tend to occur in large volumes at only a relatively few, generally remote areas, unlike municipal and other nonhazardous industrial wastes, although some mining and beneficiation waste sites do pose risks to populated areas. This means that the problems and issues associated with mining and beneficiation wastes are quite different from those related to the more familiar municipal and other industrial wastes.

NATURE OF MINING AND BENEFICIATION WASTES

The unique characteristics of mining and beneficiation wastes present special challenges to the regulatory processes now available for solid wastes management. American industry generates about 270 million metric tons of hazardous waste annually. In comparison, mining and beneficiation operations generate some 2 billion metric tons per year of solid wastes. Further, nearly half of these wastes is mining overburden that needs to be removed to gain access to an ore body and is not processed in any way. The mining industry produces these solid wastes during preproduction excavation and mine development as well as during the actual extraction of the ore. This material is generally managed in areas that average 125 acres in size. In comparison, nonmining hazardous waste landfills average 10 acres in size.

During beneficiation, the ore is crushed and ground in mills and minerals are recovered by physical or chemical techniques. The material produced as waste from these operations is called tailings and typically is slurried to impoundments that average 500 acres, with the largest exceeding 10,000 acres. In contrast, typical nonmining hazardous waste impoundments average only about 6 acres.

It is further important to note that wastes generated during mining and beneficiation tend to have less potential to be harmful to human health and the environment than wastes from many other industrial sources. The 1985 EPA Report to Congress on mining and beneficiation wastes found that only one percent of these wastes exhibited a hazardous characteristic. While some sites listed under the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] Superfund program contain wastes that resulted from the production of minerals, they nonetheless reflect past production operations and outmoded waste management practices that often had too little regard for the protection of either human health or the environment. In contrast however, today's minerals industry's practices are designed to be both highly efficient and environmentally sensitive.

Finally, mining and beneficiation wastes typically contain valuable resources for future processing and utilization of yet undeveloped technologies to recover residual mineral values. Many current waste management regulations require that wastes placed on the land be isolated from the environment using liners and caps. Such regulations may not be suitable if applied to large mine waste piles and impoundments, and they likely will make the material less amenable to processing in the future.

RCRA HISTORY

RCRA and the regulations that have been developed to implement it were not designed primarily to address mining and beneficiation wastes. At the Federal level, the treatment of mining and beneficiation wastes within RCRA has been an evolutionary process. Upon its enactment in 1976, the Federal Government's solid wastes management regulatory efforts focused on the control of hazardous wastes. Subtitle C of RCRA was designed to mitigate the environmental impacts from industrial hazardous waste disposal.

Each time the Congress considered RCRA, mining and beneficiation wastes received special attention. The Bevill Amendment in 1980 and later the Simpson Amendment provided for exclusions from hazardous waste regulation until the characteristics of these wastes, their relative hazards, and current regulatory provisions were fully understood.

The EPA completed the required studies covering mining and beneficiation wastes at the end of 1985. In our response, the Department of the Interior urged the EPA to seek alternatives to the regulation of mining and beneficiation wastes as hazardous wastes under RCRA Subtitle C. In its mid-1986 regulatory determination, the EPA concluded that regulation of mining and beneficiation wastes under Subtitle C of RCRA was not warranted. Instead, the EPA sought the development of a regulatory program under Subtitle D providing for flexible, site-specific, and State-based regulation. The long-term effectiveness of this program was said to depend on the ability of the States to design and implement a program, tailored to their needs and on the Federal Government's ability to oversee and enforce the program.

Subtitle D of RCRA was designed to control municipal and nonhazardous industrial waste disposal. Subtitle D programs are operated by the States with the Federal Government responsible for establishing guidelines. Subtitle D provides for the flexibility to allow the development of programs tailored to site-specific conditions.

STATE PROGRAMS

The time between the enactment of RCRA in 1976 and today has allowed States and Indian tribes to develop regulatory programs that meet their unique needs. These programs have the flexibility to account for site-specific conditions such as climate, geology, hydrology characteristics of the waste, and soil chemistry.

Several States, including Idaho and Nevada, have established or are very near to having established regulatory programs addressing the growing use of cyanide to recover gold and other precious metals. Idaho's regulatory initiative resulted from the cooperative efforts of all interested parties including various State agencies, industry, environmental interest groups, and Federal agencies with land management responsibilities.

South Carolina chose a different remedy to regulate its gold cyanide operations. The State was faced with the need to permit gold cyanide operations without having an established program specific to that type of operation. Since only relatively few such operations would apply for permits, the State chose to adapt existing regulatory authority to suit its needs.

The State of Florida has regulated the reclamation of lands mined for phosphate since 1977. This well-established program focuses on subsequent land use of mined land as well as the safe disposal of mining wastes.

The diversity of the State programs represented in these examples indicates that, to the extent further exercise of Federal authority may be appropriate, the development of a Federal mining and beneficiation waste management program must be flexible and recognize the capability and responsibility of the States to regulate these wastes on a site-specific basis. Most States with active mining and minerals-processing facilities already have begun to ensure that solid wastes from these facilities are managed properly. They have developed the frameworks needed to regulate mining and beneficiation wastes. These State programs differ markedly from each other because of variations in climate, geology, and environmental sensitivity of the areas involved. These State programs recognize the differences between the nonhazardous and hazardous wastes of the minerals industry. They regulate mining operations in populous States with wet climates such as gold mines in South Carolina, phosphate mines in Florida, as well as gold mines in sparsely populated States with arid climates such as Nevada.

FEDERAL RESPONSIBILITIES

RCRA is the Federal Government's principal tool for protecting human health and the environment from solid wastes including mining and beneficiation wastes. For minerals industry wastes, as for other solid wastes, RCRA provides Federal authority to monitor the effectiveness of State programs, and to provide guidance, financial aid, and technical assistance. If additional Federal regulation is needed, it should take advantage of and build upon the flexibility inherent in existing State programs. The EPA recognized the need for flexibility in its mid-1986 mining and beneficiation waste regulatory determination. At that time the EPA looked to RCRA Subtitle D as a starting point for additional Federal regulation. Since then, the EPA has begun developing regulations for mining and beneficiation wastes.

These efforts have been slow and difficult because mining and beneficiation wastes are so different from most other types of industrial wastes.

SPECIFIC REGULATORY AUTHORITY

The regulation and management of mining and beneficiation wastes should be primarily the responsibility of State and local governments. The role of the Federal Government should be to set criteria under existing RCRA Subtitle D authority to evaluate the effectiveness of State mining solid waste programs in protecting human health and the environment.

The criteria should: Recognize that many States and Federal surface management agencies already have effective programs to regulate mining and beneficiation wastes; consider cost effectiveness in State regulatory programs and avoid duplication of effort; provide for Federal agencies, such as the Bureau of Mines, the Bureau of Land Management, and the U.S. Forest Service, which have mining, minerals processing, permitting, reclamation, and operations management experience, to be adequately consulted in the development of any regulations that may be needed; encourage the reprocessing of old mining and beneficiation wastes that will effectively "clean up" old mining related waste areas; recognize that solid waste disposal is only one of the many factors that Federal, State, and local regulatory agencies must consider in the permitting process for mining and beneficiation operations; allow and encourage the creation of State solid waste regulatory programs within existing organizational structures and programs; and emphasize performance rather than prescribe the application of specific technologies.

EPA STRAWMAN II AND POLICY DIALOGUE COMMITTEE

In May 1990, the EPA released an informal decision paper, known as Strawman II, which proposed a regulatory program for mining and beneficiation wastes. In the extensive Department of Interior and Department of Agriculture comments to EPA, consisting of more than 100 pages, a number of major concerns were noted. For example, the regulatory program as envisioned could require statutory authority beyond that currently available to EPA in RCRA. Also, it included the need to regulate certain materials that are not now considered solid wastes. These materials generally are in-process materials, such as ores being leached in heaps and dumps or ores and subgrade ores in stockpiles. We question whether EPA may regulate such materials under current RCRA authority.

In April, 1991, following EPA's review of comments received on Strawman II, EPA established a formal Policy Dialogue Committee in accordance with the provisions of the Federal Advisory Committee Act. The Committee provides a forum for the further development of EPA's mining regulations and for reviewing issues related to managing mining and beneficiation wastes. Both the Department of the Interior and the Department of Agriculture are represented on the Committee. The Department of the Interior will support EPA by providing advice and technical assistance.

CONCLUSION

To the extent that Federal regulation of mining and beneficiation wastes is needed, the opportunity to do so exists under RCRA. Any Federal regulation, however, should not be based on strong Federal involvement and rigid, technology-based requirements. It should be based on three general premises: (1) The regulation of mining and beneficiation wastes should be primarily State-based and site-specific. (2) State and local authorities should have the primary responsibility to develop effective, and flexible programs. (3) There should be recognition of the specific roles and responsibilities of Federal land management agencies and Indian tribes in the regulation of mining and beneficiation activities on public lands.

Mr. Chairman, this concludes my prepared statement. I will be pleased to respond to questions from the Subcommittee.

Mr. SWIFT. Mr. Ary, you are very kind.

The first question that I have is do you still fly airplanes through barns?

Mr. ARY. No, sir.

Mr. SWIFT. The FAA will be extremely happy to hear that.

In your testimony you stated that one of the Department of the Interior's objections to strawman II was that it would have regulat-

ed "certain materials that are not now considered solid wastes, such as ores that are being leached with cyanide and heap leach operations."

You seem to indicate—I am not trying to put words in your mouth—you seem to indicate that Interior's objection to the proposal is because you question whether EPA may regulate such materials under current authority. Did I understand that correctly?

Mr. ARY. Yes, sir. There is the question of whether EPA can regulate that, under the present authority, because there is a difference between a producing mine and a nonproducing mine.

Mr. SWIFT. Okay. Well, let us assume for the sake of argument, that that is the correct legal interpretation. Congress can obviously give EPA that authority under RCRA. Do you think we should, or do you think we should not give them that authority?

Mr. ARY. I think the authority should rest within the State program, because many of the States have started establishing programs in which they are putting forth regulations for heap leaches. I think where the States can do it, on a site-specific basis, they can take into consideration the various humidity problems, the various weather problems, and the types of ore problems that they have. My recommendation is to allow the States to do it, let EPA help set the criteria upon which they can establish the State requirement.

Mr. SWIFT. So, you would at least grant EPA the authority to establish some standards?

Mr. ARY. To work with the States and do that, yes, sir.

Mr. SWIFT. Does that suggest that the Federal Government should have any authority to enforce the standards?

Mr. ARY. Should have the authority to—

Mr. SWIFT. Well, if you establish some standards and then you are working with the States to pass their laws, their regulatory process to meet the standards, should the EPA or some other Federal agency, have the authority to do something to the States if they do not meet the standards?

Mr. ARY. If the activities are on the public lands, then the land management agencies have that authority and responsibility now. If the activity is under the State rules and State laws, then the State should enforce it. If the State fails and there is a breakdown, then yes, the Federal agency should step in and see to it that the rules are followed.

Mr. SWIFT. You would see that as occurring through the Federal land management agency, whatever that might be, rather than EPA?

Mr. ARY. Yes, sir. Because the responsibility for the regulations on the Federal lands is through the Federal Land Agency, and not through a regulatory agency.

Mr. SWIFT. Okay. I think that is going to be a central bone of contention, if I heard my colleagues in the earlier colloquy with Mr. Clay correctly—what is the appropriate role for the EPA? What authority should they have? To what degree is the balance tipped in favor of the States or the Federal agency? What authority should EPA have, if you have a cooperative effort, to see that the States do what they say they are going to do? I suspect we will have some tugging and pulling on the committee over that issue.

Mr. ARY. I have some difficulty when regulatory agencies are also the management agency, where you have a land management agency whose requirements are to do more than manage. So, my feeling is let the managers manage, and let the regulators regulate.

Mr. SWIFT. Can you let regulators regulate the managers?

Mr. ARY. That is what they are supposed to do.

Mr. SWIFT. It does not always work.

Mr. ARY. The managers are enforcing the rule.

Mr. SWIFT. I wish it worked the way it was supposed to work. I think of the Department of Energy as one example in which a number of us on this committee have developed some skepticism for that particular approach.

I thank you very much.

I recognize the gentleman from Pennsylvania.

Mr. RITTER. Thanks, Mr. Chairman.

I apologize for not being here during your testimony. We had some constituents down on some key issue.

Has the Bureau of Mines prepared any studies on the impact of potential new Federal programs for mining? If yes, did any of these studies evaluate the economic and job impacts of these potential new programs? Maybe, prior to answering that, could you give us an overview of the state of the mining industry in America today and how profitable they are and what a substantial overlay of new Federal regulation could mean?

Mr. ARY. The mining industry has started to recover and has been in pretty fair shape over the last couple of years. Prices have increased for their products, and they have undertaken a lot of initiative in changing the method of operation, reorganizing and downsizing operations, as well as putting a lot of new capital into new technologies, so that they can take advantage of market opportunities with the new price increase.

The mining industry is probably one of the largest, the most heavily regulated industry in the world. We are more regulated in the United States than anyplace else in the world.

Mr. RITTER. What are some of the programs—existing programs to regulate mining in America? Could you give us some examples?

Mr. ARY. I will give you some, but I could supply you with pages of them. The mining industry is controlled by every environmental law that anybody else has to honor. You have laws for clean air and clean water. You have subsidence, you have all of the occupational health programs, in addition to all of the reclamation programs, the Environmental Protection Agency programs, wetlands, endangered species, and I could continue.

Mr. RITTER. Continue then with the answer to the question.

Mr. ARY. We have a considerable amount of health and safety regulations that—

Mr. RITTER. I meant with the previous question, which was the impacts and potential economic impacts.

Mr. ARY. The bureau has done several studies on each one of the regulatory provisions. An example is the copper study we made several years ago. The strawman II requirements, for instance, would double the cost of producing copper.

We have looked at the Clean Air Act, for instance, on the cost of increased production of aluminum, the cost of the increase for the

consumer. So, we have several of those studies, and we would be more than glad to supply them to you.

Mr. RITTER. So, to bring copper mining under subtitle D would double the cost to produce copper in America, probably putting copper out of production in America?

Mr. ARY. Subtitle C, yes. At the present time—

Mr. RITTER. Is it under strawman II?

Mr. ARY. Yes.

Mr. RITTER. What would be the impact on the jobs?

Mr. ARY. Well, if the companies go out of business, the jobs are gone.

Mr. RITTER. How many jobs are there in the copper mining business in America?

Mr. ARY. I do not know, but I can—

Mr. RITTER. 5,000, 10,000?

Mr. ARY. I would think in that neighborhood. I am sure that the—you are going to have a witness later on who can tell you the number.

[Mr. Ary supplied the following information:]

The number is 20,000 employees in the extractive side of the copper business.]

Mr. RITTER. You mentioned that a new program for mines should emphasize performance rather than prescribe the application of specific technologies. Why is this so important?

Mr. ARY. It is because—

Mr. RITTER. Is it because it is so different than the regulatory program that is being—the regulatory programs that are being proposed?

Mr. ARY. Many times a program—a regulation will describe what you are supposed to do. In some cases it may work, and in some cases it may not. In South Carolina, the heap leach program is completely different than the heap leach program in Nevada. So, you should be able to take the technology that is performing better for you than be tied to a specific technology, regardless of what the performance is.

Mr. RITTER. One last point. Hazards—the risks and hazards of mining wastes. Do you want to describe for us your view of the hazards to health and the environment that are present in mining wastes? What level of risk and hazard do you see these wastes?

Mr. ARY. There are several types of waste. The overburden, which makes up the majority—I think EPA said 99 percent, I think it might be closer to 50 percent—is not hazardous. It is material that is moved off the ore body. It is stockpiled and is later moved back in during the reclamation program. The beneficiation of the ore separates the concentrates from the host rock, and we form a tailings pond. Tailings ponds, if built properly, and under the plans that are now required, are not a hazardous material. Most of them are processed water that is controlled by surface dams. Some operations, such as uranium operations, however, do contain a hazardous tailings pond.

The process water and the process waste can be considered hazardous. That would be where you would get your hazardous area. It is not as hazardous, according to the EPA studies and to other studies, to the human as much as it is say to what they are now

saying, the environmental—or the endangered species or to the environment. The birds will fly into some of the areas. If they get into an area of hazardous material or toxic material, of course, they do suffer.

Most of the companies in the——

Mr. RITTER. I guess, my point was, and I think maybe it is not a bad point to end it. My point was what is the relative risk, the level of risk, not just what is hazardous and what is not hazardous. Where, on this hierarchy of risk do these different products——

Mr. ARY. I would say they are on the bottom end.

Mr. RITTER. I think that is it.

Thank you very much, Mr. Chairman. Thank you, Mr. Ary.

Mr. SWIFT. I recognize the gentleman from Ohio.

The gentleman has no questions.

The gentleman from Texas.

[No response.]

Mr. SWIFT. The gentleman from New Mexico.

Mr. RICHARDSON. Thank you, Mr. Chairman.

I want to get back to one of the earlier points in your discussion with the chairman.

The mining industry has stressed the need to preserve the flexibility of the States to develop mine waste programs. And you generally favored that approach.

Could you give us the technical reasons to preserve State authority over mine waste programs, geologic, or whatever, or submit something?

Mr. ARY. Yes. In the United States, the mineral-producing areas, vary widely geographically in geology, moisture content, and weather.

Take as an example gold mining in South Carolina where you have anywhere from 22 to 44 inches of rainfall annually. You have to handle that differently than you do in Nevada where you have seven inches of rainfall annually, and you are also using heap leach operations.

And the States themselves have a little better feel for what should be done within their State to maintain a good environment than does the Federal agency which tries to have one set of rules to cover all problems.

And, so, the technical side is appreciated a little more by the State representatives who are putting the programs together, because they understand their State and the conditions, climate conditions and so forth that their State has.

Mr. RICHARDSON. Now, if we were to allow to continue State authority to develop mine waste programs, who has, who do you suggest have primary enforcement? And you kind of answered it before, but I did not get your final view.

Are we talking about the State altogether? Is there anything the Federal Government might do in terms of that primary enforcement? what happens if you have a State that perhaps is a poor State, has a limited environmental staff, that has serious budgetary problems? How do you deal with that?

Mr. ARY. At the present time, I think you would be required to assist that State in preparing their work plans and their requirements.

If the operations are on Federal lands, then the State should not have the prime responsibility for managing it, or for enforcing. The land management agency should do the enforcement.

Mr. RICHARDSON. Okay. You know, in essence what we have here, and I was reading the testimony of the mining industry—I believe they appeared in the other body yesterday, and they will be appearing after you—they are generally advocating State authority to develop mine waste programs, but they are willing to not take the old status quo position and have some kind of Federal role.

Is that an accurate characterization?

Mr. ARY. I think it is. I think what we have all said is that the Federal agencies, EPA as well as the land management agencies, should be working with the States, working on criteria that is developed by EPA and others to establish a good, safe program.

Mr. RICHARDSON. So you would support that initiative that they have taken, the industry has taken in this testimony?

Mr. ARY. Yes, sir.

Mr. SWIFT. I thank the gentleman; and Mr. Ary, We thank you very much. I would ask you as well, should the committee have any questions in writing they would like to send you, would you be willing to see them?

Mr. ARY. Will do.

Mr. SWIFT. I thank you very, very much.

Mr. ARY. Happy birthday.

Mr. SWIFT. Thank you.

Our second panel is composed of Mr. Don Ostler, who is director of the division of water quality for the Utah Department of Environmental Quality. He is here today on behalf of the mine waste task force of the Western Governors' Association. Mr. Richard de J. Osborne, who is chairman, president, and CEO of ASARCO is appearing on behalf of the American Mining Congress. Mr. Brian Kennedy, president of FMC Gold Co. is appearing on behalf of the Precious Metals Producers, Mr. Paul Robinson, Southwest Research and Information Center, and Mr. Philip M. Hocker, president of the Mineral Policy Center. We welcome all of you.

We remind you that we already have unanimous consent to put your complete prepared texts in the record at the appropriate point, and will, because we would like to leave as much time for questions as we can, and we ask you each to summarize in a 5-minute period, and then we will proceed from there.

We welcome you all, and we will begin.

Oh, excuse me. I promised the members that we would use this point for opening statements, and we were going along so smoothly, I forgot.

Recognizing, in their order of appearance, the gentleman from Colorado; and my thanks for deferring until this time, to all the members, for their opening statements.

Mr. SCHAEFER. I thank the Chair, and I will be very brief. I would just say to the chairman and the other members, just listening to the first two witnesses, and before we even get into the others, and throughout our conversations in the past, through our general meetings, and trying to reach a consensus, sometimes it is a lot easier to get it in a broad concept than it is to try and get into much detail on this.

I think that one of the things that we will discover, and we have so far, is that we do have a number of very well operating State plans that are out there, as far as the handling of mining waste; and I feel that certainly we can improve on that, but I also think that it should be recognized that we do have a number of these plans. I think the goal of all of us on this committee and everywhere else is to have a very healthy and safe environment, and do the best that we can, and certainly make the best possible approach to make it balanced, so that we are not creating large-scale unemployment and we are not creating environmental hazards.

I think that the mining industry should certainly be complimented for what they have done in the past, and for the strides they are willing to take in the future.

Mr. Chairman, I yield back.

Mr. SWIFT. I thank the gentleman.

In order of appearance, I recognize the gentleman from Texas.

Mr. FIELDS. Thank you, Mr. Chairman. Again, I want to commend you for scheduling this hearing, and I will also try to be brief in my opening statement.

I think if there is one thing everyone on this committee can agree on, and indeed the country, it is the need to increase our energy security by lowering our dependence on foreign energy sources.

Our colleague, Phil Sharp, is marking up a series of bills in the Energy Power Subcommittee which, taken together, can form the basis for such an energy strategy.

Needless Federal regulation of oil and gas production waste under the Resource Conservation Recovery Act could easily undo everything that Phil is trying to accomplish.

We are going to hear today from some experts that even regulating these wastes under a new, more stringent, nonhazardous RCRA scheme will result in the premature abandonment of over 80 percent of domestic oil wells, and over 75 percent of domestic gas wells. That is over 700,000 wells starting with a first year decrease in domestic oil production of 20 percent and domestic gas production of 13 percent.

The vast majority of oil wells in this country are stripper wells, wells that produce less than 10 barrels of oil a day. Many produce 2 or 3 barrels a day. Those marginal wells, taken together, are a major part of our domestic energy reserve, and yet they are not profitable enough for royalty owners to absorb major new environmental costs associated with the waste generated by exploration and production activities.

Mr. Chairman, I commend you for asking the Congressional Budget Office to examine the petroleum industry study, to validate the model and the methodology used.

One could argue that, if we are faced with some monumental environmental calamity, that if there is some great risk to health and environment presented by these oil field wastes, that no price would be too high to remedy that problem. That is simply not the case.

As we all know, the 33 oil and gas producing States regulate those wastes now, and they have been doing so for decades. In fact, we will have testimony from Mr. Krueger, talking about how my

State of Texas has regulated this all the way back to 1919. Furthermore, these wastes are also regulated under the Federal Clean Water Act and the Safe Drinking Water Act.

Mr. Clay discussed earlier that in 1988, EPA issued a regulatory determination on oil field waste; and in that determination, EPA stated that when managed properly, those wastes do not pose a significant risk to human health and the environment, and that waste management is best left up to the States. Certainly, that is what we have heard thus far.

Unfortunately, there are those who want to debate whether production wastes should be regulated under RCRA subtitle C or under new subtitle D requirements. This misses the point EPA made in its 1988 regulatory determination.

RCRA is too confining, too limiting, in how it can be applied. For this reason, EPA believed, and still believes, it can assure effective regulation through the existing mix of State and Federal regulations.

I think this is a very serious matter. We obviously need stringent environmental controls over all oil and gas production wastes, but we must not needlessly shut in a significant portion of our domestic reserves at a time when we desperately need to increase our energy independence.

Again, Mr. Chairman, I appreciate you calling this hearing and bringing this information to the attention of the committee.

Thank you.

Mr. SWIFT. I thank the gentleman, and I might note, because he referenced the API study, the chairman and ranking member of this committee and the Committee on Energy have cosigned a letter to CBO asking for an evaluation of that study, and that will be forthcoming, and will be made available to all members.

I ask unanimous consent that that letter to CBO be made a part of the record at the appropriate point.

[The letter follows:]

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON TRANSPORTATION AND HAZARDOUS MATERIALS,
Washington, D.C., July 25, 1991.

ROBERT D. REISCHAUER,
Director, Congressional Budget Office, Washington, D.C.

DEAR MR. REISCHAUER: The House Subcommittee on Transportation and Hazardous Materials has the responsibility to consider legislation reauthorizing the Resource Conservation and Recovery Act [RCRA]—our basic statute regulating solid and hazardous waste.

One area of particular concern to us is waste associated with the exploration and development of domestic oil and gas resources. Regulation, until now, has rested with the States. There is no dispute that the wastes associated with oil and gas exploration and development need to be managed carefully. However, there is an ongoing debate as to whether human health and the environment are adequately protected by leaving responsibility for regulation with State oil and gas agencies or whether Federal standards should be established.

We write today with an unusual and urgent request. We hope to have your help to review and critique a report prepared for the domestic oil and gas industry on the impact of potential new Federal regulation on these wastes.

The report is not yet complete, and we understand the model on which the report is based is still being used to run a number of other regulatory scenarios. However, according to the report's sponsor (the American Petroleum Institute—API), the preliminary summary results show that the type of regulation proposed in the Senate

bill (S. 976) for industrial waste would shut down a significant percentage of producing oil and gas wells in this country.

API is so confident about the results of the report and so concerned about the potential adverse impact on the industry, that they have invited rigorous review of the findings contained in the report. They have offered to allow independent reviewers to examine their data and assumptions and interview their analysts, and they have promised to provide any assistance deemed appropriate during the course of any independent evaluation.

We therefore request your assistance in evaluating the methodology and findings of the API study. It is our intention to allow your review to proceed without interference from us, and with the full cooperation of the study's sponsors. We need to know, before Congress legislates, if the model utilized is valid, if the assumptions are reasonable and if, as a whole, the study is accurate in assessing the impacts of this new Federal legislation on the oil and gas industry.

We believe an impartial review of the API study is essential to our RCRA reauthorization process and to our nation's energy policy. We have scheduled a hearing in mid-September on the issue of waste from oil and gas exploration and development. Without setting a firm deadline, we would hope such an evaluation could be completed as soon as possible.

Sincerely,

AL SWIFT,

Subcommittee on Transportation and Hazardous Materials.

DON RITTER,

Ranking Minority Member, Subcommittee on Transportation and Hazardous Materials.

PHILIP R. SHARP,

Subcommittee on Energy and Power.

CARLOS J. MOORHEAD,

Ranking Minority Member, Subcommittee on Energy and Power.

Mr. SWIFT. I recognize the gentleman from Ohio.

Mr. ECKART. Mr. Chairman, I will also be brief.

I take a somewhat different view as to the validity of the EPA determination on the regulation concerning the disposal of associated wastes, and I have done so for some time.

I anticipate that, in the immediate future, I will be introducing some legislation which will attempt to address those concerns.

The section 3001 exemption and its repeal has been predicted to be the Armageddon around which much of this battle will be fought. I am not sure that is necessarily the case, as I examine the successful efforts of some States to regulate and control these kinds of emissions, to our waterways principally, but I believe that this committee has to come to grips with something that has been festering for as long as I have been sitting, in marking up this particular piece of legislation.

I look forward to the testimony of the witnesses and to the cooperation and interest of my colleagues in this matter.

Mr. SWIFT. I thank the gentleman and recognize the gentleman from New Mexico.

Mr. RICHARDSON. Mr. Chairman, I, too, will be brief.

I would like to ask unanimous consent that the statement of the Domestic Petroleum Council, which is a trade association composed of our larger domestic independent oil and gas producers, be made part of the record.

Their statement contains a case study illustrating the impact of the new RCRA requirements on a typical oil and gas property produced in the State of Texas. It is a valuable supplement of the larger econometric study, and I would just like to insert it in the record.

Mr. SWIFT. Without objection.

Mr. RICHARDSON. Mr. Chairman, I will simply note that a constituent of mine will be testifying in this panel, and I would like to recognize Paul Robinson of the Southwest Research and Information Center in Albuquerque, N. Mex.

His office, Southwest Research, has long provided both my office and the Congress valuable information on a variety of issues.

Mr. SWIFT. I recognize the gentleman from Alabama.

[No response.]

Mr. SWIFT. With that, welcome to our second panel, and I recognize Mr. Don Ostler, who is director of the division of water quality, Utah Department of Environmental Quality, on behalf of the Mine Waste Task Force of the Western Governors' Association.

That probably takes away your whole first two sentences of your testimony, I suspect.

STATEMENTS OF DON OSTLER, DIRECTOR, UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY, ON BEHALF OF WESTERN GOVERNORS' ASSOCIATION; RICHARD de J. OSBORNE, CHAIRMAN, ASARCO, INC., ON BEHALF OF AMERICAN MINING CONGRESS; BRIAN KENNEDY, PRESIDENT, FMC GOLD CO., ON BEHALF OF PRECIOUS METALS PRODUCERS; PAUL ROBINSON, RESEARCH DIRECTOR, SOUTHWEST RESEARCH AND INFORMATION CENTER; AND PHILIP M. HOCKER, PRESIDENT, MINERAL POLICY CENTER

Mr. OSTLER. It did exactly, and thank you, Mr. Chairman.

I have also submitted written testimony to the committee, and I will not try to go over that in detail.

Included with that is a detailed survey of how the States are currently regulating mining wastes, along with a list of principal policy points that the Western Governors' Mine Waste Task Force has developed on this issue.

A brief word about who the Mine Waste Task Force is, under the Western Governors' Association

Two years ago, Governor Bangerter asked the Western Governors' Association to put together a task force to make recommendations to EPA on how to structure a mine waste regulatory program. It consists of 18 States. These States comprise approximately 90 percent of all the mineral mining in the United States.

The task force has met over a period of 2 years, and has reached a consensus opinion, and I will provide that to the committee in writing as well.

I would like my comments to dwell briefly on two primary areas.

One is, what are the key issues surrounding the debate of a mine waste regulatory program.

The second is, what structure should that program take?

The States have recognized for many years the need to regulate mining waste. Essentially all States have active programs for regulation of mining waste. These programs are changing daily, and improving constantly. The conditions that existed perhaps 5 years ago in terms of regulations are not the cases that would exist today. We have seen many drastic and significant changes. Some States,

at this point in time, have programs that encompass nearly every envisioned element of a mine waste regulatory program right now.

Second, there is a need, in our opinion, for a proper Federal presence in the regulation of mining waste. The States have gone on record supporting a position of development of a mine waste regulatory program under RCRA subtitle D, a properly designed program.

The two primary factors that we think are important in this regard is one, that national minimum performance standards, broad-based, and providing flexibility, are needed to run the program; and second is that existing adequate State programs need the credibility that such a Federal program could provide, with a properly designed oversight.

With the current public attitudes about waste management, it is difficult, without some Federal presence, to be able to develop the credibility to convince the public that these wastes are properly managed, and in doing so, the Federal Government would need to defer to States to actually run and administer the program.

The third point is that any such program should be based on utilizing, to the maximum extent possible, existing State programs where they are adequately protective. That requires broad-based national performance standards and flexibility, as has been discussed by previous speakers.

The fourth item, we think it would be a disaster to consider a program under RCRA subtitle C, a disaster for both the States, as well as for the environment. The resources do not exist to handle this from an environmental standpoint under a subtitle C approach, and a subtitle C approach does not encompass all of the regulatory aspects that are necessary for regulating mining waste, the concept of regulated materials.

The fifth point is, we believe that Federal legislation should clearly define State and Federal roles. That is, there should be a State-based Federal program, and Federal oversight should be limited to program oversight, and not day-to-day oversight.

The second portion of my remarks relates to the structure of the Federal program. How should this program be structured?

The States believe that the Federal Government should adopt broad-based Federal performance standards, that the program should utilize existing State programs. Those State programs should be modified to fill in whatever gaps are necessary. The process should provide for ample public input during the plan development and plan acceptance process. There needs to be a process for Federal acceptance of the State programs.

There is a role for Federal oversight; it needs to be properly defined, such as not on a day-to-day basis. There is also a need for Federal enforcement. The primary responsibility for enforcement should be with the States, but the Federal Government needs to be able to take enforcement actions where the State fails to implement that plan, or where there is an imminent threat to health and the environment, or by invitation of the State.

Last, the EPA needs to function in the role of a true partner. Where a State is not able to fill all of the gaps, it would be expected that the Federal Government would fill just that gap and then the existing State program would operate with what it has.

With those remarks, Mr. Chairman, I would leave that with you.

[Testimony resumes on p. 50.]

[The prepared statement and attachment of Mr. Ostler follow:]

**Testimony of Don Ostler
Acting Chairman Mine Waste Task Force
Before the Subcommittee on Transportation and Hazardous Materials
September 12, 1991**

Mr. Chairman, on behalf of the State of Utah and the Mine Waste Task Force of the Western Governors' Association (WGA), I want to thank you for the opportunity today to address the Subcommittee on Transportation and Hazardous Materials. My name is Don Ostler and I am the Director of the Division of Water Quality for the State of Utah.

It is my plan to respond to your concerns about the proper management of mining wastes in detail and to provide the consensus opinion of the Mine Waste Task Force, but I want to initially highlight what I consider to be the key issues.

First, the states have recognized for a long time that mining wastes must be managed to insure protection of the environment. We have put in place comprehensive programs for protecting air, ground and surface water, and soil quality. We continue to improve our programs and our efforts as we work together in identifying what additional controls are needed. We have developed expertise on the management of mining wastes from heap leaching operations and copper mining to phosphate mining from Florida to California. We have seen the successes and the failures and have learned from both. No one else has this first-hand expertise.

Second, although we have done much to insure proper management of mining wastes; there is a need for a properly designed and implemented federal presence for regulating mining wastes. The two major reasons for supporting a federal effort in my mind are (1) to establish appropriate minimum performance standards that all states would be required to meet in their mine waste programs; and (2) to provide provide credibility to states' existing and future efforts in managing mining wastes through properly designed audits and oversight of state programs. While there are many other considerations that support the development of a federal mine waste program, these two seem to be the most important. The public must be convinced that these wastes are being properly managed throughout the country. The federal government must also be willing to defer to state efforts for managing active mine wastes. The current system of duplication through federal statutes such as CERCLA, Clean Air Act, etc is unworkable and ineffective. Federal legislation must make it clear that a state mine waste program set up under the federal guidelines will be the accepted way of managing all aspects of mining wastes associated with active facilities.

Given the status of the public concern over waste management in general, it would not be practical to consider any other alternative short of direct federal involvement. It is my opinion that there are other methods that can be used to effectively evaluate state programs and efforts that will provide for state accountability short of the development of a federal program but, in the case of mine wastes, these other techniques are not viable.

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Third, the federal efforts must be based on existing state programs through establishment of performance standards that provide for flexibility. Public health and the environment must be protected but the significant physical differences between states and regions must be part of the decision making on specific controls that will be required at each facility.

Fourth, the use of a subtitle C type of program would be disastrous not only to states who could not find the resources to implement this type of the program, but to the environment because efforts would fail from the inability of "C" to be able to consider the mining activity as a whole.

Fifth, federal legislation must clearly define state and federal roles that provide for state based programs and a federal audit and program review process that insures excellent state programs without day-to-day federal involvement. This flexibility would provide that states would comprehensively consider mining activities that have a potential to contaminate the environment.

The Mine Waste Task Force of which I am the acting chairman is composed of 18 states which contain nearly 90% of the mineral extraction, beneficiation and processing activity in the United States as defined in Report to Congress I published in 1985. Although the Task Force is operating under the auspices of the Western Governors' Association, the Task Force includes non-member states from the midwest and the east which broaden the experience and perspective of the group. Represented on the Task Force are individuals from both the state natural resource management departments and the state health and environmental protection departments. The diversity of this Task Force is one of its strengths.

In addition, the Task Force works closely with the Interstate Mining Compact Commission which represents another 16 states. Together, these two multi-state groups offer a comprehensive perspective by the major mining states on the various issues involving the regulation of mining wastes. My comments today are provided on behalf of both groups.

The Task Force was formed in the spring of 1988 at the request of Governor Bangerter of Utah and has met on at least a dozen occasions since then. The Task Force is funded by EPA, and its major focus has been to respond to EPA's preliminary draft regulations for mine waste under Subtitle D of RCRA. A separate issue that the Task Force has dealt with is the problem of environmental and public safety concerns related to inactive and abandoned mines. The Task Force and the IMCC will soon release a study which identifies the universe of policy options for dealing with the cleanup of these abandoned sites. We believe many inactive and abandoned mines pose a significant threat to public health and the environment. We will make copies of this study available to the subcommittee.

The Mine Waste Task Force has reached consensus on the elements of a mine waste program. This consensus is based on the commitment of the States to insure that public health and the environment are protected and to develop programs that properly manage all aspects of mining wastes. States are not waiting for Congress to develop programs for managing mining wastes. We have all aggressively developed comprehensive programs to insure that all aspects of mining are protective of the environment and public

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health. These efforts include the establishment of ground water, surface water, air, and soil protection programs that apply directly to mining activities.

The states are currently involved in a structured dialogue with federal agency, mining industry, and environmental representatives to attempt to develop a consensus federal mine waste regulatory structure. This dialogue is called the Policy Dialogue Committee and we are hopeful that this process will yield some clear recommendations to this subcommittee on the treatment of mining waste under RCRA.

Pending consensus from that group, I offer to you today the states' views on federal regulation of mine wastes. My remarks will attempt to answer the three critical questions that you will be asked to decide:

* Do we need a federal mine waste regulation?

* If yes, then how should it be structured?

* And finally, how will the new program be financed?

Do we need a federal mine waste regulation?

For the purpose of background, let me first tell you a little bit about state regulation of mining waste. Although existing regulatory programs vary from state to state, all the states in the Task Force regulate mining activity and mine waste. This is mostly accomplished through a combination of water quality, air quality, solid waste management and mined land reclamation programs. Many state programs are very comprehensive, whereas others may regulate phases of mine waste disposal or focus upon protection of environmental media. States have a long and active record in regulating mining wastes. Our experiences should be drawn upon as well as built upon in designing any new federal mine waste rule.

It is difficult for me to describe to you in the brief time I have today the different programs and systems used by the states; however, the Task Force and the IMCC have produced reports which describe existing state programs. The reports are based upon surveys of state personnel responsible for mining and environmental protection. They show, on a state-by-state basis, what regulatory mechanisms are in place that relate to the environmental impacts of mining activity and also what gaps existed at the time of publication. I ask that they be made part of the official record.

It should be noted that states have continued to improve their programs since the inception of this work effort. For example, Colorado passed legislation which provides guidance and clarifies agency responsibilities for protection of ground water and non-point source discharges, and Utah adopted ground water protection regulations. Nevada, Missouri and South Dakota have all enacted changes to strengthen their programs in the last year. Other states have also passed new legislation and made other improvements recently.

Ten years ago when RCRA was still new, it was anticipated that a federal mine waste program was inevitable. There were many major gaps in the

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states' programs for environmental protection from mining wastes. However, over the last ten years those gaps have narrowed considerably. These changes are due to increased environmental consciousness, stronger environmental lobbies, a strong commitment to state primacy, and most recently in reaction to possible federal action. We recognize that some states' programs are perhaps stronger than others, but it is fair to say that every state with mining activity has a program in place to protect the environment and every program is getting stronger.

Do we need a federal program? The states are on record as a group in support of a federal program under RCRA Subtitle D. As I have stated, there is a need for a federal program to provide an endorsement of the efforts of states that have already developed a comprehensive program and to provide minimum performance standards for those states who have not.

I would like to see the Congress move quickly to establish a federal mine waste program along the lines that I have described. If the Congress decides that a national program is not the best approach to enhancing and encouraging environmental protection from mining activities or decides that the comparative environmental risk of mining activities is overshadowed by other pressing national environmental issues, the states will find ways for further improvement in state programs where needed. However, the duplication of existing federal efforts and state efforts and public acceptance of state mine waste programs will still be an unacceptable problem.

If a federal program is developed, how should it be structured?

In considering how mine wastes can be managed to protect public health and the environment, we have concentrated on what programs will work best. As we have developed this ideal program, it has become obvious that it does not fit the existing subtitle C program in any way. There is no way to force a mine waste program into a C mold. It just will not work. Mine wastes pose unique problems with volumes of wastes, locations of wastes, and the need to manage processes in addition to waste disposal. To effectively manage these wastes, a program must be specifically designed that considers all of the issues that surround mining activities.

The states have focused less on how a federal program should be structured but rather more on what principles should guide the development of federal requirements. Our strong belief is that federal requirements should not be disruptive of existing state programs where there is already effective regulation of mine waste, while such requirements should provide assistance and incentives to states to strengthen their programs where it is needed.

With this in mind, the Task Force's response to EPA's Strawman advocated a program concept that established broad based federal performance standards necessary to ensure protection of the public health and the environment, yet provided flexibility to meet those requirements. The reasons for flexibility instead of a nationally mandated approach are twofold - First, states are very different in their geologies, climate, agency structures, and political institutions. Second, in many cases a prescriptive, nationally mandated approach would become a ceiling rather than a floor of environmental coverage and protection.

To illustrate why flexibility is important, I offer you these contrasts. Parts of South Carolina receive over 50 inches of rain per year. Parts of Nevada receive closer to 5 inches of rain per year. As a result, Nevada can expect total containment by surface impoundments while South Carolina will need to address possible discharges from impoundments. Another example is the distance to ground water. In parts of South Dakota the distance to ground water is 3500 feet with 1000 feet of that distance pure shale. In Florida, the distance to ground water is measured in inches.

Let me briefly outline how the states envision a federal mine waste program working.

In formulating a state specific plan to implement a federal mine waste management program under an amended Subtitle D of RCRA, we believe the states would be judged by a broad based set of federal performance standards or regulations which establish the necessary components of a program to meet national standards. In addition, we anticipate that EPA would provide guidelines and supporting, but non-regulatory, suggested alternative programs or models which could be used by states in developing their programs.

States would begin with a foundation of their existing state laws, regulations, standards, and programs which commonly cut across many departments. These departments encompass environmental, public health, natural resource, and related disciplines. Using the new RCRA mine waste program regulations and guidelines, each state would scope an upgraded program using existing programs, new policies to fill statutory and regulatory gaps, and modified organizational structures to provide for state-wide coordination. This early program scoping would involve EPA and the public prior to preparation of a draft plan which would be released for formal public review.

Once publicly reviewed and revised as necessary, the state would adopt the state plan and begin implementation. The adopted state plan would be forwarded to EPA for final review. A federal acceptance process is provided to allow back-up federal enforcement or program revocation, full or partial, should subsequent EPA program audits give cause for such action. The only other avenues where Federal enforcement should be initiated would be in defined circumstances involving RCRA defined imminent threats to public health or the environment or by invitation from the state.

Should a state not be able to implement a state mine waste management plan which met all components of the federal program, the EPA should establish and enforce a partial program for only the missing components.

Once a state approved program is implemented, EPA functions should be limited to periodic scheduled program audits. No individual permit oversight or independent enforcement by EPA should be involved in the routine operation of the program. We prefer that the state plan would be reviewed by EPA at a minimum of every five years.

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Testimony

How will the new program be financed?

Because of legislatures that meet every other year in some states, plan development allowing adequate time and opportunity for public involvement, and regulatory development considerations, states have estimated it will take between three and five years to get some state programs revised and approved. Start-up costs during this time range from \$100,000 to \$500,000 per year per state. Once programs are in place, states have estimated that ongoing yearly costs could be anywhere from \$100,000 per year to as high as \$3,500,000 per year by one state's estimate. These figures are based upon states' assumptions regarding EPA's relative flexibility in determining what would meet the national performance standards, the amount of EPA oversight envisioned, and other variable factors.

State budgets are very tight nationwide. The states are very clear that they will need, and they expect, federal monies to finance these new, federally imposed costs. The states believe that federal funding assistance can be minimized depending upon the level of federal oversight and program restructuring imposed.

In closing, let me say that, regardless of whether Congress determines that the regulation of mine waste should be based in RCRA or a stand-alone program, the states' views are essentially the same. If a federal program is determined to be necessary, it should be state based and take into account site specific, waste specific and waste management specific practices. To the maximum extent feasible, any program regulating the disposal of mine waste should rely on existing state programs. And in any federally mandated program, the federal government should provide the necessary funds to implement and maintain this program.

These views reflect the principles outlined by the member governors of the Western Governors' Association. Their policy position is attached to my testimony. In addition, I have attached to this testimony a list of the policy principles that the Task Force established regarding the development of a mine waste program under RCRA. These points would be pertinent in the establishment of any federal program that regulates the management of mine waste. I have also included a listing of states that have participated in this effort through WGA and IMCC.

The states look forward to working cooperatively with Congress on the issue of mine waste. I would be happy to answer your questions at this time, Mr. Chairman.

**POLICY PRINCIPLES
OF THE
WESTERN GOVERNORS' ASSOCIATION MINE WASTE TASK FORCE**

- **State Based Implementation:** It is important to the states that RCRA reauthorization and any subsequent EPA regulation, establish a state based approach for protection of public health and the environment. Because specific site, waste and waste management practices must be taken into account, state level management of these wastes must be relied on to insure that regulation is effective and sensible. Reliance on state regulatory programs and permit structures should be the foundation of any RCRA mine waste program.
- **State Plan Process and Components:** The Task Force strongly recommends that RCRA reauthorization include specific language to emphasize the state's role in mine waste management. Specific provisions should provide for: 1) state adoption and implementation of a state based solid waste management plan; 2) an emphasis on health and environmentally based performance standards; and 3) a state designed multi-media approach. The states believe that a more effective and comprehensive mine waste management program will result if implementation occurs in this manner.
- **Federal Oversight:** The states recommend that RCRA reauthorization should include specific language that defines federal oversight of state plans. Federal oversight should be focused upon state program effectiveness, measured through periodic performance audits. Direct involvement of EPA in state program activities should occur only under the following conditions: 1) failure of a state to implement and enforce its plan; 2) invitation by the state for EPA support or direct enforcement; 3) specific circumstances agreed to between the state and EPA during the state plan development; and 4) in the case of enforcement, where there is an imminent threat to human health or the environment that is not being effectively resolved by the state. Whenever EPA has a reason to believe that a state has failed to implement and enforce its plan, EPA should always notify the state and attempt to resolve issues through a cooperative process.
- **Avoid Program Duplication:** A federal mining waste program should not be duplicative of state and federal regulatory programs that are protective of human health and the environment.
- **Inactive and Abandoned Mines:** Health, safety and environmental problems associated with non-coal inactive and abandoned mines and mine wastes need to be corrected. RCRA may not be an adequate vehicle to correct these problems. Options to correct these problems, such as re-mining and removing disincentives associated with CERCLA, need to be carefully evaluated by the state and the federal government to insure that the environment is protected and that the protections provided by CERCLA and other statutes are not eroded.

Western Governors' Association
Resolution 90-006

July 17, 1990
Fargo, North Dakota

SPONSOR: Governor Bangerter
SUBJECT: Solid Waste Management

A. BACKGROUND

1. The Resource Conservation and Recovery Act (RCRA) establishes the basis for a national framework for managing solid waste. Solid waste includes municipal and industrial wastes as well as certain mining wastes.
2. Congress is actively considering several bills that would significantly amend the solid waste requirements of RCRA.
3. Nationally, there is public consensus that there is a need to reduce the amount of waste generated, to reuse or recycle materials, and to protect the environment from improper waste disposal practices. This consensus is primarily due to a rapid reduction in available landfill capacity, difficulty in siting new solid waste facilities, serious environmental impacts to groundwater from past solid waste disposal practices, and an increased public awareness and concern for solid waste issues in general and recycling and waste reduction initiatives in particular.
4. Solid waste issues have historically been addressed at the state and local levels. The federal government has been responsible for setting national goals and guidelines to assist state and local governments.
5. The Western Governors' Association is already actively involved with certain key aspects of the solid waste issues. WGA has recently prepared a report for the governors on the interstate flow of solid waste in the West and the causes of those flows.

Based on the 1988 WGA "Regulation of Mining Waste" resolution (88-004), a WGA Mine Waste Task Force was established. The Task Force is actively working with the federal government to establish a mine waste policy that will be protective of public health and the environment through the continued emphasis on state-based mine waste regulatory programs.

6. Solid waste management must consider a wide variation of waste types, geology, geography, meteorology, land use, population, etc. Many specific wastes and locations are unique and require very site specific solutions.
7. Federal lands have been utilized in the West for solid waste disposal. Siting of these disposal facilities on federal land is now becoming difficult.

B. GOVERNORS' POLICY STATEMENT

1. The governors believe that solid waste management is an issue best addressed at the state and local level. The governors recommend that any reauthorization of RCRA and subsequent regulation establish a state-based approach for the protection of public health and the environment. RCRA should build on existing state and local regulatory programs and permit structures. Any federally mandated performance and management standards should take into account specific geographic and demographic conditions existing in the West.
2. The governors recommend that RCRA reauthorization include specific language that defines the federal role in solid waste management. The level of federal oversight and management of solid waste must rely on the states in a leadership role rather than imposing a process similar to authorization and oversight for hazardous waste regulation.

Federal oversight should be focused on state program effectiveness. The federal government should not be routinely involved in permitting actions or enforcement. The federal effort should concentrate on improving state programs. If a state fails to implement its solid waste plan, the federal government, after appropriate notice and input from the state and public, should have the ability to withdraw approval of the state program.

3. The governors strongly recommend that RCRA reauthorization include specific language supporting state-based regulation of mine waste management. RCRA should provide for 1) state adoption and implementation of a state-based mine waste management plan, 2) an emphasis on health and environmentally based performance standards, and 3) a state designed multi-media program which protects the surface and groundwater, soils, air and ensures the structural stability of mine wastes.

The governors believe that there is a need to correct health, safety, and environmental problems associated with non-coal abandoned and inactive mines and mine wastes. However, RCRA is not an adequate vehicle to correct these problems. The governors further believe that the options to correct these problems, including encouragement of re-mining of existing sites, need to be carefully evaluated. The WGA Mine Waste Task Force is conducting a scoping study to determine the size of the problem and the potential options for remediation and reclamation.

4. Federal, state, and local governments must all work together in the area of pollution prevention (waste minimization), waste reduction, and recycling. The federal government must take a leadership role in dealing with the national issues such as packaging; use of virgin materials; market development for recyclables, including federal procurement of recycled goods; etc.
5. EPA should provide the financial support to the states to ensure that the states have sufficient resources to implement effectively any federal solid waste mandates.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. WGA staff shall transmit this resolution to the appropriate congressional committees, the western congressional delegation, and the Administrator of the Environmental Protection Agency.
2. WGA staff shall monitor this legislation and inform the governors of policy and program implications for the western states.

Adopted unanimously.

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WGA MINE WASTE TASK FORCE AND INTERSTATE MINING COALITION STATESMine Waste Task Force

Alaska
Arizona
California
Colorado
Florida
Idaho
Minnesota
Missouri
Montana
Nevada
New Mexico
Oregon
South Carolina
South Dakota
Utah
Washington
Wyoming

IMCC States

Alabama
Arkansas
Indiana
Illinois
Iowa
Louisiana
Maine
Maryland
Mississippi
New York
North Carolina
Ohio
Oklahoma
Pennsylvania
Texas
Virginia

Mr. SWIFT. Mr. Ostler, thank you very much. Pardon the confusion. Whenever the bells ring, we have to figure out what we are going to do.

Because there is probably going to be a 5-minute vote, I think we will, if this is the pleasure of the members, we will go ahead and take one or two more witnesses, depending on the amount of time, and then we will be forced to adjourn for probably about 15 minutes, and then come back and continue.

With that, I am happy to recognize Mr. Osborne.

STATEMENT OF RICHARD de J. OSBORNE

Mr. OSBORNE. Thank you very much, Mr. Chairman.

My name is Richard Osborne. I am chairman and chief executive officer of ASARCO, Inc., and appear today on behalf of 350 member companies of the American Mining Congress.

ASARCO is one of this country's principal producers of nonferrous metals and minerals. I have come to Washington personally to testify before both subcommittees of Congress because of the crucial importance of this issue to my company and the industry.

Thank you for the invitation to discuss proper regulation of mining industry wastes.

AMC believes it is time for Congress to clarify EPA and the States' proper roles and authorities in regulating mining and mineral processing wastes under RCRA. Specifically legislation should ensure protection of health and environment. This should be done in the least-cost manner to minimize the adverse impacts of new regulation on the industry's competitiveness in the world market.

As EPA twice determined, uniform Federal regulation of mining industry waste as hazardous waste under RCRA subtitle C is not warranted.

Third, the new legislation should reflect these EPA regulatory determinations, the court decision affirming EPA's mine waste determination and advances in the State regulatory programs by providing site-specific, waste-specific, State-based regulatory programs for mining industry wastes.

Fourth, the new legislation should not endorse the strawman II staff draft regulatory program.

To amplify on these four points, the new law should ensure protection of health and the environment, but do so in the least-cost way possible. Prices for our industry's products are determined on international markets. We cannot pass regulatory costs on to consumers. Competitiveness is particularly important to consider when cost competition is critical to the industry's survival.

The second point: The new legislation should reflect congressionally mandated EPA studies and regulatory determinations on industry wastes. In two studies and two separate determinations, EPA found that regulation of mining industry waste under uniform Federal hazardous waste regulation is not warranted. EPA specifically found that mining industry wastes are generally high volume and low toxicity, and the \$800 million annual cost of applying uniform Federal hazardous waste rules under subtitle C to mining wastes would be excessive and unnecessary to protect the

health and the environment. The U.S. Court of Appeals affirmed EPA's mine waste decision.

As to point 3, subtitle D of RCRA does not presently provide an adequate legislative framework for regulating mining industry wastes. But it can and should be amended to do so. In keeping with EPA's studies and regulatory decisions, the new amendment should provide site-specific, waste-specific, State-based waste regulatory programs with appropriate guidance and backup by EPA.

What should this program look like? First, amendments to subtitle D should invest States with primary regulatory authority over these wastes. State primacy is essential, because conditions vary from State to State and site to site, and because State regulatory programs for mining industry wastes are so far advanced today.

For these reasons, State primacy is supported by the National Governors Association and the Western Governors Association.

Second, EPA should have the authority to issue performance-based guidelines allowing States to consider the varying wastes, as well as the particular environmental circumstances at each site. These guidelines should not supersede applicable clean air and clean water requirements.

Third, EPA guidelines should require State programs to include permits or standards to protect human health and the environment, groundwater monitoring, necessary and appropriate remedial action for actual or threatened offsite releases, proper closure and postclosure care, and criteria for planned revisions.

Fourth, EPA should have authority to fully, partly, or conditionally approve or disapprove State mine waste plans based on their consistency with Federal performance guidelines.

EPA should have authority to develop and enforce a site-specific Federal mine waste management plan for any State that fails to submit a plan or submits an inadequate plan. EPA should also have authority to revoke State primacy if a State fails to enforce its approved plan or permit requirements. EPA should have inspection and information gathering authority.

The new amendment should build on these State programs, not supersede them. The reason is stated more fully in AMC's written testimony. We cannot support legislation that would endorse the so-called strawman II draft regulatory program.

We encourage the subcommittee not to override EPA's studies and regulatory determinations, the court ruling, and State regulatory programs.

We would be pleased at the proper time to answer your questions. Thank you.

Mr. SWIFT. Thank you very much. I think we will try to also get the testimony before we adjourn of Mr. Brian Kennedy.

[Testimony resumes on p. 70.]

[The prepared statement of Mr. Osborne follows:]

TESTIMONY OF THE AMERICAN MINING CONGRESS

presented by

Richard de J. Osborne, Chairman, ASARCO Incorporated

Good afternoon, Mr. Chairman and members of the Subcommittee. My name is Richard de J. Osborne. I am Chairman, President and Chief Executive Officer of ASARCO Incorporated, and I am testifying today on behalf of the more than 350 member companies of the American Mining Congress (AMC). Asarco is one of this country's principal American nonferrous mining and mineral processing companies. Thank you for inviting AMC to testify on the reauthorization of the Resource Conservation and Recovery Act (RCRA). Because of the crucial importance to my company and industry of the development of RCRA regulations governing mining industry waste management practices, I have come to Washington personally to testify before two subcommittees of Congress.

The American Mining Congress is an industry association that encompasses (1) producers of most of America's metals, coal and industrial and agricultural minerals; (2) manufacturers of mining and mineral processing machinery, equipment and supplies; and (3) engineering and consulting firms and financial institutions that serve the mining industry.

Overview of the Testimony

AMC believes it is time for the Congress to clarify the proper roles and responsibilities of the Environmental Protection Agency (EPA or Agency) and the states in regulating and mining and mineral processing wastes (hereinafter referred to as "mining industry wastes") under RCRA. In today's testimony, we want to make four principal points about the desired form of these needed amendments to RCRA:

- (1) The legislation should ensure protection of health and the environment. This should be done in the least cost manner possible to minimize the adverse impacts of any new regulation on the industry's competitiveness in world markets.
- (2) As EPA twice determined, uniform regulation of mining industry wastes as hazardous under RCRA Subtitle C is not warranted. (The U.S. Court of Appeals for the District of Columbia Circuit unanimously affirmed EPA's mine waste regulatory determination.)
- (3) The new legislation should reflect these regulatory determinations, the court decision and advances in state mining waste regulatory programs by amending Subtitle D of RCRA to provide for a site-specific, waste-specific ~~state-based~~ regulatory program for mining industry wastes.

- (4) The new legislation should build upon existing state programs, not supersede them as would the so-called Strawman II staff draft. In many respects Strawman II is inconsistent with the approach recommended her and accordingly, Congress should repudiate Strawman II.

Background

The issue of future federal mining waste regulations is one of the top priorities for our industry. During the last 10 years, AMC and its member companies have worked with EPA and state regulators to study mining and mineral processing wastes to determine the most appropriate methods for reducing wastes where feasible and for managing the waste material that could not be reduced. These efforts have resulted in two extensive studies and reports to Congress by EPA--one on mining wastes and the second on mineral processing wastes--and two separate determinations by EPA Administrators that regulation of these wastes as hazardous under Subtitle C of RCRA is not warranted. Specifically, EPA concluded that Subtitle C "hazardous waste management standards are likely to be environmentally unnecessary, technically infeasible or economically impracticable when applied to mining waste." This determination was challenged, but was upheld by unanimous opinion of the U.S. Court of Appeals in EDF v. EPA. 852 F.2d 1309 (D.C. Cir. 1988).

Thereafter, the Agency initiated processes that have led to the development of two sets of staff regulatory proposals--Strawman I and Strawman II--and to the creation of the Policy Dialogue Committee (PDC). The primary function of the PDC is to attempt to resolve remaining issues between EPA, state regulators, environmental groups and industry representatives for regulating mine wastes.

During the same period, AMC and its member companies have worked with EPA and the states on the development of comprehensive regulations for air and water pollution control for mining and mineral processing operations. In addition, we have seen state legislators and regulators enact new state laws and rules to regulate mining, mineral processing and waste management at those operations.

Now we believe it is time for the Congress to act to clarify the appropriate roles for EPA and the states to take in regulating mining industry wastes under RCRA. We hope that Congress will base its action on all that we have learned as a result of the studies and determination process that the Congress itself required. (The industry is also concerned with various other aspects of RCRA reauthorization, and this written testimony will touch briefly on a few of the other major RCRA issues facing this committee.)

Health and Environment Should Be Protected, But in the Least Costly Way Possible to Minimize Adverse Effects on Competitiveness

This point need little elaboration. The new amendments to RCRA should ensure protection of health and environment in regulating mining industry wastes. However, this should be done in the least costly way possible. The mining industry operates in world markets with prices of nonferrous metals and minerals determined by international metal exchanges. In short, we are price takers, not makers. We cannot pass along regulatory costs to consumers at will. Effective competition depends on keeping production costs as low as possible. Thus, it is particularly important for government to take industry's competitive position into account in fashioning legislative and regulatory programs when, as here, cost competitiveness is critical to survival of the domestic industry.

Mining Industry Wastes Are Unique and Thus Cannot Appropriately Be Regulated Under Subtitle C of RCRA

As a result of the studies, analysis and regulatory determinations previously described, EPA concluded that regulation of mining and mineral processing wastes as hazardous waste under Subtitle C of RCRA is not warranted, because of the unique attributes of mining industry practices, circumstances and wastes:

- o extremely high volumes of waste are inevitably produced from extraction, beneficiation and processing of ores and minerals, and these wastes generally have low toxicity;
- o the volume of waste typically generated by mining industry operations, in relation to volumes and values of materials produced, are so large (and the cost of regulations under Subtitle C would be so unreasonably high) as to warrant different regulatory treatment from that accorded chemical, manufacturing and municipal wastes;
- o the great variability in the composition of ores, the different types of mining practices and waste streams associated with different ore bodies, and the considerable differences in site conditions among industry waste management facilities result in varied potential for risks to human health and the environment from site to site; and
- o the states historically, and even more so currently, have played a critically important leadership role in

the regulation of this industry and its wastes, and it is appropriate that this primary role of the states be preserved.

Congress' recognition of these differences goes back to 1976, with the first requirement (RCRA Section 8002(f)) for a "detailed and comprehensive study" of mining waste. In 1980, with the Bevill Amendment, Congress renewed and expanded its call for a study of the "materials generated from the extraction, beneficiation and processing of ores and minerals...." At the same time, Congress suspended Subtitle C regulation of such wastes until EPA completed the studies, reported to Congress on those studies and determined whether or not those wastes warranted Subtitle C regulation. In 1984, in Section 3004(x) of the Hazardous and Solid Waste Amendments, Congress again recognized that because of the nature and volumes of mining industry wastes, along with site-specific characteristics and the practical difficulties of implementing detailed legislative and regulatory requirements under Subtitle C, these wastes were substantially different from other wastes regulated under that Subtitle.

The agency's recognition of these differences began with its first report to Congress in December 1985, on wastes from the extraction and beneficiation of ores and minerals. Following several public hearings and the submission of voluminous written comments on that report, EPA announced in July 1986 that it had determined that regulation of these wastes "under Subtitle C is not warranted at this time." By deciding to develop a separate program for mining wastes under Subtitle D, EPA also recognized substantial differences between this industry's wastes and other Subtitle D wastes. On the matter of waste volume, EPA explained:

The fact that most of the material handled in mining is waste and not marketable product distinguishes mining from many other process industries where waste materials make up a relatively small portion of the materials used to produce a final product. Consequently, some of the larger mining operations handle more materials and generate more waste than many entire industries (51 FR 24497-98 (July 3, 1986)).

The importance of site specific characteristics for this industry's operations, including waste management practices, was another prominent feature of the EPA determination: "...site selection for mines, as well as associated beneficiation and waste disposal activities, is the single most important factor affecting environmental quality in the mining industry." *Id.* (emphasis added). Yet mine siting options, unlike those for other industrial or municipal operations, are extremely limited. The mine must be located where the minerals are and this limits waste management and disposal options. Furthermore, mines and mine waste management sites generally are located in drier

climates, with groundwater at greater depth, in less densely populated areas and at greater distance from drinking water receptors than most hazardous waste management sites; as a result potential risks are mitigated.

The new amendments to RCRA should reflect and endorse the results of these congressionally mandated EPA studies and regulatory determinations on mining industry wastes. EPA specifically found that regulation of these wastes under uniform federal hazardous waste regulations is not warranted, because:

- o mining industry wastes are generally high volume and low toxicity;
- o the \$800 million potential cost of applying uniform federal hazardous waste regulations under Subtitle C to mining wastes would be excessive;
- o such regulation would in many respects be "technically infeasible" for the mining industry and unnecessary to protect health and the environment.

Accordingly, mining industry wastes should be regulated under a revised version of Subtitle D of RCRA, rather than under Subtitle C.

Subtitle D of RCRA Should Be Amended to Provide for a Site-Specific, Waste-Specific, State-Based Mining Industry Waste Regulatory Program With Appropriate Guidance and Backup By EPA

While Subtitle D of RCRA does not presently provide an entirely adequate legislative framework for regulating mining industry wastes, it can and should be amended to do so. In keeping with EPA's studies and regulatory determinations, the new amendments should also reject a uniform federal regulatory approach in Subtitle D. Instead, they should provide for site-specific, waste-specific state based mine waste regulatory programs, with carefully defined guidance and backup by authority for EPA.

How might such a program work in practices and what amendments would be necessary to effectuate such a program?

SPECIFIC LEGISLATIVE RECOMMENDATIONS

First, certain specific objectives should be added to the existing RCRA objective of protection of health and the environment. These would include encouragement of the maximum use of available mineral reserves and conservation of mineral resources through appropriate recycling and reuse. Appropriate legislation should also include the objectives of assuring appropriate mine waste management methods, encouraging resource

conservation and recovery, and establishing a state/federal partnership for regulating the management of mining industry wastes with the states having primary responsibility under a flexible system of federal guidelines.

Second, appropriate legislation would:

- o add to Section 4002 provisions requiring EPA to adopt guidelines to assist the states in developing and adopting regulatory plans for this industry's waste management practices (referred to from here on as "mining waste plans");
- o add to Section 4003 provisions requiring states to develop, and submit to EPA for approval, mining waste plans that would have to include the types of regulatory measures listed in the section, including a facility permitting procedure;
- o add to Section 4007 provisions prescribing how EPA is to approve state mining waste plans and the revisions of such plans, and how (and in what circumstances) EPA is to adopt a mining waste plan for any state that does not have an approved plan--whether because the state has not submitted an approvable plan or has had its approval revoked.

The underlying principle of such amendments, consistent with the overall design of Subtitle D, should be that the states would continue to have primary responsibility for the regulation of mining industry wastes. EPA's role should be, first, to bring together the considerable body of knowledge already developed through the Bevill Amendment studies and reports and to establish guidelines that the states would consider in adopting mining waste plans that have the flexibility necessary to address the particular circumstances of individual facilities. Second, these guidelines would include general mining waste criteria that are scientifically based or based on real world experience and that are descriptive rather than prescriptive (i.e., these would be performance criteria, not design criteria). Each state would have to consider these criteria in its permitting process.

EPA's guidelines should not use pollution prevention concepts to allow federal government specification of basic production processes. Nor should these federal guidelines specify techniques, feedstocks, or other materials to be used in mining industry operations. This would be inappropriate and unnecessary governmental intrusion into basic production processes of the industry.

Third, EPA would review and approve or disapprove state plans based on their consistency with the requirements of the amended Section 4002. Those requirements would include properly adopted state legal authority, an enforceable permit procedure, appropriate groundwater monitoring measures, measures regarding proper closure and postclosure care, necessary remedial actions and plan revisions. EPA would be authorized and directed to disapprove state mining waste plans, or portions thereof, that do not meet the Section 4003 requirements and to adopt its own plan or partial plan, as necessary, for states with deficient plans. In adopting such a plan, EPA would be required to follow the requirements of Section 4003. A reasonable alternative, discussed in recent Policy Dialogue Committee meetings, would be to authorize EPA, in the case of a partially deficient state mining waste plan, to grant conditional approval of the state plan on the stipulation that deficiencies would be corrected within a reasonable, specified period of time.

Such amendments involving state mining waste plans are conceptually different from the uniform scheme of regulations mandated by Subtitle C of RCRA. The intent should be to have EPA assist the states in achieving environmentally protective results without dictating how the states are to run their programs or how facilities are to manage wastes. EPA guidelines would expressly recognize the states' responsibility to adopt varying measures to reflect different specific site characteristics, different ore bodies, mining and waste management practices, and different environmental values to be protected. Whereas an "authorized state" under Subtitle C essentially carries out the uniform federal program established by, and delegated from, EPA, under an appropriate mining waste amendment to Subtitle D a state would design and carry out an approved plan that would contain varying requirements to reflect varying site and waste-specific factors. The nationwide uniformity and governmental redundancy designed into the Subtitle C rules have been found by EPA neither to be necessary nor appropriate where mining industry wastes are concerned.

Fourth, appropriate legislation would also provide authority for EPA:

- o to enter the premises of mining waste management facilities to inspect, examine and copy records, and to take samples; and
- o to request and obtain certain information from a facility owner or operator.

This right to enter and gather information would be for the express purposes of (1) auditing the implementation of an approved state program, or (2) developing a federal mining waste plan for states that did not have an approved mining waste plan,

issuing a federal permit under such a federal plan or enforcing either the federal plan or federal permit. Information obtained would generally be available to the public, but certain types of proprietary business information should be kept confidential consistent with the nondisclosure provisions currently in RCRA.

These additional authorities would be appropriate because there is at present no inspection or information-gathering authority for EPA in Subtitle D of RCRA. These added powers should be tailored to fit the appropriate role for EPA--to assist states to adopt and implement mining waste plans that will protect health and the environment under the specific conditions of each state and site while serving as a back-up for those states that fail to adopt or implement such plans.

Fifth, where no approved state mining waste plan existed, appropriate legislation would grant EPA authority:

- o to establish a federal mining waste plan for that state and issue appropriate site-specific permits under that plan;
- o to enforce federal mining waste permits and requirements of a federal mining waste plan;
- o to enforce the new inspection and information-gathering powers; and
- o to issue administrative compliance orders and to seek injunctions in U.S. district courts where a federal plan was in effect.

Where a federal plan is in effect, a district court should be able to assess civil penalties. Assessment of a penalty would follow consideration of the violation's seriousness and the nature of compliance efforts. The maximum penalty for violating a compliance order should be \$25,000 per day.

It appears necessary for EPA to have these new powers to carry out successfully new rulemaking and permitting authority contemplated in an appropriate bill. Although the intent of such legislation, throughout, must be for EPA to occupy a role secondary to that of the states, it would be appropriate for EPA to have enforcement powers in order to carry out a federal mining waste plan for a state that fails to gain approval of its plan or fails to develop a plan.

ENCOURAGING A PROPER STATE-FEDERAL RELATIONSHIP

Subtitle D of RCRA historically has left regulation of non-hazardous wastes to the states, with a minimum of federal EPA

involvement. Our industry recognizes that changes in this approach are necessary; indeed we support appropriate changes.

It must also be recognized, however, that in the regulation of our industry's wastes, the states have been the leaders in developing effective regulatory approaches. As shown by Appendix A to this testimony, the nature and scope of state laws and requirements governing our industry's wastes are already extensive and continue to grow. Amendments to Subtitle D must not disrupt or duplicate these state regulatory programs or superimpose costly, unnecessary and inappropriate uniform federal rules on top of these requirements. In the face of EPA's studies and regulatory determinations and the states' increasingly aggressive regulation of mining operations, federal actions should encourage state primacy and site-specific flexibility, not inhibit or supersede them.

Some have expressed concern that state mining plans will go unenforced and the environment will be irretrievably damaged unless EPA is given concurrent enforcement authority with the states. In our view, this concern is misplaced for four main reasons. First, there is no good reason to presume bad faith on the part of the states. We know of no state that has broadly refused or failed to enforce requirements of state law.

Second, we would anticipate that citizen suit authorities of RCRA would be available to enable citizens to sue to enforce EPA-approved state mining plans or state permits granted under those plans if a state were failing in a particular case to diligently pursue enforcement action against a violator.

Third, under an appropriate legislative approach, EPA also would have the authority to revoke, in whole or in part, its approval of a state program and then to impose and enforce its own federal mining waste plan within that state if a state were failing in a substantial number of instances to enforce its own plans or permit requirements.

Some maintain that EPA is unlikely, once having approved a state's plan, to revoke that approval. We would point out that it is even more unlikely that a state with an established mining waste regulatory program would willingly yield control over industry wastes by allowing a pattern of violations to occur that would justify EPA intervention.

Finally, as EPA itself has pointed out in its regulatory determinations, the agency retains its power to act under RCRA Section 7003 and Superfund Sections 104 and 106 to protect against any substantial threat or imminent hazard (EPA Regulatory Determinations, 51 FR 24496 July 3, 1986 and 56 FR 27300 June 13, 1991). What concerns our industry when the question of federal enforcement is raised is the possibility of a system of "dual

enforcement," already a reality for the coal industry under the Surface Mining Control and Reclamation Act (SMCRA). The industry believes that a dual enforcement system could be used by overzealous federal enforcement officials to interpret the provisions of an approved state program or permit in a different way than the state interprets its own requirements. In its 1979 report to Congress, the National Academy of Sciences' Committee on Surface Mining and Reclamation cautioned against imposing a SMCRA-type system on non-coal minerals (NAS/COSMAR, Surface Mining of Non-Coal Minerals). Additional warnings against a SMCRA scenario were given in testimony by the Montana Department of State Lands to the Senate Subcommittee on Hazardous Wastes and Toxic Substances (April 14, 1987, see Appendix B). It is difficult to see how the public interest is served in a situation where two different levels of government, both with enforcement power, may interpret an approved state plan differently. For the regulated community, such a situation makes it very difficult, if not impossible, to operate.

A SITE-SPECIFIC, STATE PRIMACY APPROACH IS NECESSARY

In our view, building the proper federal-state relationship for regulating mining wastes should begin with allowing the states the flexibility to tailor requirements to the specific needs of different mine sites. This means taking into account differences in ore bodies, mining practices, mine waste streams, hydrological and meteorological conditions, and different environmental values needing protection at different sites. Federal guidelines for state mining programs should explicitly allow site-specific flexibility in the design of state regulations and permit requirements so long as state programs address the required elements and work in practice to protect health and the environment. No uniform federal design or operating standards should be imposed on the states, and the respects in which mine wastes and operations differ from other industrial wastes and operations should be taken into account by both EPA guidelines and state mining programs.

Moreover, most mine waste regulation applies to existing sites. Considering that Subtitle C regulations could impose costs of up to \$800 million per year (EPA's own 1985 estimate, thought by many to be far too low); the agency decided "to develop a program that has maximum flexibility to develop an effective control strategy for individual facilities based on site-specific conditions." Id., 24500.

EPA's regulatory determination recognized, however, that a program of "maximum flexibility" also had to avoid duplication of effort. EPA recognized "that many EPA programs already affect the mining industry," including programs under the Clean Air and Clean Water acts and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund). The agency

went on to note that other federal agencies, including the Bureau of Land Management, the Forest Service and the National Park Service also have oversight and regulatory authority for mining on federal lands, and that their requirements provide for waste disposal without undue degradation, along with detailed reclamation requirements.

Not only were EPA and other federal programs in place for mining, but the states, too, already played an important role in regulating mining. EPA noted that the federal land managing agencies required compliance with all applicable state and local laws and ordinances. EPA went on to point out:

A number of states have their own statutes and implementing regulations for mining waste. Some states have comprehensive and well-integrated programs; other states have newer, partially-developed programs.... Although there is great variation in programs, many states have siting [the single most important factor for mining waste, by EPA's own determination] and permitting requirements, and require financial assurance, groundwater and surface water protection, and closure standards. EPA agrees that any requirements necessary to protect human health and the environment should consider the existing Federal and State mining waste programs with a view toward avoiding duplication of effort. Id., 24499.

The courts, too, have recognized the differences between this industry's wastes and those of other industries. In 1988, a unanimous federal Court of Appeals for the District of Columbia Circuit upheld EPA's regulatory determination (EDF v. EPA 852 F.2d 1309).

In the meantime, more states have adopted mining regulatory programs or tightened and expanded existing laws, regulations and site-specific permit requirements.

To seek, in 1991, the imposition of uniform federal regulations on this industry's wastes, whether under Subtitle C or a new Subtitle D of RCRA, would be to ignore years of congressional concern, agency studies and determinations, a unanimous court decision and the efforts of so many states to develop and carry out site-specific mining waste regulatory programs.

Strawman II Is Inconsistent with the Principles Set Forth Above and Should Not Be Endorsed By Congress

Following the 1986 regulatory determination that mine waste should not be regulated under Subtitle C, EPA began work on fashioning a mining waste regulatory program. One part of this effort was the preparation of staff draft regulations, known as

the "Strawman" documents. Strawman I was released for comment in 1988. As a result of the extensive comments received, EPA staff realized that significant revisions would have to be made to Strawman I.

Strawman II was circulated for comment and discussion during the summer of 1990. As Appendix C to this testimony demonstrates, AMC provided detailed comments on Strawman II.

There were certain aspects of Strawman II that the industry supported. The draft paper's focus on currently active and future mine waste units was reasonable. EPA's consideration of pollution prevention measures, including the use of re-mining, is commendable although requiring considerable refinement as applied to mining activities. AMC agreed also with the need for public participation in the development not only of federal guidelines but also in modifications to existing state programs.

However, the Strawman II staff draft is inconsistent with the fundamental principles of a state-based, site-specific approach that we think can most cost-effectively ensure protection of health and environment from "actual risks" (as Judge Mikva suggested in the court's unanimous opinion upholding EPA's mine waste regulatory determination).

Strawman II would supersede existing state regulatory programs for mining industry waste rather than building on them.

Moreover, Strawman II ignores EPA's earlier findings about the reasons why a uniform national regulatory approach to mining industry wastes under Subtitle C is unnecessary, infeasible and unreasonably costly. It would ignore federal and state Clean Air and Clean Water regulatory requirements that apply to mining industry sites. Strawman II would also add new national air and water discharge standards that would have to be achieved without any demonstration that they are necessary to protect health or environment. Strawman II thus amounts to a uniform national regulatory approach nested in Subtitle D, instead of Subtitle C.

To identify only a few of the many objectionable provisions of Strawman II, we would cite the following illustrative examples:

- o Strawman II lists five separate circumstances in which EPA could intervene in individual permitting decisions by the state under an approved state plan.
- o Strawman II would allow EPA to bring an enforcement action against a mining facility operating in

compliance with all permit requirements of a valid state permit, if EPA disagreed with the state about what that permit should contain.

- o Strawman II would not distinguish between requirements for new and existing units, despite obvious differences in costs, feasibility and other site-specific factors.
- o Strawman II would prohibit state mining industry permits that last longer than five years, even though a ten-year permit is established by EPA for hazardous waste treatment, storage and disposal (TSD) facilities under Subtitle C rules.
- o Strawman II specifies that all states must have administrative (not judicial) penalty authority as a condition for EPA approval of a state's program, even though no other law administered by EPA requires states to enforce their rules by administrative penalties.

In summary, many aspects of the Strawman II approach would ignore existing state and federal (including EPA) regulatory programs and wipe out the flexibility needed to develop state regulatory programs geared to the needs of the state and the characteristics of specific sites. Strawman's emphasis on the need to impose a national uniform set of multi-media RCRA controls on mine waste ignored the existence of current EPA programs under the Clean Air and Clean Water acts, existing state programs and the programs put in place by other federal agencies such as the Bureau of Land Management, Forest Service and National Park Service.

Many of industry's concerns were and are shared by state regulators and other federal agencies. This is evident from the comments submitted by the Western Governors' Association (WGA) Mine Waste Task Force and by the U.S. Bureau of Mines. For example, the excruciating level of detail contemplated in Strawman's section on performance standards would have severely reduced, and in important respects eliminated, the ability of a state to fashion a mine waste plan appropriate to its situation. Moreover, these detailed specifications did not appear to be necessary to protect public health and the environment. WGA thus recommended "that performance standards and factors which need to be considered in a permit review should be based upon site specific needs as defined by the state mine waste regulatory authorities and supported by the individualized state [mine waste] plan." WGA Comments, October 16, 1990, p.8.

For these reasons, we could not support legislation that would endorse the Strawman II staff draft and urge the Subcommittee to reject it as the basis for appropriate amendments to Subtitle D.

The Policy Dialogue Committee offers an opportunity at last for interested parties to meet face-to-face to attempt to resolve these important issues and represents a more efficient and constructive means of providing input to the rulemaking process. Based on progress made in the PDC meetings thus far, we believe these discussions should be continued, at least for the near term.

Leaching Operations

An excellent example of the responsiveness of state mining waste programs are those regulations now in place which set specific standards for heap leach operations. Though leach operations have long been associated with the minerals industry, the use of cyanide as an agent to extract precious metals has gained prominence in the last decade. Formerly uneconomic reserves are now being mined and the United States has become a major world gold producer.

Cyanide is a commonly used industrial chemical and a common substance in the environment. Historically, its use in the minerals industry has been accompanied by an excellent safety record. Cyanide's suitability for precious metal operations and the ease with which it can be handled and controlled safely are the leading reasons that the gold industry prefers cyanide over other industrial chemicals.

Because cyanide conveys gold and silver through the process, precious metals producers have a natural incentive to carefully conserve cyanide. In both heap leaching and milling/vat leaching, cyanide remaining in solution after the gold is removed is recycled along with process water. At the same time, each state in which such gold processing now occurs imposes requirements on the construction and operation of heap leach pads and related facilities. These include zero discharge standards for ground and surface waters in Nevada, and design and operating criteria for leach pads in Idaho. In addition to these stringent operating requirements for such facilities, these same states have imposed reclamation requirements once the facility ceases operations.

Cyanide is easily neutralized in the event of a spill or leak. It reacts quickly with many elements in the environment such as sunlight, carbon and clay and degrades or attenuates naturally into non-toxic, stable and common substances. These factors, combined with the extensive containment systems and leachate collection systems installed by operators, as well as monitoring equipment to detect any groundwater contamination, have minimized any environmental or human health risks which may be associated with cyanide use.

Inactive and Abandoned Mines

As noted above, the industry supports Strawman II's focus on currently active and future operations. This is not to say that there are not potential concerns associated with abandoned mining sites. These concerns, however, may not be most appropriately addressed under RCRA, because RCRA is designed principally to address waste generation at existing operations, not abandoned sites from the past.

What is perhaps even more important is that we lack the knowledge base to address many of the critical factual policy questions that would have to be answered to design and fund an appropriate program for addressing abandoned mining sites. For example, we must achieve a commonly-agreed upon definition of "abandoned mine site." It might not be appropriate to include sites that were abandoned long before RCRA was enacted. There are various estimates of the number of abandoned mine sites in the country. Problems at these sites vary, but we need to determine how serious and how pervasive these problems may be. We need to determine the appropriate federal and state roles in addressing and prioritizing these sites.

Where the funds should come from to pay for emergency response or reclamation at these sites, and what the overall cost of such a program might be, are issues of equal concern. Where circumstances permit, "remining" should be encouraged at these sites. Superfund liability or RCRA corrective action requirements potentially could be modified to promote environmentally sound and economically feasible remining and reclamation. A similar set of concerns applies to so-called "inactive" sites. Part of the answers may be coming into place. Supported by the EPA, the Western Governors' Association and the Interstate Mining Compact Commission have undertaken a study of inactive and abandoned non-coal mines.

The study is attempting to define the different types of problems (environmental versus safety) that may exist at these sites, along with reclamation needs and technologies. Part of the effort is a state-by-state inventory of inactive and abandoned non-coal mines. The study is also identifying different approaches used by states to address the inactive and abandoned mines issue. Thirty-four states and some Indian tribes have participated thus far.

We believe that this is the type of effort that must be concluded before a potentially very far-reaching new federal regulatory program is mandated. The problem or problems must first be identified and understood before they can be solved. An increasing number of states have in place, or are putting in place, legislative and regulatory programs to address these

matters, and these should be allowed to proceed to get some of the answers before a superseding federal regulatory program is imposed.

RECYCLING AND AMENDMENTS TO THE DEFINITION OF SOLID WASTE

There is a growing interest in recycling, and there seems little doubt that RCRA reauthorization will make important changes in how this activity is dealt with under the law. AMC supports legislative efforts to encourage intrafacility, intracompany and external recycling and resource recovery. Our industry's recycling capabilities are considerable but to date have been constrained because of the overly stringent nature and application of some RCRA regulations.

It does not appear, however, that broadening Subtitle C jurisdiction to apply rules designed for hazardous waste treatment and disposal to the recycling of "secondary materials" and "by-products," will encourage such recycling. Quite the contrary, inclusion of "hazardous materials recycling" under Subtitle C or other inflexible hazardous waste provisions of RCRA could result in discouraging current industry recycling practices and probably discourage the full extraction of metal values from in-process material. The recycling regulation provisions of S. 976 unfortunately could be extremely counterproductive.

That bill defines "secondary material" as "any intentional or unintentional byproduct or ... residue that is recycled ... [and that] would be a solid waste except for the fact that it is not discarded." A "hazardous secondary material" is secondary material that is recycled and that "would be required to be managed as a hazardous waste except for the fact that it is not discarded." (S.976, Section 104, subsections 45, 46.) (These definitions are circular in that what makes a "waste" a "waste" rather than part of the basic manufacturing process is the very fact that it is discarded. Thus, this new approach leaves open the possibility of regulating, perhaps specifying by regulation, the details of basic manufacturing processes--a result Congress clearly has sought to avoid in enacting RCRA and all succeeding amendments.)

The terms "by-product" and "residue" are not defined in the bill. Thus, the intended reach of the bill is not known--a very serious problem indeed. Section 405 of the bill would subject recycling of "hazardous secondary materials" to Subtitle C regulation or similar standards. Presumably any by-product or residue that failed one of the RCRA hazardous characteristics would be a hazardous secondary material.

Moreover, S. 976 does nothing to overcome the barrier to recycling that results from the "derived from" rule: because all residues "derived from" listed hazardous wastes are themselves

deemed hazardous wastes and subject to Subtitle C regulation, the "derived from" rule actually creates a strong disincentive to recycling of listed hazardous wastes rather than an incentive in furtherance of RCRA's stated objectives. This is particularly ironic for listed metal-bearing wastes where recycling or thermal recovery may be the best possible treatment technique prior to land disposal.

Under this scenario, many in our industry would continue their position of refusing to extract minerals values from listed wastes or many other materials generated outside the industry. Even worse, however, our industry's current practice of maximizing extraction of metal values from in-process materials could be seriously threatened. These are the very practices that the D.C. Circuit found to be ongoing industrial processes beyond the legitimate scope of RCRA (AMC v. EPA, 824 F.2d 1177, 1987 "AMC I"). Subsequent court decisions may have elucidated some of the finer points in the AMC I decision, but they have not detracted from the court's finding that these internal recycling practices are not part of the "waste disposal problem" that led to the enactment of RCRA. (S. 982 is even more of a concern than S. 976 in this regard. It would flatly regulate recycling of all secondary hazardous materials under Subtitle C of RCRA--a function that the Subtitle C regulations were not designed to perform. In doing so, further disincentives to recycling and materials recovery would be created.)

One point we want to make clearly: AMC does not oppose a reasonably designed regulatory program to protect public health and the environment from key aspects of the recycling process. For example, we would support appropriate measures to ensure proper storage and handling of recycled materials and environmentally sound management of the residues of recycling operations. In our view, these measures should be part of the state programs for mining industry wastes under the program we have recommended above, and any state that has an approved mining waste program covering mineral processing operations in that state should be able, consistent with the state program, to waive the derived from rule for such recycling operations.

TOXICS USE REDUCTION

We also have very serious reservations about the toxics use reduction provisions of S. 976. While we support reasonable source reduction measures to reduce avoidable waste generation, in extractive industries source reduction opportunities are limited by the raw materials that are available in nature. AMC cannot support proposals the effect of which are directly or indirectly to discourage production and sale of metals and minerals which have some degree of "toxicity" under some circumstance or other. Is it really wise public policy to discourage domestic production and sale of copper? Should

Congress create a national materials policy that favors new unregulated synthetic materials of as yet undiscovered toxicity over those materials whose properties are well known and for which extensive regulatory safeguards exist? Clearly these provisions need to be more carefully thought out. We at AMC would be pleased to work with members and staff of this subcommittee on designing appropriate economically feasible incentives for source reduction.

CONCLUSION

In conclusion, we cannot overemphasize the importance of designing a legislative framework that promotes a site-specific, state-based mining waste regulatory program. Congress should preserve and enhance effective regulatory programs developed by the states for this industry's wastes. In our view Congress should specifically:

- (1) ensure protection of health and the environment in a manner that minimizes adverse impacts on the industry's competitiveness;
- (2) reject applicability of Subtitle C to mining industry wastes as has EPA and the Court;
- (3) amend Subtitle D of RCRA to provide for site-specific, waste-specific state-based mine waste regulatory programs with EPA guidance and backup authority as indicated; and
- (4) build upon existing state mine waste programs, not supersede them as would the Strawman II draft.

Although our testimony has focused principally on issues related specifically to the development of mining waste regulations, as we have indicated, other RCRA issues are also quite important to our industry. We ask that you take into account our views on those issues as well.

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify. We are ready to answer your questions, and to provide additional information. We look forward to working with you and your staff as RCRA reauthorization continues.

NOTE: Appendixes retained in subcommittee files.

STATEMENT OF BRIAN KENNEDY

Mr. KENNEDY. Thank you, Mr. Chairman, and members of the subcommittee.

I appreciate the opportunity on behalf of the Precious Metals Producers, or PMP, to talk about appropriate management of mining waste under the Resource Conservation and Recovery Act.

The Precious Metals Producers are a group of six mining companies which together produce over 20 percent of the gold and silver mined in the United States. The PMP was formed in 1985. We have participated since then in the environmental protection activities in mining waste, particular the EPA's so-called strawman process, and now the EPA Policy Dialogue Committee.

I will talk briefly about the precious metals mining industry and then discuss our views on mining waste regulation.

Mining of gold and silver in the United States has increased dramatically in the last decade, making our Nation second only to the South Africans in production of gold. Production in 1991 should be about 10 million ounces, which is more than 10 times the amount we produced in 1980.

More than half of the gold produced in the United States comes from mining operations in Nevada where my company is based. The gold mining industry employed 2,000 people in 1990 and about another 56,000 people in related jobs to gold mining, including contractors, equipment suppliers, and manufacturers.

The gold mining industry extensively uses sodium cyanide to extract our gold. A Government Accounting Report was recently issued concerning the environmental consequences of its use. The report concluded that Federal and State agencies have adequate authority to regulate cyanide operations. I would like to submit this report for the record of this hearing with your permission. If the subcommittee has any questions on this subject, I will be glad to respond later.

The PMP fully supports reasonable and well-conceived regulations of mining waste. Consistent with EPA's study of mining waste in its 1986 regulatory determinations, we support amendment to RCRA subtitle D to provide EPA authority to create a Federal mine waste program.

In amending RCRA, however, Congress must take into account the substantial number of mining States that already regulate mining waste disposal.

I have brought along a chart to summarize the status of State regulations of mining. We prepared the chart to get a sense of the amount of current State mining regulation. We used the completed Western Governors Association's State law survey as reference and updated the information with our research. So the chart is a good indication of the amount of mining regulation already implemented from the perspective of the States.

Let me caution you, the chart does not document the quality of State programs, and we did not intend it to have that function. Also, we did not create the chart so we could take the position that no Federal regulation is necessary. We will support reasonable regulation under subtitle D of RCRA, and we believe it is called for.

What the chart does illustrate is that many States have acted in this area at great expense and effort. So while we do not oppose Federal regulation of mining waste, we do oppose regulation that would not acknowledge the current State framework.

The State/Federal relationship defined for mine waste management programs must be unique in order to take the unique of mine waste management into account, including geology, topography, climate, and location.

Beyond recognition of State programs and site-specific concerns, we believe amendments to subtitle D must accomplish three other goals: One, the statute must define circumstances under which EPA would oversee and enforce State programs. If the goal is to allow States true flexibility, we believe the bill should give States the authority to issue permits. EPA should have no veto power in this process. Permit veto power would effectively undermine State primacy.

Similarly, unlimited EPA enforcement would inhibit States and undermine their primacy. The bill must define an enforcement relationship which allows EPA to assure compliance, but does not allow EPA to dictate State program policy indirectly through enforcement activity.

Mr. SWIFT. Mr. Kennedy, you'll have to excuse me. We're going to have to interrupt. We only have about 3 minutes to get over and make a vote.

The subcommittee will reconvene with the rest of your testimony immediately following the 5 minute vote.

[Brief recess.]

Mr. SWIFT. The subcommittee will come to order.

I'm sure you understand the procedures, and we do apologize for having to interrupt your testimony, and, Mr. Kennedy, you are recognized again.

Mr. KENNEDY. Thank you, Mr. Chairman.

I'd just finished—I was on the last three points, the first of which I will repeat again, and not in its entirety.

But the statute must define circumstances under which EPA should oversee and enforce State programs.

I'll now go to the second point. The program requirements must be based on risk. A risk-based program is essential for mining wastes because these wastes pose a range of risks. Many mine sites are remote and do not pose substantial risk to human populations.

Site geology and hydrology are also very important. As an example, in the Western United States, where much mining occurs, groundwater may be 200 or more feet below the site.

Additionally, some waste generated by mining operations are no different in character and concern than earth moved during construction. Such wastes do not warrant an expensive and complicated regulatory process. These are circumstances that inspired the Bevill amendment in the first place.

And third, the mining waste program must distinguish between new and existing facilities. Once Federal legislative and regulatory standards are developed for mining waste, the industry will be able to design and construct new units to meet the new standards.

Operating procedures at existing facilities in many instances also can be adjusted to accommodate the new standards. However, in

the cases of many older facilities, retrofitting many be technically difficult or economically impossible. Failure to address the practicalities of retrofitting older facilities would result in serious economic impact to companies and employees without any significant benefit to the environment.

Accordingly, legislation should recognize these practical and technical considerations and direct EPA to recognize them in mine waste rules.

Thank you, Mr. Chairman.

Mr. SWIFT. Thank you, Mr. Kennedy.

Mr. Paul Robinson.

[Testimony resumes on p. 83.]

[The prepared statement and above-mentioned chart of Mr. Kennedy follow:]

WRITTEN TESTIMONY OF

**Brian Kennedy
FMC Gold Company****ON BEHALF OF THE
PRECIOUS METALS PRODUCERS**

Hearing Before the House
Transportation and Hazardous Materials Subcommittee
Energy and Commerce Committee

Special Waste Issues in the Reauthorization of the
Resource Conservation and Recovery Act

September 12, 1991

On behalf of the Precious Metals Producers ("PMP"), I appreciate the opportunity to submit testimony to the Subcommittee on reauthorization of the Resource Conservation and Recovery Act ("RCRA"), and particularly on appropriate management of solid wastes generated by the mining industry. My statement includes information about the precious metals mining industry, background on the Bevill Amendment, a discussion of the Strawman effort and the Policy Dialogue Committee and our views on reauthorization of RCRA.

The Precious Metals Producers

The Precious Metals Producers are a group of six major mining companies which produce gold and silver throughout the western United States. Several PMP members are among the top ten gold producers in the United States. The members of the PMP - American Barrick Resources Corporation, Battle Mountain Gold Company, Coeur D'Alene Mines, Echo Bay Management Corporation, FMC Gold Company, and Independence Mining Company - together represent a significant portion of the gold and silver production in the United States.

The PMP was formed in 1985 and has participated actively since then in Environmental Protection Agency rulemakings and activities on mining waste, particularly EPA's so-called "Strawman" process. The PMP currently participates in the Mining Waste Policy Dialogue Committee, recently formed by EPA under the Federal Advisory Committee Act to develop recommendations on federal mine waste policy issues. The Policy Dialogue Committee includes representatives from the federal government, state governments, the mining industry and environmental groups.

Precious Metals Mining and Milling

Mining of gold and silver in the United States has increased dramatically in the last decade, making our nation the third leading producer of gold in the world, behind South Africa and the Soviet Union. With 1990 gold production at approximately 9.6 million ounces, the United States now may have assumed second place in gold production.^{1/} More than half of the gold produced in the United States comes from mining operations in Nevada, my home state.

Direct employment in the gold mining industry has increased correspondingly: from under 6,000 in 1980 to 20,000 in 1990. Mining-related employment has shown equally dramatic increases in the past decade.^{2/}

Miners have known for over a hundred years that gold and silver can best be recovered from ore by using sodium cyanide, a common natural chemical that has dozens of industrial uses. Cyanide dissolves gold and silver more effectively and economically than any other known substance.

In traditional mining/milling operations, a dilute cyanide solution is mixed in vats or tanks with crushed ore. The gold and silver dissolve, are recovered from solution and are smelted into "dore" bars. These bars are then shipped off-site for refining to improve their purity.

In the 1980's, advancements in technology made "heap leaching" an economically viable way to recover gold and silver from lower-grade ore. This method involves construction of a large impermeable engineered pad, upon which ore, either crushed or directly from the mine, is placed for leaching. The ore is "irrigated" with a dilute cyanide solution. Gold and silver dissolve and combine with cyanide in liquid form, flowing from the sloped pad through pipes into a lined pond or tank. The metals are then recovered from the solution.

In either process, the use of cyanide as a leaching agent is absolutely necessary. There is no substitute for cyanide. Because cyanide is acutely toxic to humans and animals, its use in the industry has attracted attention and raised concerns about safety and environmental impacts. Mining companies recognize the dangers and have moved aggressively to assure that cyanide use

1/ Dobra, John L., and Thomas, Paul R., *The U.S. Gold Industry* (1990).

2/ *Id.* at p. 2.

does not pose dangers to workers, visitors, neighbors, the environment or to wildlife.

Although cyanide is dangerous if mishandled, it is extremely easy to control by keeping pH high. For that reason, pH control is one of the most carefully managed activities at any gold mining operation. Cyanide solutions also are continuously recycled, both to avoid waste and to avoid discharge to surface waters. Dilute amounts of cyanide, contained and maintained in liquid form, are not dangerous to humans.

Cyanide solutions can be dangerous to wildlife, and increased gold mining over the last decade has resulted in wildlife mortalities. Mining companies have responded quickly to remove the threat. Small ponds and tanks are covered with netting so that birds and other wildlife cannot approach them. Where netting is infeasible because of size, which is usually the case with tailings impoundments, cyanide concentration is reduced to levels that are not toxic to wildlife. Miners also have employed hazing, alternative water supplies, fencing and other measures to keep wildlife safe. As a result, past problems of wildlife mortalities from cyanide consumption are under effective control.

Finally, cyanide is not left in the environment to pose dangers after operations have ceased. Heap pads are rinsed, often over a period of years, until residual cyanide levels meet state standards. For example, in Nevada, the pad must be rinsed until cyanide in the rinsing solution is no greater than 2 milligrams per liter and metals meet drinking water standards. Since cyanide is easy to neutralize, accidental spills can be remedied quickly and effectively when they occur. Cyanide degrades quickly with exposure to sunlight, water and other natural environmental conditions.

Position on Regulation of Mining Wastes

The PMP fully supports reasonable and well-conceived regulation of mining waste, and we recognize that RCRA Subtitle D needs to be amended to provide EPA authority to create a federal mine waste program. How Subtitle D is amended to accomplish this task is crucial; we believe the regulation of mining wastes requires a new approach for which there is no current federal model.

Past federal environmental statutes have created entirely new requirements in areas where many states had taken no action. Congress created substantial programs for EPA to implement, and provided for states to adopt them, but only in a form strongly resembling EPA's model. In direct contrast, a substantial number of "mining" states already regulate mining, and particularly

mining waste disposal. For example, there is not one state in which precious metals heap leaching takes place that does not impose requirements on the construction and operation of heap leach pads and related facilities. Nevada is a good example of a state that responded to massive increases in the 1980's of precious metals mining, including heap leaching operations, with an innovative regulatory program. This program was developed with the consensus of Nevada government, industry and environmental groups. The impression given in recent newspaper and mass media reports that these activities are unregulated or underregulated is simply false.

Accordingly, by amending Subtitle D to authorize federal mining waste regulation, Congress is joining a substantial and state-dominated regulatory environment. That reality argues strongly for a federal framework that both ensures states flexibility and requires that they protect the environment. Of course, we recognize Congress has the power to preempt state regulatory programs; RCRA could place all responsibility for mining waste program development with EPA and give EPA power to compel states to change their programs to fit EPA's mold. But we do not believe the best solution lies in negating what the states have achieved. We advocate instead a federal program that builds upon and does not displace this substantial body of state regulation. Appropriate regulation will protect the public interest. Duplication and overregulation will damage the mining industry and the United States' access to a reliable supply of minerals.

The Bevill Amendment

The stage was set for the current reauthorization discussion in 1980, when Congress enacted the Bevill Amendment. In doing so, Congress recognized the unique issues posed by mining wastes, and resolved persistent regulatory and policy questions by directing EPA to use its expertise to study the wastes. EPA then was to recommend the appropriate level of regulation based on its study.

In 1986, EPA determined after the study required by the Bevill Amendment that extraction and beneficiation wastes from mining should be regulated on the federal level within a specially tailored program under Subtitle D of RCRA. 51 Fed. Reg. 24496 (July 3, 1986). EPA made a similar determination for 20 mineral processing wastes in 1991. 56 Fed. Reg. 27300 (June 13, 1991). Subtitle D currently defines state and federal roles for nonhazardous solid waste management.

EPA decided that the stringent regulation of hazardous waste under Subtitle C was not necessary or appropriate for mining wastes, and that Subtitle D would provide the necessary

flexibility for a mining waste program. EPA concluded that regulatory flexibility was necessary so that state regulators could account for site-specific risks posed by the wide range of mining wastes. EPA also affirmed its intention not to duplicate existing state and federal authorities in developing a new mining waste program under Subtitle D.

Strawman and Strawman II

Subsequently, in 1988, EPA staff developed an informal conceptual approach to mine waste regulation which it named "Strawman," and which it said incorporated its philosophy of mine waste regulation as expressed in the 1986 Regulatory Determination. The mining industry, states and environmental groups commented extensively on the document both in written submissions and a series of meetings and hearings held during 1988 and 1989.

In 1990, EPA issued a revised and more detailed version of Strawman, called Strawman II. Again, the mining industry, states and environmental groups commented extensively on the proposal.

While PMP has been critical of some aspects of EPA's Strawman proposals, we have actively supported the endeavor and we believe it has been beneficial for all parties. Drafting and talking about rules outside the formal legal regulatory framework encourages all parties to be more flexible and creative, and allows new ideas to emerge. We believe some useful regulatory concepts have come out of the Strawman process. Most importantly, EPA has learned a lot in the process, and should be prepared to develop a mine waste rule quickly once it receives additional authorization to do so from Congress.

The Policy Dialogue Committee

EPA continues to pursue regulatory development through the Mine Waste Policy Dialogue Committee. Four meetings have been held to date and more are scheduled in an effort to develop consensus or define differences among interest groups on mine waste regulation.

The PMP supports the EPA Policy Dialogue Committee as a means to continue the discussion about mining wastes pending RCRA reauthorization. The discussion so far has been wide-ranging and in some cases contentious; in all cases it has been valuable. By sponsoring regular interaction among the interest groups, EPA is fostering an exchange of ideas and values that benefits all parties. At a minimum it requires each party to evaluate and come to terms with the positions and concerns of other parties.

This exchange educates EPA, and could result in consensus among the parties about some mining waste issues.

Current Regulation of Mining Operations

As EPA recognized in the 1986 Regulatory Determination, the mining industry already is regulated extensively by both federal and state agencies. Mining operations must comply with a host of federal environmental and land use requirements, including the Clean Water Act, Clean Air Act, RCRA Subtitle C, CERCLA reporting requirements, mine safety and health requirements and surface management requirements imposed by the Bureau of Land Management or the Forest Service.

Additionally, most of the states in the west, as well as several eastern states where there is significant mining activity, have developed comprehensive mining and ground water protection programs. Many elements of state mining programs are similar; in many cases the states have cooperated in program development. There also are significant differences among the programs that highlight regional differences in climate, geology and the physical environment, and the unique political and regulatory cultures of various of the states. Some state programs doubtless are deficient and could benefit from direct federal guidelines to assist in establishing comprehensive programs. However, many state programs already are comprehensive, demanding and innovative in their approach.

Attached is a chart that summarizes the status of state regulation of the mining industry. The PMP prepared the chart using as its primary resource a survey of state mining law recently completed by the Western Governors Association. We recognize that an effort of this sort cannot reflect the quality of state programs. However, the chart does illustrate the extent to which states have begun addressing mining waste issues.

Nearly every state where there is significant mining activity requires a permit for mine waste management and regulates the closure of mining operations. Moreover, most mining states regulate impacts to ground water and usually require that state ground waters be protected as drinking water. The chart demonstrates that comprehensive state regulation of mining operations has become the norm and not the exception.

Mining Waste Provisions in RCRA

Mining waste regulations under RCRA should be crafted with the Bevill Amendment process and current state regulatory programs in mind. These contexts argue strongly for a tailored approach that does not suppress successful, effective and

innovative state programs. The federal program should complement, not duplicate and upstage state regulatory efforts. The PMP offers the following suggestions:

Give Priority to Development of Rules Under the Statute for Mine Waste

We presume that RCRA reauthorization will include new regulatory requirements for a range of nonhazardous wastes, including among others industrial solid wastes and mining wastes. While some of the wastes may need to be categorized and characterized as a first order of business, this is not the case for mining wastes. Mining wastes already have been extensively studied and regulatory concepts have been and are being developed. The Subcommittee Bill accordingly should place mining wastes in a separate subcategory under Subtitle D and should designate an ambitious schedule to finalize the regulatory scheme, taking advantage of the momentum EPA has on the issue.

Establish a State/Federal Relationship that Allows States True Flexibility

The current federal environmental laws give EPA substantial control over the development and implementation of state-administered programs. EPA found in a recent management review of RCRA that state/federal relationships under RCRA Subtitle C are generally poor in quality; states feel that EPA dictates unreasonable program requirements, and "nitpicks" and that states as a result have no "ownership" in their programs. Such an arrangement clearly cannot foster state flexibility and innovation in a mine waste program. If EPA can second-guess every action taken under a state program, unique state program elements will not survive, despite best intentions of those at EPA that wrote the Regulatory Determination in 1986. State programs will succumb to the bureaucratic tendency to standardize. EPA in practice will approve programs that look like EPA's program and will disapprove others. Flexibility must be written into the structure of the state/EPA relationship.

One way to preserve state flexibility is to focus EPA's control over state programs on the state program approval process. Once states achieve approval of their programs according to standards developed by EPA, they should have sole permitting authority, subject to EPA's ability to comment. EPA would reassess the state programs at regular intervals for continued compliance with federal requirements, could comment on permits and could withdraw noncompliant state programs. EPA would not have permit veto authority. This approach would allow EPA substantial ability to ensure compliance, but decisions would be made on a "programmatic" basis, not on a permit-by-permit basis.

Enforcement Should Preserve The State/Federal Balance

Unlimited EPA enforcement of state programs would have the same inhibiting effects on state programs as permit veto authority. EPA could reinterpret program requirements by second-guessing individual state program enforcement efforts. We recognize that the reverse - no federal enforcement - also is not sensible or realistic. The Bill must define an enforcement relationship that allows EPA to assure compliance with environmental protection requirements but does not allow EPA to dictate state program policy indirectly through enforcement activity. EPA already has the authority under Section 7003 of RCRA to address mining wastes that constitute an imminent and substantial endangerment to human health or the environment. A similar kind of authority -- perhaps even a conforming amendment to Section 7003 -- that gears EPA involvement to risk, could be a solution. Any such solution must define narrow circumstances where federal involvement is clearly warranted, and should not shift the balance away from true state program control. The PMP is willing to work with the Subcommittee to help define the right balance.

The Program Should Be Risk-Based

A risk-based program is essential for mining wastes because these wastes pose a range of risks. These risks are related both to the environment in which the mining takes place, and to the nature of the waste. A system with risk-based performance standards will best allow states to evaluate risks and impose regulatory requirements accordingly.

Many mine sites are remote, and do not pose substantial risks to human populations. Site geology and hydrogeology also are very important in determining risk. A tailings impoundment or heap pad may be constructed in an area where ground water is near the surface, and regulatory requirements should correspond to that physical environment. In many cases, however, mines are operated in the western United States, where ground water may be 200 or more feet below the site. States must have flexibility to address these kinds of ranges in risk.

Additionally, some mining wastes are entirely innocuous and require little or no regulation. Sulfidic waste piles typically have a potential to generate acidic runoff and mobilize metals, but they could also contain such large amounts of limestone and other natural buffering materials that no real risk is posed. These kinds of determinations can and must be made on a site-specific basis. Again, this variability calls for the flexibility and expertise already being developed by states.

The Program Must Distinguish Between New and Existing Units

Once legislative and regulatory standards are developed, the industry will be able to design and construct new units to meet the new standards. Operating procedures at existing facilities in many instances also can be adjusted to accommodate the new standards.

However, in the case of older facilities, retrofitting may be technically difficult or economically impossible. In most cases, older facilities can be operated safely without threat to human health or the environment. Failure to address the practicalities of retrofitting older facilities would result in serious economic impact to companies and dislocation and hardships to their employees and the surrounding communities, without any offsetting benefit or protection for human health and the environment. This result is neither necessary or desirable. Accordingly, legislation should recognize these practical and technical considerations and direct EPA to recognize them in mine waste rules.

STATEMENT OF PAUL ROBINSON

Mr. ROBINSON. Good afternoon, Mr. Chairman. Thank you for this opportunity.

My name is Paul Robinson. I am research director at Southwest Research and Information Center in Albuquerque, N. Mex.

I believe that there is appropriate action to be taken by this the committee to reauthorize the RCRA statute, to expand its provisions to address mine waste. There are substantial problems associated with existing mines and past mines that need to be addressed by statutory reauthorization, and there are future mines that can be operated in a better manner were an effective statute in place.

There are a number of different kinds of problems which you and the members should have in your minds as you think about what kind of action should be taken.

There are air quality problems, such as blowing dust from tailings piles, so severe as to have shut down high schools in Mr. Richardson's district.

There is groundwater contamination so severe as to have made drinking water supplies unusable from molybdenum and gold and other mines in the West.

There are multimillion gallon spills in South Carolina, resulting in substantial fish kills and warnings to prevent drinking and swimming use of flowing waters in that State.

There are many examples of good mines. There are many examples of bad mines. We need an effective program which can address the bad actors and can provide flexibility for the good actors.

RCRA has provided an opportunity to address mine waste since its original passage in 1976, however, no programs have been adopted. We have had whole mines open, operate and close while waiting for this program.

The Ortiz mine, in Mr. Richardson's district, which has its groundwater contamination problem currently under remediation, is just one example of the result of the delay in action.

I believe, from my hearing of Mr. Osborne and Mr. Kennedy and Mr. Ostler's statements that there is agreement among this range of interests that RCRA should be reauthorized, that there should be improvements in that statute which allow for State implementation of programs, with strong and effective oversight from Federal agencies.

As citizens' groups, we feel that the effective oversight should include participation from affected citizens and citizen groups—that they should have rights of enforcement parallel to those found in the RCRA program for coal, a mining industry which has not been shut down by effective regulation and strong Federal oversight.

There are a number of major elements which we believe should be in a Federal set of standards which define federally implemented plans or guidelines for State plans. The enforceable programs should be designed to prevent groundwater contamination, as well as to remediate contamination when it occurs. This prevention of damage should extend beyond groundwater contamination to address surface water, soil, habitat, air, issues not well addressed by other regulatory programs.

Programs should address inactive and active mines; we should not be just fixing new sites and leaving the acid mine drainage from the 50 and 100 year old sites to continue. We need a fee-based permit system to assure that there is adequate funding to implement these programs and enforce it. We need strong citizen participation and enforcement and, to use Mr. Ritter's words, to see that violations do not occur, not only take remedial actions.

Financial responsibility is a critical aspect of prevention of damage, making sure the responsible parties pay for that damage and assuring adequate closure and postclosure operations. The damage that can occur from mine-related waste often occurs after the operational phase, due to the slow movement of contaminants through the waste piles and into groundwater resources.

Pollution prevention and waste minimization is a critical area. We have substantial waste reduction in the aluminum industry and in the iron and steel industry, where approximately 50 percent of the material in those metal industries is reused. We have substantial opportunities for reuse in these industries.

Federal oversight should ensure State operations are adequate at the plan approval stage and at the permit-by-permit stage, to ensure that there is implementation, not merely planning. Performance standards should be addressing the long-term impacts of mines, not just resources protection during the operational life.

As a final thought, I believe that—I and others in the environmental community are prepared to work with the committee now, and with other interests, to begin to draft RCRA revision programs. The Policy Dialogue Committee is a nice forum for discussion; it is not a substitute for rulemaking, and it is not a substitute for reauthorization of RCRA. Those formal actions are needed to make progress on the mine waste problem. Thank you very much.

Mr. SWIFT. Thank you very much, Mr. Robinson. We are happy to recognize Mr. Philip Hocker.

[Testimony resumes on p. 119.]

[The prepared statement and attachment of Mr. Robinson follow:]

Testimony of Wm. Paul Robinson, Research Director**SOUTHWEST RESEARCH AND INFORMATION CENTER**

Chairman and distinguished members, my name is Paul Robinson. I am Research Director and Resource Management Policy Director at Southwest Research and Information Center, Albuquerque, New Mexico, a non-profit community-oriented research and education organization now in its twentieth year of operation. Currently, I am a participant in the EPA's Mine Waste Policy Dialogue Committee, a successor to the "Strawman II"/Resource Conservation and Recovery Act (RCRA) mine waste policy development process. This Policy Dialogue Committee has been meeting since May 1991 and involves industry, state, citizen group and federal agency participants meeting to discuss options for, but not necessarily design, a federal mine waste program. Most recently this Committee met in South Carolina, a state whose recent gold mining boom exhibits both the economic up and environmental down side of mineral extraction. The pollution-related legacy already includes a 10 million gallon discharge of cyanide-containing liquid waste from a storage pond at a recently opened gold operation into the Lynchess River, resulting in a substantial fish kill and warnings against swimming in or drinking from the river.

This testimony has been review by other environmental participants in the Policy Dialogue Committee including representatives of Montana Environmental Information Center, National Audobon Society, Friends of the Earth, Environmental Defense Fund, Mineral Policy Center, and the Arizona Toxics Information Project.

In addition to participating in the Policy Dialogue Committee process at the federal level, I am an active participant in the New Mexico mining law development task force. New Mexico is among the very last states to consider mine waste management legislation. The first ever legislative proposal on this matter died in March 1991 on the table of a State House of Representative's Committee chair, a gentleman who just happened to be the representative from the district where New Mexico's largest mine, Phelps-Dodge's Chino operation, is found.

During the past decade I have been actively participated in mine waste policy matters, involving uranium, coal and other non-coal minerals, including invited appearances at state legislative hearings on environmental impacts of exploration and mineral extraction in Virginia, Minnesota, and Montana, and as an invited witness at an exploration-related Royal Inquiry in British Columbia, Canada. My academic experience includes an undergraduate degree from Washington University in St. Louis MO, and graduate work in Environmental Engineering at Johns Hopkins University, Baltimore MD, and the Community and Regional Planning Program at the University of New Mexico, Albuquerque, NM, where I am currently an adjunct professor.

NEED FOR PROMPT FEDERAL LEGISLATIVE AND REGULATORY ACTION

The lack of a federal minimum standard for long-term management and control of the environmental impacts of non-coal exploration and mining is one of the most glaring gaps in federal environmental policy. The gap allows operations to proceed under state permits issued by agencies out-manned technically and politically by mine operators, and an erratic array of mine waste management requirements ranging all the way down to no reclamation considerations or requirements, no financial assurance for contingency or reclamation purposes, and no citizen suits opportunities in any form, as is the case in New Mexico. While mining has led to the establishment of many communities in the West, and other parts of the country, mining's legacy of water pollution and natural resource damage often lasts longer than the mineral production phase. This legacy of environmental impact during and after production includes both existing and inactive operations and affects all classes of federal, state and private land.

Numerous current operations present examples of water resource, air quality, soil, habitat, and land use risk or damage which can be eliminated, or substantially reduced, by effective implementation of authority on the level of the Surface Mining Reclamation and Control Act (SMCRA) and the Resource Conservation and Recovery Act (RCRA). Such statutory authority is the appropriate starting point for formal development of a federal mine waste program for executive agency, or well-monitored state, implementation.

Prompt action is needed by Congress and the Executive Agencies to stem the tide of mine-related damage, establish a higher standard for future mining activity, and confirm the authority for minimum national standards to provide for the prevention and remediation of mining impacts, including ground-water and air pollution, soil and habitat damage, and human health risks, during and after the extraction phase of operations. Certainly mining firms and states will be intimately involved in the development of any program. However, minimum national standards are essential to insuring that state programs establish and maintain a compatible level of protection and enforcement across the nation, regardless of the political effectiveness of the mining industry in the state. States, through reports generated under a EPA contract with the Western Governor's Association, have acknowledged a role for a minimum federal program. This acknowledgement is a strong commitment, given the difficulty a state government, or any government, has in admitting its shortcomings. This acknowledgement of course includes an emphasis on state implementation of the program. Such state-oriented implementation appears to be appropriate if the type and range of authority is determined after effective public participation, reviewable in

detail on a regular scheduled basis, revocable in whole or in part if not effectively maintained, and subject to substantial public participation and federal oversight and enforcement opportunities on a permit-by-permit basis.

LACK OF FEDERAL LEADERSHIP IN MINE WASTE REGULATION

After EPA notified the public, including the states and regulated community, of its intention to develop a RCRA Subtitle D program for mine waste in the July 3, 1986 Federal Register, substantial pressure has been applied by the states and regulated community to not follow through with that intention. Though EPA has prepared two rounds of "Strawman" discussions of regulatory concepts, it has not moved forward to the logical next steps of formal advance notice of rulemaking and proposal of the necessary improved statutory authority. EPA has funded a substantial, multi-million dollar Western Governors Association review of state mine waste programs and "Strawman", which has resulted in a voluminous critique of "Strawman" by the very regulatory agencies whose deficiencies a RCRA/SMCRA level program should address.

Instead of advancing from "Strawman II" to the logical next steps of "advanced notice of rulemaking" and proposed statutory action, EPA has switched courses in midstream, seeking a "Mine Waste Policy Dialogue" through a mediated discussion between mining, citizen group, state agency, and federal agency interests. Nice sounding though it may be, this "Policy Dialogue" process has brought the range of interests together at a very generic level of discussion, with the "Strawman" framework essentially thrown out. EPA has offered up very simplistic concepts, far less thorough than a regulatory proposal, in preliminary "Program Options" memos, among other preliminary position papers from the interests around the table.

Discussion has advanced very, very slowly in the view of the environmental group participants, and even the listing of generic options for the many different policy areas have yet to be identified. Certainly no "consensus" program elements have been agreed to or even proposed, and no timeframe for such agreements have even been mentioned. While it appears that State, Federal and environmental interests have recognized a need for a multi-media program, as opposed to a ground water-only approach, no formal agreement has been reached even on this broad point.

Congressional interest, and action, is sorely needed to move the the effective regulation of environmental impacts of mining activity forward; the Policy Dialog Committee should not be seen as a substitute for Congressional action by any means. While the "Policy Dialogue" is proceeding at a snail's pace, real environmental damage is being done by real, existing mines. Remedying this damage, effectively plugging the gaps in environmental protection authority which has allowed this damage, and preventing future damage while allowing environmentally

responsible mining, requires decisive congressional leadership, and effective action by federal agencies. Congress should not delay acting on RCRA reauthorization, or defer attention until "policy dialogue" is complete. Such "dialogue" is needed to establish communication between different interests as an on-going matter, not as a replacement for federal action on the regulatory and statutory front.

Congressional action is needed to provide: 1) additional statutory authority to fully address mine waste problems with respect to both inactive and active operations; 2) deadlines for EPA to address the problems as the agency moves very slowly, if at all, without such deadlines as evidenced by the lack of agency action since the July 1986 regulatory determination, now more than five years old; and 3) standards for mine waste pollution prevention and program implementation, as prospects for resolution of the issue, even over a two or three year period by the Policy Dialogue Committee is doubtful at best. The Policy Dialogue process is useful for its ability to generate frank, direct communication among diverse interests; but such communication is a far cry from the develop of needed regulatory program.

CHARACTERIZATION OF THE PROBLEM

Mine waste, including land and water affected by extraction and waste disposal practices, constitutes a huge and growing volume of solid waste with substantial concentrations of easily mobilized hazardous materials. These hazardous materials, which often contain heavy metals and acid-generating sulfur-containing minerals, are easily mobilized, relative to their original locations in solid rock, once they have been crushed and exposed to the water - rainfall and air - oxygen. The environmental effects of these hazardous materials can occur during mining operations - due to spills, leaks, or dam breaks and blowing particles and toxic air pollutants - as well as long after the end of extractive operations - due to chemical reactions, such as those which can lead to acid drainage, or erosion, which can lead to waste dump slope instability and collapse.

Mine waste sites are permanent waste disposal sites for solid waste containing hazardous materials and result from the production of commodities utilized for interstate commerce. As such, they merit no less than the same level of legislative and regulatory attention as other prominent categories of hazard-containing solid wastes, such as municipal and industrial solid waste, and other resource extraction processes, such as coal mining.

Too often, mining-related environmental impacts are relegated to past rather than current operations. While examples of well designed and operated facilities do exist, many examples of current problems can be identified. Such problems relate not only

to existing natural resource damage but to the lack of appropriate financial assurance, public participation, post-closure reclamation, waste minimization, effective enforcement mechanisms, and inspection and monitoring standards. Such systems are needed to provide resources to insure a maximum effort to prevent environmental damage, and to remedy damage when it occurs.

SPECIFIC MINING PROBLEM CASES

* Molycorp/Questa, New Mexico Molybdenum Operations - A substantial amount of material in the form of Congressional testimony, media coverage and scientific data-gathering has focused on the lack of long-term environmental protection, long-term reclamation requirements, financial assurance, public participation, and post-closure care on federal land derived from the limitations of the General Mining Law - "The 1872 Mining Law". One critical, perhaps less well recognized, problem is the environmental effect of the elimination of Federal regulatory authority for lands patented under the Mining Law. Environmental damage, and jurisdictional problems along these lines, can be demonstrated by a discussion of problems at the massive Molycorp - Questa, New Mexico molybdenum mine and mill complex. See enclosed Appendices A, B and C on Molycorp problems.

The 1989 Environmental Impact Statement by the Bureau of Land Management on the expansion of this facility documents BLM's opinion that federal permit conditions requiring reclamation and financial assurance cease to be enforceable once the lands in question were patented. BLM determined that it would lose jurisdiction and long-term authority to enforce its permit conditions once the land was transferred to private hands. This problem of truncated permit and reclamation oversight extends beyond the debate over the revision of the General Mining Law to a concern for the equivalent levels of long-term reclamation of mining activities on any form of land ownership.

The lack of environmental protection and reclamation authority on private lands is currently a problem at the existing Molycorp - Questa mill tailings site now owned by the operator, a subsidiary of Unocal-Union Oil of California. BLM is out of the regulatory picture for the current site, though the site is utilized as a result of BLM approvals in the 1960s. In Appendix A, Item 5, a letter from D. Shoemaker, UNOCAL/Molycorp Mine Manager to R. Mitzlefeldt, New Mexico Environmental Improvement Division (EID, now New Mexico Environment Department - NMED) Director, August 25, 1989, Molycorp says that, "EID has no authority and no reason to require a reclamation bond for the existing tailings ponds."

This current tailings site has three major environmental problems. First, seepage from the tailings totalling several hundred gallons per minute - according to Molycorp submittals to

the NMED, see Appendix A, Item 6 - above and beyond its permitted discharge. This seepage is linked to ground water contamination at domestic wells downgradient of the disposal site. See Appendix A, Items 1-4, and Item 6 - Molycorp's "Report on Ground Water Seepage from Molycorp's Existing Tailings Dam", August 1989, which says "These investigations and studies indicate that seepage from the tailings pond areas is emanating from higher horizons [within the tailings] and in areas not previously detected and that a significant part of the [estimated 300 gallons per minute of] seepage is not being intercepted and collected by the barriers at [NPDES discharge points] 002 and 003."

Second, air quality impacts, associated with blowing tailings which frequently affects the neighboring Questa Junior High School - even resulting in school closings. BLM has indicated that it has no role to play with this existing problem and the State of New Mexico lacks sufficient political will, in part because the mine is the largest employer in Taos county, and, resources, due to a insufficient permit fees, staff or experience, to effectively enforce its ground water or air quality authority. Independent causes of action, such as citizen suits along the SMCRA model are not provided for by state or federal authority, leaving the parents of the junior high school students or the owners of the polluted wells only limited opportunities for legal relief. See Appendix B.

Three, the facility has been the source of several dozen tailings slurry spills into the local Red River and connected irrigation ditches - acequias - and farm fields. Unfortunately, EPA has enforced its Clean Water Act authority with respect to these spills in only a superficial way. Most recently, it has fined Molycorp/Unocal the de minimus amount of \$30,000 for six tailings spills between 1987 and 1990 and at least 15 violations of its NPDES numerical standards for molybdenum. These fines have no effect on the economics of Unocal's operation, and EPA has not demanded or required systematic changes to prevent future spills and exceedences. See Appendix C.

The complex set of problems at Molycorp-Questa, which has no mine or mill waste reclamation plan, no effective air quality protection program, no financial surety to assure any reclamation of contingency activities, no independent cause of action for citizen enforcement, extinguished federal authority (due to patenting) and superficial federal enforcement of the Clean Water Act, is a clear example of complex set of problems resulting from a lack of a minimum federal program for mine waste. Such a minimum federal standard along a SMCRA/RCRA model, would serve as a baseline for state enforcement or provide a foundation for more effective federal enforcement.

Don't be surprised to find the mining industry arguing eloquently in favor of the opposite position. Perhaps remembering the school

children sent home due to blinding dust storms blowing off the tailings, or the homeowners whose water supplies deteriorate with each sequential sampling program can help to balance the mining industry's insistent pleas.

* Pegasus Gold/Ortiz Mountain Gold Operations - Some mining firms are using the lack of state reclamation requirements in New Mexico, and their ability to do more than the limited requirements in other states, in their corporate advertising. As we speak Pegasus Gold, with gold properties under development within sight of Santa Fe, is advertising its "voluntary" willingness to reclaim the Ortiz Gold Mine it recently acquired, a mine whose whole operating history has spanned the 1980s and into 1990. The actions are voluntary because no state or federal mine waste management reclamation standards apply to this private land facility and of course, no independent organizations have been funded by Pegasus to fill this regulatory vacuum. The ads are in full color and look good in the Albuquerque Journal, however an effort to formally fill the void resulting from the lack of a federal or state waste management requirement is not a part of the media campaign. Voluntary reclamation prior to exploitation of the next orebody is not a systematic solution to the problem of mine waste management.

As clearly seen in the Molycorp and Pegasus examples, just minor modifications in an environmental program will not solve the problem, a whole regulatory framework to provide a permit system with cradle-to-grave coverage of the environmental aspects of these projects is needed. This program is needed at the federal level because mining industry-dependent states, such as New Mexico, are unable to protect next generation's citizens from this generation's mining industry. Such a program may be able to be implemented by the state, but the standards and criteria should have a federal minimum to meet to insure that balanced protection of citizens and natural resources is enforced among the states.

An additional problem at the Ortiz Gold Mine is ground water contamination, a type of problem observed at many mines where monitoring systems are available. Pegasus Gold, owners of this heap leach operation, is currently attempting to remediate contamination detected downgradient of the heap leach facility. Spills and leaks of contaminants in surface and ground water systems are regular occurrences in the mining industry.

* Pegasus Gold/Zortman-Landusky Gold Operations, Montana near the Fort Belknap Indian Reservation - This facility has a decade long history of releases of contaminated materials, including cyanide-containing liquids from overloaded storage facilities, affecting nearby lands and surface and ground water supplies and other non-permitted activities. A chronology of these problems between 1979 and 1991 is enclosed as Appendix D.

* Placer Dome/Golden Sunlight Gold Operations, Montana - Ground water contamination episodes, among other problems, have occurred at this mine near the Jefferson River. There, a multi-million gallon spill resulted in residential water supply contamination. Placer was sued by the damaged parties, who eventually settled out of court for an undisclosed cash settlement. Problems related to contamination from this operation, and a proposed major expansion of the operation, are summarized in Appendix E.

* Brewer Gold/Gold Operation, South Carolina - This facility is noteworthy as it is the site of the first major spill in a eastern state mining district in in the 1990s. The spill is significant because of its size and occurrence so early in the operation history of the mine, not because it is a unique event. See Appendix F.

These two New Mexico examples, two Montana examples and the South Carolina spill, just touch on the extent of the environmental problems related to mine waste. The problems are not just ground and surface water, or air quality remediation problems; the problems are pollution prevention problems, and prevention during and long after the life of the mines. The problems reflect a lack of attention to permanent impacts of permanent waste disposal sites at mines and the existing gaps in state and federal regulatory programs. The problems include insuring that responsible parties are financially liable for the full cost of program enforcement and pollution control over the life of the facility. And the problem includes inadequate assurance that affected citizens have a full right to participate in decision making and enforcement activities, at least compatible with those of their peers in other states, or those near coal mines as provided by SMCRA.

SUMMARY RECOMMENDATIONS

A federal mine waste program is currently needed to insure that citizens in each state are protected to at least the same minimum level from environmental impacts and hazards associated with mining activities. This program should allow for state implementation primarily if a comprehensive set of minimum standards are established and maintained by the state on a program, and permit specific, basis. The program should provide for federal implementation in states not meeting minimum standards, in general, and for effective backup enforcement by citizens and federal agencies should states lack the conviction to take appropriate action. State should be allowed to exceed federal minimums but not fall short of the federal standards in specific areas.

Several citizen groups worked together to develop a recommendation for a federal mine waste program. This program would include elements of existing RCRA authority, SMCRA authority, and additional authority from a reauthorized RCRA.

This position has been developed in response to EPA's "Strawman II", which, while short of a proposed regulation, identified statutory authority in addition to RCRA as necessary to address problems associated with mine waste.

The federal program should set minimum standards for:

A. Protection of human health and the environment including ground and surface water, air, land and soil quality, and habitat protection on a long-term multi-generational basis, including cumulative hydrologic impacts, by eliminating or minimizing releases of hazardous materials and providing for the restoration of air, water, land and biota to productive use at or above pre-mining conditions, and establishing an emphasis on the prevention of environmental damage through programmatic design and performance standards and reuse of previously mined materials;

B. Addressing the range of materials, including wastes and other materials generated by exploration, development, extraction, and beneficiation of ore and minerals not currently regulated by RCRA, Subtitle C;

C. Coverage of all active and inactive units that contain regulated materials generated by exploration, development, extraction, and beneficiation activities, including so called "process sites" such as leach pads and low-grade ore piles. Only truly abandoned units, for which no owner/operator can be identified, should be treated differently, through an abandoned mine land rehabilitation program;

D. Management of mine waste and other regulated materials at active and inactive mine sites to meet technical design and performance standards: including full site characterization, process evaluation, quantified prediction of effects during and after operations, delineation of intermediate boundaries of the facility for phased operations, definition of pre-mining conditions for application of performance and reclamation standards, monitoring and inspection programs including inspection without notice as provided in SMCRA, and release prevention and containment for operational and post-closure contingencies;

E. Prompt implementation of program requirements for facilities in operation as of July 3, 1986, because as the regulated community is well aware, EPA officially announced its intent to develop a RCRA regulatory program for mine waste on that date;

F. Effective use of waste minimization and pollution prevention strategies, including demonstrated use of existing and emerging technology and process modifications, during the permitting and operation of the facilities, and with an emphasis

on identification of opportunities to recycle and reuse process fluids and reduced use of hazardous materials;

G. Public involvement during program review and approval, permit review and approval and permit enforcement, including public hearings, procedures for designation of lands unsuitable for mining as in SMCRA, convenient document availability, and citizen suit and intervention rights with rights of cost recovery, no less comprehensive than that found in SMRCA;

H. Full financial assurance for operational and post-operation activities, sufficient for third-party performance of all bonded activities including reclamation and post-closure monitoring, reviewed and upgraded on a regular basis, as well as the establishment of financial responsibility for corrective action before releases occur;

I. Effective enforcement, including citizen-initiated enforcement, of federal standards when states or federal agencies fail to act with sufficient strength to either remediate problems or prevent future repetitions of violations by operational changes or fines, including state administrative penalties, citizen enforcement, program authority withdrawal, and "permit bar" mechanisms, as provided in SMCRA;

J. Fees sufficient to ensure timely and effective permitting, program administration, inspection, monitoring and enforcement;

K. Program implementation primarily by states with significant residual federal authority, if subject to effective public involvement during determination of the state role, frequent federal oversight on a regular basis with respect to program performance and permit issuance and enforcement, and clearly identified processes to revoke primacy as a whole or in part for cause, upon citizen or state initiative;

L. Effective pre-permit disclosure provisions including a "bar" on permits to applicants who have demonstrated a lack of ability or intent to comply with applicable state or federal regulation of mine waste and associated regulated materials, as evidenced by past violations of environmental regulations of states, the U.S. or other countries, similar to the "bad actor" controls in SMCRA;

This summary of recommendations has been digested from the "Environmental Mining Network Response to Strawman II", provided to EPA in February 1991 and other related documents where substantial supporting details related to these recommendations are available.

SUPPORTING DISCUSSION FOR SELECTED PROGRAM RECOMMENDATIONS

As a final section of this statement, supporting rationale is provided for selected mine waste management program areas.

* Surface and ground water management standards and enforcement - The South Carolina spill occurred at a facility which was recently put in use, but reportedly not tested at appropriate high water levels nor designed with appropriate secondary containment. No federal minimum standards, or regulatory oversight programs were apparently available to aid South Carolina in its implementation of recently adopted mine-related water resource protection program. As proud of their program as states tend to be; environmental agencies, in poor states like South Carolina and New Mexico face a difficult, perhaps unwinnable, struggle when seeking to enforce long-term environmental protection standards in the face of the short-term economic boom presented by a mining operations. Were a federal program comparable to existing SMRCA or RCRA programs in place, the Brewer Gold Mine spill may well have been prevented. Similarly, the ground water contamination events reported in this testimony shows an inadequate degree of design review and operational controls which would, at least in part, be remedied by upgraded minimum regulatory standards and effective federal program oversight.

* Authority to prevent damage associated with abandoned, inactive and existing mine dumps - Most mine waste piles are the classic open dump, that is waste materials, with hazardous constituents, dumped on a bare unprepared surface. These dumps present both chemical and stability problems over the long-term, in the form of, blowing dust, acid and metal-containing drainage, and slope instability; all problems which typically develop after the end of mine operations. Attention to long-term problems is essential to ensuring that reclamation plans effectively address multi-generation impacts. Such is the case with SMCRA, which addresses cumulative hydrologic impacts and probable hydrologic consequences of mines and the Uranium Mill Tailings Radiation Control Act (UMTRCA) whose regulatory program is required to be compatible with RCRA and requires reclamation plans which are effective for "up to 1,000 [years] but in no case less than 200 years". The heavy metals in mine waste dumps have no half-life and represent an essentially permanent risk to surround natural resources and communities.

In an expanding number of examples across the nation, old mine dumps are being used as active production areas through a variation on the heap leach process, dump leach, or the more polite term "solvent extraction". This process involves spraying dumps with leaching chemicals to mobilize mineral values for later separation from other chemicals in the leachate. Through this process, old mine dumps have become new processing sites at

giant copper operations in Montana, New Mexico, and Arizona, and other locations.

In addition, heap leach, dump leach, and the related in-situ leach extraction methods, are all technology innovations which present a real potential for significant environmental harm without effective regulation. These technologies are not well recognized in the RCRA framework, as indicated by the "Strawman II" documents, and should be a focus of federal mine waste authority as they represent an important trend in mine management and waste generation on a nation-wide basis.

* Waste minimization and pollution prevention - Mining typically involves the handling of massive amounts of material to remove trace concentrations of values. Technological innovations, such as insitu leaching and bioconcentration among other innovations, present methods of mineral extraction without the massive materials handling and chemical treatment facilities of conventional mines. Innovation should be strongly encouraged to insure that the extraction technologies used represent the optimum method for mineral extraction including considerations of pollution prevention and waste minimization.

Resource recycling also is appropriate to strongly encourage in the mining industry minimize waste generation as citizens are being asked to do in their homes. Many facilities have begun to reuse, rather than waste, reagents for economic reasons but such process changes can also reduce environmental risks. Opportunities to change reagents to less hazardous chemical formulae are also important opportunities to provide for in a Resource Conservation and Recovery Act framework. The Molycorp facility, mentioned above, is but one mine which has converted from a cyanide-based system to one using a proprietary, hopefully less hazardous, reagent.

The concept of source reduction applies to mining to the same extent as it does to municipal and industrial solid waste generation. Massive amounts of mined metals - chrome, nickel, lead, copper, iron, molybdenum, etc. - are thrown away every day and are piling up in junk yards, waste piles and landfills around the country. Opportunities to reuse already mined metals, with the energy and waste reduction benefits already demonstrated by the aluminum industry, which is reported to recycle more than 50% of aluminum waste in the economy, to apply directly to the mining industry, including the statigic metal mining industry.

Consideration of reuse and remining, to preserve ore bodies in place for future generations, prevent environmental harm and insure wise use of already mined materials, are at least as appropriate an area for federal authority as reuse and recycling policies in the more familiar municipal solid waste arena.

* Public participation and financial responsibility - Statutory and regulatory provisions related to public participation and financial responsibility vary widely across the nation. Fully authorized citizen involvement in decision making and enforcement, a centerpiece of the SMCRA program, is an essential element in insuring that communities affected by a mining operation are treated equally to the mining operation in permitting, enforcement, and permit termination actions. Such equal treatment is required for review of state primacy in mine waste regulation due to the imbalance in resources between the corporate miner, the state agencies, and the individuals in affected communities.

Financial responsibility is similarly essential to assuring that the mining operator, not the nearby citizens or federal and state taxpayers, bear the full long-term financial liability for risk prevention and damage remediation. These two areas are handled and in highly variable ways between states and deserve federal attention to insure that federal minimums are established and attained in all mining districts.

* Mineral processing waste authority - The firm separation between mine waste and mineral processing waste is becoming less clear as heap leach, dump leach and insitu leach technologies, and other innovations, modify and reduce the distinctions between these two waste sectors. Developments in mineral extraction technology should be more fully considered before EPA makes final determinations on appropriate regulatory status for such wastes.

An important processing waste category in this context is phosphoric acid production wastewater, which EPA has tentatively determined to regulate under the Toxic Substances Control Act (TSCA) rather than RCRA, see 56 FR 27317, June 13, 1991. Among other reasons, EPA has apparently determined that a RCRA Subtitle D program would be too expensive for industry, though no Subtitle D program has been established for any mine or mineral processing waste! This prejudging of the relative expense of a program appears to indicate a very problematic bias against program development by the very agency responsible for rulemaking. It further appears that the Agency believes it has more authority to enforce pollution prevention and source reduction through TSCA rather than RCRA, though no waste management programs under TSCA have the experience or data base of a RCRA program.

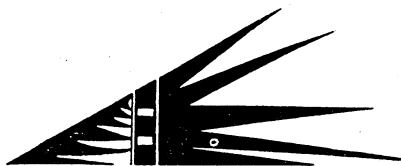
It appears that EPA is moving away from a relatively broad RCRA framework to a less diverse, less well developed TSCA framework. This transition away from RCRA implementation is particularly disturbing and deserves more detailed attention from Congress.

CONCLUSION

After spending more than four years on the "Strawman I" and "Strawman II" process, EPA appears to stepped away from regulatory development and statutory reauthorization in favor of the Policy Dialogue Committee process. This decision leaves the "Strawman" process with few results and an unclear future for to EPA's stated intention to implement mine waste policy or include of mine waste matters in future RCRA reauthorization.

Such an action appears to be counter to the broad range of evidence of the widespread, long-term effects of mine waste on the environment and the wide variation in the quality and effectiveness of state programs ranging all the way down to the lack of a mine waste management program in New Mexico. For these reasons, and those discussed in the main body of this testimony, Congressional attention and action is needed to: insure effective mine waste management under RCRA is at least equivalent to other environmental programs, confirm and expand that authority during RCRA reauthorization, and clarify that EPA's role in environment protection and waste reduction is fully performed in the mine waste area.

Thank you for the opportunity to address this important matter. Please direct any questions you may have on this testimony to the above address and phone.



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APPENDIX A

Review of New Mexico Environment Department
 (Environmental Improvement Division) Files Regarding Seepage
 and Contamination Associated with the Existing Molycorp
 Facility Files at Questa, NM.

Prepared by Paul Robinson, July 1990

A review of New Mexico Environment Department files on Molycorp operations identifies substantial information related to seepage and water resource contamination but little by way of effective enforcement. Relevant documents are discussed in chronological order below. Original documents available at NMED offices in Santa Fe and copies at Southwest Research and Information Center.

Item 1 - "Notes re: QW, Red River near Questa", undated, "J.Wright" in upper right hand corner, in EID file on wells and springs data.

This memo summarizes data from samples collected by the State Engineer's Office (SEO) in March 1966 and March 1967.

Data shows "very significant changes were noted in analyses from 3 of 5 wells." These are wells called "A. Duran", "T. Duran", and "Gomez", all south of Molycorp Tailings Dam and shown on fourth page map attached to the memo. These wells shows the following increases in chemical constituents on page 2, "Attachment to Red River memo of May 15, 1967":

Selected Constituents//	A.Duran Well	T. Duran Well	Gomez Well
data in milligrams/liter(+= increase/ -=decrease between samples)			
Ca (Calcium)	88-228(+140)	68-182(+114)	82-222(+140)
Mg (Magnesium)	16-41(+25)	12-23(+11)	13-38(+25)
SO ₄ (Sulfate)	156-604(+448)	85-432(+347)	131-572(+441)
Cl (Chloride)	6.4-22(+15.9)	5.6-18(+12.4)	5.2-21(+15.8)
TDS	409-1095(+686)	311-898(+587)	371-1070(+699)
Conductance (mmhos)	608-1425(+817)	448-1150(+666)	566-1350(+784)
pH	7.6-8.2(+.6)	7.6-8.4(+.8)	7.5-8.1 (+.6)
Zn (Zinc)	.01-1.5(+1.49)	.29-1.4(+1.11)	.16-11.(+10.84)

No molybdenum data are reported. These data clearly show the "very significant increases" indicated in the memo as occurring during the one year period between samples.

Item 2 - Letter from Karl Souder, EID to Carlos Herrera, RE: Analysis of tap water, Santa Fe, NM, February 11, 1985.

"This letter is to let you know the laboratory results from samples of your tap water taken in October and November 1984...."THE INFLUENCE OF TAILINGS SEEPAGE CAN BE SEEN IN THE ELEVATED LEVELS OF URANIUM, MOLYBDENUM, SULFATE, TOTAL DISSOLVED SOLIDS AND INCREASE IN HARDNESS (CALCIUM AND MAGNESIUM BICARBONATE)." (emphasis added).

Item 3 - Memo from Karl Souder, EID to Charles Nylander, EID Surface Water Bureau Chief, "Subject: Over flowing seepage from Molycorp's tailings seepage collection system and channelization of the Red River, March 28, 1985.

"On ... March 26, 1985, Gordon Venable and I observed tailings seepage from Molycorp's tailings seepage collection system overflowing a collection berm, running along a dirt road and into pasture below Embargo Road. This seepage is supposed to be collected and piped over to the main seepage collection system and discharged through a pipeline to the Red River." This memo includes a sketched map of the area discussed.

Item 4 - Lab Reports from "Herrera kitchen sink", sample taken March 28, 1988; and March 31, 1988. Data can be compared with Herrera well data reported by K. Souder in February, 1985 (in Appendix 3).

Constituent	November 1984	March 1988	Relative Increase
	concentrations in mg/l (+=increase between samples)		
Calcium	236	(258)/250	+22/+14
Magnesium	below detection	(43.9)/47	+43.9/+47
Sulfate	598	875/--	+277[!]
TDS	1206	1352/--	+146

Item 5 - LETTER, from D. Shoemaker, UNOCAL/Molycorp Mine Manager to R. Mitzlefeldt, EID Director, RE: EID Determinations on Existing and Guadalupe Mountain Facilities, August 25, 1989.

This letter addresses "...discussions in early March [1989] regarding an agreement between Molycorp and EID on actions to be taken by Molycorp to reduce the impact on ground water quality from the existing tailings disposal area in Sections 35 and 36. With respect to a "Deadline for final reclamation", Molycorp says that, "Until Molycorp has received final approval from the various state and federal agencies that regulate Molycorp's access and use of the Guadalupe Mountain for tailings disposal, the company is in no position to commit to a fixed schedule for

closure of its existing tailings disposal facilities. The longer the approval process takes and the more expensive it becomes, the longer the useful life of the existing ponds must be extended."

This statement was clearly made before the "temporary suspension" and subsequent reversal of the Guadalupe Mountain Record of Decision and before Molycorp's most recent operational shutdown.

Regarding "Reclamation bond", Molycorp says that, "EID has no authority and no reason to require a reclamation bond for the existing tailings ponds." But adds, "Molycorp is willing to discuss the nature of an appropriate financial assurance mechanism other than bonding to cover the reclamation process."

Regarding Seepage Control, Molycorp includes a report called "Report on Ground Water Seepage Below Molycorp's Existing Tailings Dam", which is discussed as Item 6 to this memo.

Item 6 - The Report "describes the nature and reason for seepage from the existing tailings pond and proposes a number of measures Molycorp should take to further reduce seepage from today's low levels."

The Report provides a fairly clear historical and geological overview of the existing tailings (though none of the documents listed above are referred to). Page 4 of the Report begins a section called "History of Seepage" which you won't want to miss. It includes an acknowledgement that, "Initially the only visible seepage from the tailings ponds appeared below the toe of Dam No.1. Sometime after construction of Dam No.4, seepage from the Pond in Section 35 started to appear along the east slope of the narrow ridge between the two arroyos and downstream of Dam No. 1....Several years after initiation of tailings disposal at the site elevated concentrations of molybdenum were detected in several wells down gradient from Pond No.1..."

"The initial groundwater flow interrupted by the cutoff trench was on the order of 150 gpm [gallons per minute]. This gradually increased over several years to a peak of 300 gpm. Concentration of molybdenum and other constituents in the water from 002 [discharge point 002, as permitted under the EPA issued NPDES permit] are nearly the same as those in the surface discharge from the tailings ponds. This indicates that the water collected by 002 is nearly all drainage from the pond area with little or no dilution by natural groundwater flow."[!!!!!!].

"Initially, the drainage flow from point 003 amounted to only a few gallons per minute and the quality of the water was not significantly different from ambient ground water concentrations. The flow from 003 gradually increased to a peak of about 100 gpm. There was a gradual increase in molybdenum and other constituents to concentrations approaching those recorded for 002...."

After operations ceased in 1986, some ground water constituent concentrations declined, in cases "substantially. Subsequently, however, indications were noted that the declining trend had ended in many wells and possibly even reversed in some wells during the past several months....

"These investigations and studies indicate that seepage from the tailings pond areas is emanating from higher horizons [within the tailings] and in areas not previously detected and that a significant part of the seepage is not being intercepted and collected by the barriers at 002 and 003." [!!!!!!]

Skipping to the summary on Page 8 of the Report, "The field investigations revealed that some quantity of seepage water is bypassing the existing cut-off trench and collection system below Dam No. 1. The pattern of changes in concentration in the monitoring wells down gradient of Dam No.1 indicate that the uncaptured flow may be significant.

"If seepage water from the existing ponds is being carried farther downstream in the groundwater flow, there is sufficient dilution to prevent such from having a significant affect [sic] on the quality of spring waters below Pope Lake."

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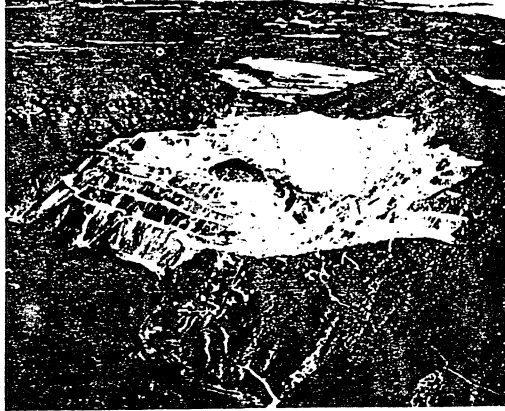


**Moly Waste in Questa, Coal Gas in Cedar Hill:
CITIZENS REACT TO MINERAL DEVELOPMENT**

The Workbook Feature

Moly Waste in Questa, Coal Gas in Cedar Hill — Citizens React to Mineral Development

At first glance, most of the environmental problems faced by rural communities in the mineral-rich West seem as insurmountable as the mountains of tailings piles and the lakes of brine water that dot the landscape. After all, what chance have common citizens — poor people and people of color who rarely, if ever, have had the political or economic power to take on Big Business and Big Government — to successfully challenge the institutions that foul their water, permanently despoil their lands, threaten the health of their families, and uproot their cultures?



MolyCorp's Questa, New Mexico, snow-covered open pit mine and tailings sites near the Red River. Mineral Policy Center photo by Phil Hocker.

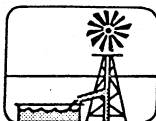
The odds, of course, are not in their favor. But a closer and deeper look at the politics of local pollution in two places in rural New Mexico suggest that with the right combination of community-derived instincts and sound technical data, citizens can overcome their lack of power to move forward with positive and proactive steps to repair the environmental and social damage that has long beset their communities. The two articles that follow demonstrate that residents of Questa in north-central New Mexico and Cedar Hill in northwestern New Mexico have learned the hard way how to force government to rethink bad policies or to investigate alleged contamination of precious resources. Their community-based organizations not only effectively influence mining waste and oil and gas regulations and policy, but also ensure mining companies' and oil and gas operators' increased environmental and social responsibility.

The people who are directly affected by water pollution and the dumping of toxic and hazardous substances in their neighborhoods are the present-day heroes and heroines in the rapidly growing grass-roots movement for environmental justice. Local leaders like Roberto Vigil of Questa and Benson Leeper of Cedar Hill are just two of many citizens who are making government and industry more accountable to affected communities and more responsive to their concerns. And while the problems that confront the people of Questa and Cedar Hill are yet years, if not decades or generations, away from being solved, they are today more prominent in public discussion and no longer as intractable or insurmountable as they once seemed.

The Workbook is an environmental-social change quarterly published by Southwest Research and Information Center. Subscriptions \$12.00 per year (institutions \$25.00) from SRIC, P.O. Box 4524, Albuquerque, NM 87106.

Molybdenum Mining and People of Northern New Mexico
— Where A Community's Right to Survive Meets a Company's Right to Mine

by Paul Robinson



Major mining company plans are seldom rejected by a federal land management agency, but that is just what happened on May 7, 1990, when the director of the federal Bureau of Land Management (BLM) suspended a record of decision issued by the New Mexico State BLM director. The record of decision (ROD) had approved a proposal by Molybdenum, Inc., to expand its Questa, New Mexico, molybdenum production operation by locating a new tailings disposal facility on 1,200 acres of federally owned land, in the valley between the twin peaks of Guadalupe Mountain (see map). The new site would have been the dumping ground for Molybdenum's next 250 million tons of molybdenum mill waste. The company's expansion plans now may not proceed until a new round of environmental studies and legal appeals are completed.

Molybdenum's Questa operation, which exploits an ore body in the Sangre de Cristo Mountains in Taos County, is one of the top molybdenum producers in the United States and, since the 1960s, one of New Mexico's largest employers. Molybdenum is a subsidiary of Unocal, formerly called Union Oil of California. The Questa facility has a well-documented record of seepage from beneath its existing tailings piles as well as tailings slurry line spills into the Red River and into vital irrigation ditches that serve the agricultural needs of nearly 1,500 Questa residents.

Metal ore mining and milling wastes are among the most poorly controlled hazardous materials generated in the United States. Mine and mill waste generators benefit from specific operating and reclamation exemptions found in federal resource protection laws. Such loopholes exist in both the Resource Conservation and Recovery Act (RCRA), which includes stated but unexercised mine waste authority, and the inappropriately named Surface Mine Control and Reclamation Act, which addresses only coal operations. The still existing General Mining Law of 1872 presents special legal problems. As it is interpreted, it does not require consideration of alternative sites, waste reduction technologies, or reclamation for mining and milling projects, and it virtually gives away federal lands to miners.

These limitations of federal resource protection programs, coupled with the mining industry's political and economic power, have left communities all across the country facing contamination from mine and mill waste dumps that have no reasonable seepage controls or reclamation programs. Only where states have asserted mine land control authority or where special federal land management requirements apply, such as on leased Indian lands, are metal mine and mill wastes subject to reclamation requirements.

The diversity and number of air quality problems, water resource damage, and land use conflicts generated by Molybdenum's operation at Questa illustrate the failings of federal mineral management and control policy. And Molybdenum's 25-year record of contamination shows how bad things can get before regulatory agencies begin to act.

Molybdenum Operations at Questa

Molybdenum, or moly, mining near Questa began in the 1920s but became large-scale when Molybdenum's open pit operations began in 1964. Expanded ore production required larger mill and mill waste, or tailings, facilities. The mine is in mountainous terrain east of Questa (see Map 1) on formerly federal land. Molybdenum acquired title to the mine site through federal land patent under the Mining Law of 1872. It also acquired large areas for tailings disposal just west of Questa, now the Section 35 and 36 tailings facilities, which contain some 85 million tons of waste. To deliver mill waste to the tailings site, Molybdenum has installed slurry pipelines along the Red River west from the mine site, through the village of Questa, across several irrigation ditches and up a steep incline to the tailings disposal site. The town of Questa has thus been literally surrounded by the mine, tailings slurry, and tailings disposal operations for the past quarter of a century.

The large Molybdenum facilities that have imposed such a great number of slurry spills and seepage incidents upon the Questa area are nevertheless dwarfed by the scale of operations undertaken for Molybdenum's more recent ore discoveries. Beneath and beyond its open pit, Molybdenum geologists found an even larger ore body, an underground reserve containing 250 million tons of molybdenum-laden rock. To extract moly from this ore reserve, Molybdenum expanded its molybdenum production capacity by constructing a new 18,000-ton-per-day underground mine and mill complex next to its open pit and overburden dumps. It is to dispose of this complex's staggering volume of mill waste — up to 6.5 million tons each year — that Molybdenum needs a 250-million-ton-capacity waste storage site.¹

Community Involvement in Molybdenum Waste Proposal Decision Making

Molybdenum's 25-year dominance of Questa and the resource management nightmare it brought to spectacularly beautiful northern Taos County has generated a vocal and committed group of local dissenters, whose tenacity and knowledge have been instrumental in putting at least a temporary halt to Molybdenum's plans. When Molybdenum submitted its plan to

acquire the Guadalupe Mountain site for its tailings facility, the Concerned Citizens Committee of Questa responded quickly in a November 1981 letter, calling for an environmental impact statement (EIS) examining the proposal. When the BLM decided instead to prepare an Environmental Assessment — a far less substantial review of the proposal — the group was joined by the New Mexico Citizens for Clean Air and Water, the Rio Grande Chapter of the Sierra Club, and others. Together, they challenged the BLM's decision to prepare the less rigorous document based on its determination that to approve the new tailings plan would not constitute a "major federal action significantly affecting the human environment" as defined by the National Environmental Policy Act (NEPA).

The BLM continued to receive written and oral opinions both for and against the Guadalupe Mountain proposal through 1982 and 1983 and released its draft environmental assessment in February 1983. The mixed response to the proposal continued, and opinions divided residents of Questa and Taos County. Concerned Citizens of Questa, New Mexico Citizens for Clean Air and Water, the Sierra Club, Southwest Research and Information Center, and others continued to press the BLM for an EIS that included a detailed discussion of alternatives. In February 1985, two years after publication of the draft, the BLM released its final environmental assessment.

Then the BLM reversed its position. More than two years after the formal request for an environmental impact statement on the MolyCorp proposal had been filed, the BLM decided to prepare one. Following public meetings to define the scope of the EIS, the BLM authorized a MolyCorp contractor to prepare a draft EIS. Three years later, in December 1988, it was finally released. The EIS document itself was not the main goal of the Concerned Citizens of Questa and others affected by the MolyCorp proposal, but the EIS process has served as a lightning rod, attracting wide attention to the controversy and focusing community efforts. More than 500 people attended public hearings of the draft EIS in Questa and Taos during January 1990.

The draft EIS was prepared with a fatal flaw that invited challenges to the final EIS in the form of four appeals filed by the Concerned Citizens of Questa assisted by Northern New Mexico Legal Services and Southwest Research and Information Center; Amigos Bravos, the Taos Environmental Association, and other environmental groups assisted by Sierra Club Legal Defense Fund; and the Mineral Policy Center. The BLM had determined at the outset that the EIS would "not address alternatives," and further, that the EIS would not consider or analyze alternative locations for the proposed Guadalupe Mountain site.² The appeals filed in January 1990 raised issues about the inadequacy of the final EIS well beyond its failure to address reasonable alternatives, including

- its failure to address effects of the existing tailings handling facilities;

- its failure to address excessive impacts from the proposed tailings site on the Rio Grande Wild and Scenic River area that borders the site;
- the BLM's failure to require an approved tailings management plan, as well as New Mexico hazardous materials, ground water discharge and air quality permits before its decision on the proposal;
- its failure to demonstrate a clear "need" for the site under the Mining Law; and
- its failure to consider a demonstrated "undue and unnecessary degradation" of public lands from the proposed tailings operation.

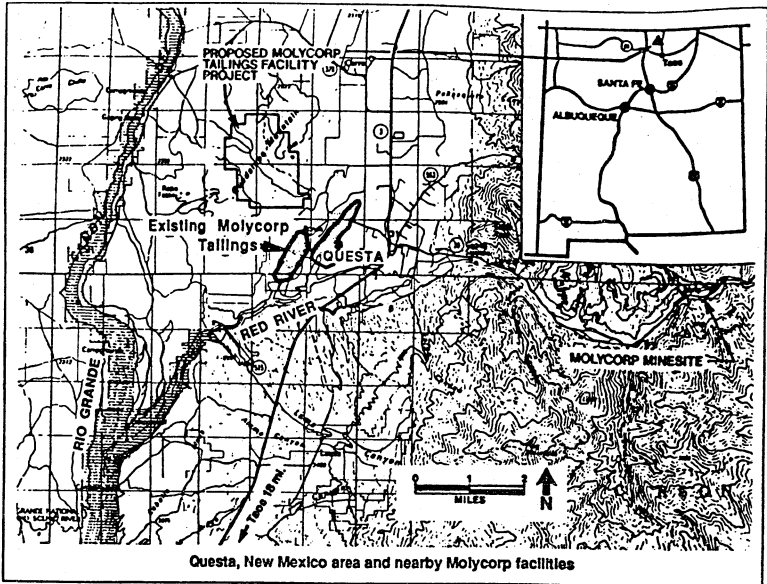
The temporary suspension of the record of decision (issued 10 days before the deadline to submit statements of reasons in support of the four appeals) effectively delays any action approving use or transfer of the Guadalupe Mountain site until the supplemental ROD is issued, and until any appeals of that decision are resolved. Meanwhile, the four appeals will be deferred until the supplemental ROD is issued. Unfortunately, federal BLM director Jamison's memo overturning the state director's decision offers no clear motive or rationale for his action. Thus the BLM's defense during the last decade of the "no alternative" EIS remains obscure, and it leaves a number of important issues to be examined before the supplemental draft EIS can be prepared.

The central goal of the citizens groups concerned with MolyCorp's proposal since 1983 has been to see the original approval overturned until a full-blown EIS, with a thorough assessment of alternatives, can be publicly examined. It is rare for citizen initiatives to maintain a forceful presence for seven years and rarer still for citizens' protests to be heard over the voice of a national mining company. But the example of citizen involvement in the permitting process for the MolyCorp facility demonstrates that persistence along with strong legal and technical arguments can change decisions — even when public agencies do not acknowledge the citizens' role, or when the ultimate resolution is years away. The temporary suspension and the agreement to prepare an EIS supplement represents an important victory for Concerned Citizens of Questa and the many others who have worked for it.

Natural Resource Damage at MolyCorp's Questa Operations

During the public debate over additional tailings capacity for MolyCorp operations, water- and airborne emissions from existing operations have continued. MolyCorp violated its federal Clean Water Act permit 12 times between 1978 and 1981. As recorded in a United States District Court, District of New Mexico Memorandum Opinion and Order issued February 14, 1984, MolyCorp "admit[ted]" to these dozen violations and agreed to pay fines as assessed and to repair its tailings pipelines.³

An April 1986 tailings slurry spill, documented by New Mexico Environmental Improvement Division (EID) Water



Questa, New Mexico area and nearby Molycorp facilities

Quality Bureau staff, contaminated a Questa Acequia Association irrigation ditch designated a watercourse to the Red River.⁴ Six separate tailings spills have already occurred in 1990. On the same day Molycorp's parent Unocal released its Earth Day message touting its commitment to the environment, a broken tailings line sent two thousand gallons of molybdenum tailings (neighbors say it was more like 20 thousand) into an irrigation canal, damaging five acres of farmland. Leroy Rael, the owner, says his fields won't be usable this season. Since then the New Mexico EID has stopped Molycorp's operations until it makes improvements to its slurry lines.

Air quality degradation from the existing tailings facility also has a long history. Air emissions are highly visible and concern nearly everybody in Questa. A particularly dramatic demonstration of this concern occurred in April 1981 when 65 Questa High School students and some parents marched from the school to Molycorp offices to protest the tailings dust blown from the mill tailings disposal site across the community and the school that stands a half mile from the tailings. As a measure of community support for the action, the student walkout was endorsed by the then principal of Questa High School, according to news reports in the *Santa Fe New Mexican*.

Air quality monitoring for hazardous materials including lead and silica in the tailings dust that pervades the community has never been conducted consistently. Molycorp has used chemical treatments to prevent blowing tailings at its existing site since the late 1970s, but with little effect, as the students' action illustrates. Questa High School has moved to a new facility a mile further east of the tailings site but Questa Junior High School now occupies the old high school building — exposing an even younger population to wind-blown tailings dust.

The final Environmental Impact Statement has also been criticized by the air quality staff of the Environmental Improvement Division, which concluded that the document's health risk data were " cursory [in] nature" and "inadequate. . . to determine that there is no health effect from the proposed tailings facility." This particular criticism is very significant because EID approval of any new tailings facility will be required before the overall project is fully permitted and allowed to proceed. In March 1990, EID staff assessed the impact on air quality by noting that

[a] larger question of health effects regarding dust exists. Questions to date have centered on the possible silicotic [silica-related] effects of the tailings on the lungs of the

Questa populace. The public health effects of high dust levels as an irritant also exist. Irritant effects of a pollutant are more than just a nuisance. High dust levels cause irritation to the eyes, nose and throat, and lower resistance to infection. High dust levels can also aggravate hay fever and flu-like symptoms.

The potential for these health effects in light of the absence of an adequate health risk assessment and the ineffectual efforts to control blowing dust at the current tailings site continues to concern local residents and state environmental regulators. These issues were not addressed in the final EIS and so will be left for the supplemental EIS to examine.

At least as significant as the surface water and air quality problems at MolyCorp is the ground water contamination at the existing tailings site. Since the current tailings are in the village of Questa, and the village, like most New Mexico communities, depends on ground water for its drinking water supplies, ground water quality is essential to the community. The well-documented ground water resource damage at the existing site reflects current disposal practices as well as the potential seepage from the additional volume of tailings projected for future ore production. After a review of EID - Ground Water Section files, consulting hydrologist and former EID staff member Karl Souder concluded that the proposed site would be even more likely to contaminate water supplies than the present one:

...The existing MolyCorp tailings facility... has contaminated several downgradient drinking-water wells, despite the fact that the geology of this [existing] site is more favorable to the limitation of seepage than the geology of the proposed site.⁵

The seepage rates from the existing tailings facility are substantial. EID determined that, even though 400 gallons per minute of tailings leachate are being collected at the existing site, "most seepage is not being captured at the two collection trenches [at the current site]." While the volume of seepage "not captured" is difficult to measure, EID Ground Water Section staff estimate that if MolyCorp's data are used appropriately, actual seepage may be up to five or six times greater than 400 gallons per minute.

MolyCorp Accountability, the Moly Market, and the Issue of Need

The accumulated surface water contamination, air pollution, and ground water contamination paints a picture vastly different from Unocal's "commitment to the environment" Earth Day message. It is not a surprising contradiction: MolyCorp's history in Questa reveals more contempt for than commitment to the environment. The record of air and water contamination at MolyCorp's Questa facilities demands an extensive reclamation program for existing operations before consideration of any new tailings site. But such controls on current operations were only an afterthought in the final EIS and ROD. The documents proposed additional facilities,

A Questa Resident Speaks Out

Estimados amigos,

Until some 25 years ago, the people of Questa in north central New Mexico with their rich culture enjoyed the beautiful mountains, valleys, and pure water surrounding this town in the Sangre de Cristo Mountains.

I was in high school when a mining company known as Molybdenum Corporation of America came to town, flashing big bucks and offering the highest paying jobs in the area. You can imagine why even the mayor proclaimed a great day for Questa. The excitement was so overwhelming that no one gave a thought when the mill waste dumps were placed in our back yard. On July 4, 1968, the company even went to the extreme of dedicating the waste ponds — known as Turquoise Lake — to the State of New Mexico as a public facility for fishing and boating.

Behind the scenes the company had Joe Cisneros and others netting out the dead fish the night before the dedication. Joe Cisneros, who is best portrayed in the *Milagro Beanfield War* and whose grandma's land was ripped off by the company to lay their tailing pipes, has been active against the company ever since.

Concerned Citizens was organized around 1979 after the illusion of beautiful Turquoise Lake took on its true form as a mine tailings dump as spurs of toxic dust storms continuously assailed the students at our nearby high school. These toxic dust storms have had severe consequences to our community, and our students repeatedly complain of eye and throat irritations, respiratory problems, and many other symptoms.

While citizens were successful in getting the school board to analyze the dust, we have so far been unable to get government cooperation to analyze the health effects associated with breathing the dust. The analysis done for the school board indicated high levels of selenium, arsenic, lead, molybdenum, and silica.

Besides the dust problem, what was once a clean and pure water stream has been permanently contaminated. While the company accuses Mother Nature, the state fails to identify the true cause. Not only do we have to live with contaminated water for irrigation, but the tailings line breaks are a constant burden on us. There have been some 28 documented spills

longer slurry lines, a new tailings pile, and additional tailings at the existing site, but gave almost no attention to long-term remedies for existing problems. Concerned citizens will likely be keenly interested in the evidence of surface and ground water damage and in discussing appropriate remedies during the scoping process for the supplemental EIS.

MolyCorp's lack of accountability for its past activities results from the poor enforcement of resource protection regulations by state and federal regulators, along with the inherent

into the Red River and some six major spills this year alone — one per month.

Those spills disrupt our normal living and pose a health threat to our own lives through our livestock, farm crops, and the contamination of our water and lands. Around the Turquoise Lake area, the ground water has already been contaminated and the mountains have been scarred to create a very sad situation.

The company now known as Molycorp, Inc. is owned by Unocal of California, which has made huge profits but has put very little back into the environment.

Concerned Citizens have donated countless time and money for the past 12 years in an effort to reverse the environmental degradation in our area. While we have much work ahead of us, we have accomplished a few historic changes.

Recently a Bureau of Land Management (BLM) decision to grant Molycorp a permit for another tailings deposit in Guadalupe Mountain was reversed at the federal level, giving us another chance to challenge the deficiencies in the Final Environmental Impact Statement. Concerned Citizens has been active in protesting the new dump site since the early 1980s because of the effects of the present operations and the fact that the company has been unwilling to reduce the damage it is doing to our lives.

We could not have won any of these battles without our many allies. We are proud to have held the front line until reinforcements arrived. As we prepare for the second round of battle, we hope to be even more organized. We are now working toward nonprofit status, partly so that we will be able to raise funds.

We intend to battle for environmental and social justice for the sake of our children and future generations, and we hope to unite with other concerned groups and individuals to make positive changes at the political level, to hold corporations and public officials accountable.

—Roberto Vigil

Roberto Vigil is a lifelong resident of Questa, New Mexico, and a founder of Concerned Citizens of Questa.

weaknesses in the Mining Law of 1872. The mining law allows miners to acquire public lands at firesale prices (\$5 per acre for the 1,200 acres at Guadalupe Mountain) and to exploit those lands with little regard for long-term visible or hazardous materials effects on neighboring lands. Molycorp acquired its mine and mill sites through the same patenting process by which it now seeks to acquire the Guadalupe Mountain site. The distinct lack of reclamation and restoration activities for the patented lands like those of the Molycorp mine and mill is a striking example of neglect of mine operator accountability in the 1872 Mining Law. The BLM's position that a reclamation plan could not be enforced for the Guadalupe Mountain site (as a patented site it would become private land and thus exempt from BLM controls) is a major point of concern for Questa residents as well as for people with broader environmental protection interests.

The final EIS showed that the Guadalupe Mountain site was likely to cause significant damage to visual resources — the view — in and near the Rio Grande Wild and Scenic River area. Use of the site would also permanently degrade the view of the Taos plateau from the one and only highway leading to the area at the top of the Pilar Hill. This view, which has captivated visitors to the Taos area for generations, would be irreparably scarred by the appearance of the tailings dams and visible fugitive dust blown from the tailings. The impact of the proposed site on the Taos area beyond the Wild and Scenic River area was not analyzed in the final EIS, and will be another item of interest to Taos County residents during the review of the supplemental EIS.

There still remains the fundamental question of Molycorp's need for the additional site. Molycorp has attempted to acquire the federal land during a period of severe depression in the molybdenum market. A U.S. Bureau of Mines survey shows that the price of moly is below \$2.50 per pound, having dropped steadily during the multi-year review of Molycorp's proposal. Since prices were below those even Molycorp officials had described as break-even, many Questa area residents believe the company's only motive in renewing operations in 1989 was to build economic pressure in support of the Guadalupe Mountain site.

Other important moly producers have cut production as well. The two major producers in the U.S., Climax Molybdenum and Cyprus Minerals, have announced 10 per cent production cutbacks from 1989 levels. While such announcements have not been made by Molycorp, the continued moly price drop



and the three to five years it may take to finish the supplemental EIS make it very expensive for MolyCorp to maintain even limited production at Questa.

Molybdenum's principal use is as a steel-hardening alloy metal. The market for raw moly for alloying purposes is shrinking for several reasons. First, the growing reuse of scrap iron and steel in the metal fabrication industry decreases the demand for newly mined moly metal. Second, the reduced use of steel in automobile manufacturing, historically the main use of moly-alloy steel, weakens the potential for a rebound in the demand for moly-containing steel. These conditions, along with the identification of major, yet-to-be-exploited moly deposits in the United States and other countries, lowers the demand — and thus the need — for moly production at Questa.

"Need" for a particular mine or mill site is an integral concept within the context of the 1872 Mining Law. No assessment of the need for the MolyCorp's molybdenum deposit was found in the final EIS, nor was the ability to meet such a "need" with alternative sources demonstrated. But the consideration of alternative sources of molybdenum supply should be as important a set of alternatives for the supplemental EIS as alternative disposal sites. These alternative supply options will be offered within the framework of the RCRA, as a means to conserve molybdenum reserves and still meet any identifiable demands for molybdenum forecast by MolyCorp.

WHAT YOU CAN DO

Express your concern about MolyCorp's Questa operations or poor mine waste management in general. As an individual or as part of a group, contact both national and state BLM directors. Tell them you question MolyCorp's "need" for the Guadalupe Mountain site, and of your concern that impacts on neighboring land use and effective reclamation of existing MolyCorp facilities be addressed before new lands can be acquired.

Contact your congressperson and Rep. Bill Richardson, who represents Questa. Express your support for revising the 1872 Mining Law and your opposition to MolyCorp using additional federal land for its tailings disposal.

Contact the citizen organizations involved in the debate over the MolyCorp proposal and find out how you can support them.

Become educated about ways to reduce molybdenum consumption, along with the use of other virgin materials, to reduce the damage our generation does to the planet and to conserve resources for future generations. Share your knowledge with your community.

Future developments in the MolyCorp decision-making process are hard to project. Easier to predict is the intensity of local Questa and environmental group interest in MolyCorp proposals, in whatever form they appear. A variety of actions can be taken by people concerned about the final outcome of MolyCorp's proposal (see box). Readers should contact interested organizations or appropriate officials to gather additional information or to express their concerns. The MolyCorp supplemental EIS may take several years to complete and an appeal is likely whatever decision is made. Stay tuned, the MolyCorp drama will continue for a long time to come.

Notes

1. United States Bureau of Land Management (BLM), *Final Environmental Impact Statement - MolyCorp Guadalupe Mountain Tailings Disposal Facility*, Albuquerque, New Mexico, November 1989, p. 1-1.
2. BLM, *Draft Environmental Impact Statement - MolyCorp Guadalupe Mountain Tailings Disposal Facility*, Albuquerque, New Mexico, December 1988, p. 1-15 and Appendix A.
3. United States District Court, New Mexico District, *United States v. MolyCorp, Inc.*, No. 81-785-M Civil, Memorandum Opinion and Order, Albuquerque, New Mexico, entered 26 March 1984.
4. New Mexico Environmental Improvement Division, Letter to LeRoy Apodaca, MolyCorp Inc. - Questa Division, Santa Fe, New Mexico, 24 April 1986, p. 1.
5. Karl Souder, Memo to Northern New Mexico Legal Services, Santa Fe, NM: 30 April 1990, p. 6.



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APPENDIX C

Arkansas
Louisiana
New Mexico
Oklahoma
Texas



Environmental News

Roger Meacham
(214) 655-2200

FOR IMMEDIATE RELEASE

August 8, 1991

Molycorp, Inc. has paid a \$30,000 penalty for Federal Clean Water Act violations at its Taos County, New Mexico facility, a U. S. Environmental Protection Agency (EPA) official announced in Dallas today.

The official said the violations began in August 1987 when Molycorp discharged nine to 24 gallons of diesel fuel into the Red River. The violations continued in 1989 and 1990 when, because they failed to properly maintain and operate their tailings pipeline, Molycorp had six separate tailings spills. Molycorp's wastewater discharge permit does not allow the discharge of mine tailings, the EPA official said.

In addition, the company violated its discharge permit limits for molybdenum on May 31, 1990 -- and again for 14 days in June 1990 when their discharges contained excessive levels of the industrial metal.

Molybdenum is a metal that is mined for a number of industrial and consumer-oriented uses such as in lubricants. It also is used to harden steel and as a catalyst in the petrochemical industry.

"Simply put, wastewater permit violations cause water pollution and keep us from attaining our goal of fishable and swimmable waterways throughout the country," EPA Regional Administrator Robert E. Layton Jr. said in Dallas. "That's why we monitor permit compliance closely." He explained that, since the mid-1970's, when they first were issued to industries and cities, National Pollutant Discharge Elimination System (NPDES) permits, or wastewater discharge permits as they are more commonly called, strictly regulate discharges in order to protect and maintain water quality and, in turn, public health.

(more)

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-2-

Mr. Layton said that he and his technical staff will continue monitoring MolyCorp's discharges in order to ensure compliance and prevent recurrence of violations.

Mr. Layton and his staff administer environmental protection programs in a five state region that includes Arkansas, Louisiana, New Mexico, Oklahoma and Texas.

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APPENDIX D

CHRONOLOGY OF BORTMAN-LANDUSKY PROBLEMS

1979

AUGUST 22, 1979 -- TREE CLEARING DONE WITHOUT AUTHORIZATION, and company failed to salvage topsoil in process, DSL inspectors discover. (DSL 8/22/79 memo).

OCTOBER 9, 1979 -- ROAD CONSTRUCTED OUTSIDE PERMIT AREA, DSL inspectors discover in a 9/25/79 meeting with Bortman. (DSL memo 10/9/79).

DECEMBER 7, 1979 -- BORTMAN CITED FOR CONSTRUCTING PONDS WITHOUT SUBMITTING PLANS FIRST. (DSL citation 12/7/79).

1982

JUNE 7, 1982 -- SPILL of approximately 800 gallons into groundwater. (Undated DSL (?) document) (Settlement agreement).

SEPTEMBER 7, 1982 -- SPILL. (Undated DSL (?) document).

OCTOBER 22, 1982 -- LEAK IN LINER results in cyanide contamination in groundwater well. (Settlement agreement).

OCTOBER 30-31, 1982 -- LEAK OF 50,000 GALLONS of barren cyanide solution. A sprinkler system valve was left open and discovered on Saturday, but the company "ignored the situation" until Monday, November 1. An employee noticed the problem on Monday when he discovered cyanide in water at his residence. Tests showed water in the system contained 3.2 mg/l of cyanide. The water system was forced to shut down. (DHEM memo 11/9/82) (Settlement Agreement). Enforcement memo indicates that the spill posed "A CLEAR AND IMMEDIATE HAZARD TO HUMAN HEALTH," and occurred after the company "APPARENTLY FAILED TO TAKE MEASURES NECESSARY TO PERMANENTLY ELIMINATE (THE) HAZARD." (Undated DSL (?) document). Documents indicate that at some point stream levels of cyanide rose as high as 22 mg/l. (3/23/83 DHEM memo).

DECEMBER 7, 1982 -- DEAD DEER FOUND NEAR CATCHMENT BASIN IN ALDER GULCH, company reports to DSL inspector. (DSL inspection 12/7/82).

DECEMBER 9, 1982 -- SPILL of 500 gallons of barren cyanide solution following sprayline break. (DHEM memo 1/18/83) (Undated DSL (?) document) (Settlement Agreement).

DECEMBER 27, 1982 -- SPILL of 4 pounds of barren cyanide solution into groundwater. (DHEM memo 1/18/83) (Undated DSL (?) document) (Settlement Agreement).

DECEMBER 28, 1982 -- SPILL of 300 gallons of barren cyanide solution during bleeding of spray lines. (DHEM memo 1/18/83) (Undated DSL (?) document) (Settlement Agreement).

1983

JANUARY 12, 1983 -- STREAM LEVELS of 0.1 mg/l found in Alder Gulch as a result of October and December spills. (DHSS memo 1/18/83).

JANUARY 1983 -- LEAKS IN BARREN PONDS that occurred in the summer of 1982 first reported to state Department of Health and Environmental Sciences. In addition, the state also learns that leach pads at the mine have been located atop wells that were not plugged -- creating an elevated risk of groundwater contamination. (DHSS memo 1/18/83).

AUGUST 15, 1983 -- TWO BIGHORN SHEEP FOUND DEAD ON LEACH PAD. Says Department of Fish, Wildlife and Parks, "...it seems reasonable to assume that they died as a result of some factor associated with the leaching process." (8/24/83 letter of DFWP).

1986

JULY 1986 -- LEAKAGE IN PAD TRACED TO TEAR IN LINER after cyanide levels of 0.14 mg/l were detected apparently in a catchment basin. Excavation in an unspecified ore pad found a small tear in the pad liner. (Undated DSL document).

SEPTEMBER 1986 -- EMERGENCY PROMPTS LAND DISPOSAL OF 10 MILLION GALLONS OF CYANIDE-LACED WATER. Heavy rains filled containment ponds, forcing the disposal over 400 acres of public lands.

DECEMBER 23, 1986 -- STATE WARNS FURTHER DISPOSAL NOT JUSTIFIED WITHOUT WATER QUALITY PERMIT. State DHSS warns Sertman that further disposal not necessitated by emergency and permit would be required. (DHSS letter 12/23/86).

1987

JANUARY 13, 1987 -- SITUATION STILL AN EMERGENCY, SERTMAN SAYS. Without further disposal, overflow of dikes holding cyanide-laced water can be expected, company says. (Sertman letter, 1/8/87).

AUGUST 1987 -- TRACE CYANIDE READINGS FOUND IN RUBY GULCH. Found from 8/18 through 8/31. Cause undetermined, but dripping spray lines and overflow of caustic tank repaired. (Sertman letter of 9/20/87).

OCTOBER 19, 1987 -- LEAK INTO RUBY GULCH CAUSE UNDETERMINED, but Sertman continues to look for causes in 1985-86 pad. Cyanide levels "unacceptable" and increasing in Ruby Gulch, company says. (Sertman letter 10/19/87).

APPENDIX E

SUMMARY OF SELECTED GOLDEN SUNLIGHT MINE, MONTANA, PROBLEM AREAS

The "Final Environmental Assessment for Proposed Expansion of the Golden Sunlight Mine, near Whitehall, Montana, Submitted to State of Montana, Department of State Lands, Helena, Montana, July 1989 (EA) identified three sources of water resource impacts:

1) Tailings impoundment effluents - The mining operation has already caused cyanide contamination of groundwater downgradient from the first tailings impoundment, resulting from a design defect. Although aggressive mitigation measures diminished the impacts of the problem, the incident clearly illustrated that contaminated waters from the operations had the potential to degrade local aquifers as well as the Jefferson River.

2) Seepage from the waste dumps - Acid drainage from the waste dumps has been an on-going concern (see 1 above). EA at 95. Acidification tests showed that the tailings impoundments, like the waste dumps, had acid-producing potential and posed reclamation problems. EA at 106.

3) Accumulation of water within the phase five pit - The mine expansion would create a large pit, which the operating plan and EA project would eventually contain a 225-foot deep "lake" of acidic waters containing high concentrations of toxic metals. EA at 70. This pit would be developed in fractured bedrock, "up-gradient" from all of the areas aquifers. Acidic water, laden with heavy metals, will accumulate at an estimated rate of 60 gallons per minute and will require treatment in perpetuity. EA at 116-117.

Montana DSL staff review of the EA indicated that the project would violate standards for both surface and groundwater as a result of seepage from the waste dumps, tailings impoundments and pit. Letter from Sandra Olson, DSL, December 5, 1989.

West-wide Reclamation Specialist for the U.S. Forest Service, Eugene Farmer, in his comments on the EA indicated that the mine plan would result in "The generation of 430 tons per year of a RCRA regulated hazardous solid is a matter of grave concern. There are good reasons to believe EPA would never permit such a facility.

EA at 47 - "If the impoundment is designed to hold the 100-year precipitation event, does that reflect your anticipated [permanent] life of the impoundment? How will this pond behave under the 1000-year event? This impoundment is probably

1989

FEBRUARY 6, 1989 -- SURFACE AND GROUNDWATER CONTAMINATION found at monitoring sites, as high as 20 mg/l in May 1988 at one groundwater well, but the company is not ordered to cease operation. (DHEB memo, 2/6/89).

NOVEMBER 6, 1989 -- SORTMAN CITED FOR OVERLOADING MILL GULCH LEACH PAD BY 75 FEET. (DSL notice of noncompliance 11/6/89).

NOVEMBER 21, 1989 -- CYANIDE DETECTED IN PUDDLE OFF LINED SURFACE. INSPECTORS BELIEVE PAD OVERLOADED BY 1 MILLION TONS. (DSL Inspection Report 11/21/89) (Is this Landusky?)

1990

MAY 24, 1990 -- TRACE CYANIDE LEVELS DETECTED IN RUBY GULCH. Situation has persisted for 3 years, says BLM inspector. (BLM inspection 4/24/90).

1991

MARCH 6, 1991 -- DSL SEARCHING FOR EXCUSES TO DENY RED THUNDER ACCESS TO MINE SITE. DSL memos indicate that staff members were searching for reasons to deny Red Thunder access to the Sortman/Landusky mine site, although available law did not appear to prohibit such access. (DSL memo 3/6/91).

-- Compiled by Paul Zogg, Law Fund of the Rockies, Boulder, CO

underdesigned to deal with hydrologic events that are easily anticipated during the life of the facility."

"Potentially acid producing waste rock embankments should not be permitted at a final slope steepness of 2:1...All potentially acid rock waste embankments [should] be constructed at a final slope of 3:1 or flatter."

EA at 102, under Revegetation,... "There is a suggestion here that revegetation will stop the formation of acid mine drainage. Research in both the western United States and Canada has shown that to be false. Revegetation does not stop or even significantly slow the formation of acid mine drainage."

EA at 137, under Soils, "Recovery of only 27% of the soil available for salvage under the potentially acid soil conditions at [the Golden Sunlight Mine] shows either a remarkable lack of information about acid mine drainage or a remarkable disregard for the environment."

EA at 143, "After reading this EA there is no doubt that the long term cumulative impacts of this proposal would severely degrade soils and waters in and around the mine area."

--Compiled by Paul Robinson from "Statement of Reasons, Interior Board of Land Appeals #90-537, Golden Sunlight, Inc., Amendment 008, National Wildlife Federation, et. al", Thomas France, Esq.

CASE STUDY

Heavy Rains Burst South Carolina Dam:

Major Cyanide Spill

Approximately 10 million gallons of cyanide solution flooded a South Carolina river on 28 October 1990, after a failure in an earthen dam at the Brewer Gold Mine near the city of Jefferson. The discharge began at about noon, and the cyanide-contaminated stormwater raced down from a reservoir at the mine into a tributary of the Lynches River.

Cyanide concentration of the spilled water was approximately 50 parts per million (ppm). Cyanide levels of 18 to 20 ppm were detected in the river near the Brewer mine, with levels of 0.3 ppm farther downstream. A cyanide concentration of just 0.005 ppm can have debilitating effects on fish, and 0.5 ppm is lethal to some species.

As many as 10,000 fish were killed by the spill, although a final total has not been determined. State officials are also concerned about the possible introduction of copper into the river. Copper is highly toxic to aquatic life.

Although the spill did not threaten any public drinking water supplies, the officials did issue warnings to residents against swimming in or drinking from the Lynches River.

The Brewer mine produces gold using the increasingly common cyanide heap-leach process. Gold ore is pulverized, spread out over a plastic liner, and sprayed with a dilute cyanide solution. The cyanide solution bonds to gold — and a host of other metals — present in small quantities in the ore. Gold is typically recovered from the resulting pregnant solution by adsorption onto carbon (charcoal) and the barren cyanide solution reapplied to the leach piles.

The damaged reservoir at the Brewer mine, which is designed to hold excess runoff cyanide solution until it can be processed, was only completed in February and had not been tested by high water levels. Extremely heavy rains in early October swelled the reservoir from about 200,000 to 13 million gallons; this heavy rainfall is being blamed for the accident. Although the reservoir has a double synthetic liner and leak detection equipment, the dam may have been susceptible to erosion by ground water, the level of which was

raised by the storm. The dam was not overtopped, and most of its structure remains intact.

Earlier in October, the same storm caused a 420,000-gallon spill of cyanide solution at the Brewer Mine when debris blocked a lined channel used to carry pregnant solution from the leach pads to a processing plant. Although flow of the pregnant solution was cut off almost instantaneously, it was seven hours before stormwater runoff containing 170 ppm of cyanide could be prevented from spilling into the river drainage.

As many as 10,000 fish were killed by the spill, although a final total has not been determined. State officials are also concerned about the possible introduction of copper into the river. Copper is highly toxic to aquatic life.

Brewer had been previously fined \$25,000 by the EPA for failure to notify federal officials of a spill that occurred at the mine in 1988.

In the aftermath of recent failure, Brewer constructed an emergency sump pond below the reservoir and a new emergency impoundment with a 4 million gallon capacity to contain further runoff. Brewer officials plan to discharge the water remaining in the damaged reservoir after treating it with oxidizing agents to destroy the cyanide.

Brewer is now required to study the impacts of the spill on the biota of the Lynches River and to hire a independent team of engineers to determine the cause of the dam failure. Brewer appears to have violated its Clean Water Act discharge permit, although it is unclear if the state will take action against the company. *

STATEMENT OF PHILIP M. HOCKER

Mr. HOCKER. Thank you, Mr. Chairman.

My name is Philip Hocker. I am speaking today on behalf of the Environmental Defense Fund, Mineral Policy Center, of which I am president, which was formed together with Stewart Udall 3 years ago to deal with these issues, particularly the Montana Environmental Information Center, a State organization that deals very closely with mining problems and the Sierra Club.

Mr. Chairman, I think we need to start by making clear that mining wastes are a major environmental problem around the country. My predecessors have addressed some of this. I would just add that the Environmental Protection Agency, in its 1987 study, "Unfinished Business," listed mining and oil field wastes as major environmental problems not currently resolved by regulation.

The Superfund currently lists approximately 60 sites, depending on exactly how you count, from cause bypass mining, on the national priorities list for cleanup. There are many, many more sites which either may soon be listed or will be close to listing, except for the way the rating system works.

The problem is growing. Mr. Clay cited the figure 3.6 billion tons annually produced of mining waste. That is actually a substantial increase for the figure used in the 1985 report to Congress, which EPA prepared. We are developing, through some very good work by the industry, new technology to mine large and large volumes of low-grade ores. As you do that, that means the amount of waste material produced per ounce of gold, silver or other material that is marketed becomes larger and larger. It is inevitable, in the trend, that that continues.

Other environmental control programs are not addressing these issues. There are key areas of the environmental hazards which mining creates which are not addressed by the Clean Water Act, the Clean Air Act or other statutory programs in the Federal agenda. While the States have moved, in some cases, commendably, to fill this Federal vacuum, we have looked at many State programs at the Mineral Policy Center on request from local citizens. We have been asked what State has the model program that really covers all of the issues, and we have not found a State which does that yet.

So, to rely solely on the States or to rely on a voluntary participation by the States is not an adequate response. It is important to note that some States, such as New Mexico and Arizona had no State mine reclamation programs in place today. The enforcement programs in many States are inadequate. Nonetheless, I am an optimist and I believe that these problems can be solved. The technology to address these problems and to bring them under adequate control, does exist. The technology of liners, the technology of acid drainage remediation, the technology of bioremediation, which is rapidly advancing, can address many of these problems and bring them in to practical and satisfactory solution; but it does need to be accelerated, and there needs to be oversight, to make sure that that technology is applied.

I would like to use the balance of my time, rather than extending that point, to talk about two specific areas of mining technology—drainage problems—or contamination problems.

First, I would like to speak briefly about the expanding use of cyanide in the United States in gold mining. I will just show you one picture of a small and not at all representative of the whole universe, but a small gold heap-leaching site on the Helena National Forest in Montana. The process is really elegantly simple. You pile up the gold ore over a liner, which you hope is impermeable, you irrigate the pile of ore with a cyanide solution. The solution trickles down through this pile of material and flows into a pond. Then you run it through a package treatment plant which takes the gold out of the cyanide solution, refortify it and spray it back over the pile of ore.

It is actually, in some ways, quite elegant. It avoids the expense both in energy and in dollar cost of having to mill that—or grind that ore into a fine powder which was required for prior cyanide treatments. It also has meant, both through its own low-cost application, which enables the mining now of very low-grade ores, which would not have been even worth contemplating 20 years ago—it enables those ores to be mined and it also, when combined with a milling operation, lets the low-grade ores be heap leached, the higher grade ores be milled, and then vat leached with cyanide also, and has led to a sort of synergistic effect, which has assisted the great expansion in gold mining in the country, which you have heard described earlier.

Cyanide is not the worst of what I would describe as industrial strength industrial chemicals. There are others. It has some actually benign aspects. It does not bioaccumulate, so far as we now know. It does not have the sort of food chain effects that some other chemicals have, and particularly, it is better than mercury, which was its predecessor in the precious metals business.

Many of the problems that we read about in the Amazon Basin today from mining down there are the result of the continued use of mercury down there, instead of using cyanide. It has led to some documented serious cases of groundwater contamination. Frankly, the great extent of use of this material—there is now more than one pound of cyanide being used each year for every man, woman and child in the country; and this of a material where a fraction of an ounce is lethal. It leads to a great deal of public anxiety.

I think that there are enough examples—while I would not point to cyanide as the greatest environmental risk from mining today, I think there are enough examples of problems with it, to say that that public concern is not entirely unwarranted.

Some of the problems related to that are not fully related by current law or regulation in many States. For example, Oregon, just this past spring passed a brand new cyanide heap leaching law to try and address things there. That law goes far beyond many other States.

The State of California, in a 1988 study that they did, examined both cyanide and other problems, and concluded that acid mine drainage is a more serious problem. It is not a problem which is limited to the hard rock mining industry, the industry that we are looking at today, it is also common to coal mining. It, in one sense

is—to use the phrase of this discussion, it is higher volume, lower toxicity than cyanide—but, on the other hand, it has its own peculiar problems. It takes time to develop. It may not be immediately apparent that it is going to arise.

The picture here is of a stream in Montana, which is turned orange by iron oxides deposited because pyrites, that is ferrous sulfite in the ore and in the waste material, which has been dug out of the hillside above, has reacted with air and water over time to form sulfuric acid. That acid is now draining down and picking up both iron and other metals. I do not know the specific constituency of this stream, commonly, arsenic, lead, other metals which can have serious human health impacts.

Acid drainage is particular pernicious because it takes time to develop and it is not immediately predicted. In fact, several of us, last Friday, were touring a mine site in South Carolina, the Ridgeway mine, where they had not correctly predicted whether they would generate acid drainage. They had predicted that they would not. They actually found, almost coincidentally, in monitoring their waste water runoff and storm water runoff, that they were getting very low pH's in some of their ponds. They are now taking remedial action.

So, I know I am already over my time, and I appreciate your patience. I bring up these two examples, just to give you a sort of tangible indication that these are real world problems, they do have major human health effects, and while sometimes they are in remote locations, that is not a safeguard upon which we can depend.

I would just close with a quote from a paper prepared by Mr. Ary's Bureau of Mines—by his own staff which says:

Any intensive use of the earth's resources carries with it the potential for adverse environmental consequences. Mining is no exception. Almost 50 billion tons of old mining and mineral processing wastes lie scattered about the United States. In the United States, mining adversely affects over 12,000 miles of rivers and streams and over 180,000 acres of lakes and reservoirs today.

Mr. HOCKER. Thank you.

[Testimony resumes on p. 139.]

[The prepared statement and attachment of Mr. Hocker follow:]

**Statement of Philip M. Hocker, President, Mineral Policy Center, on Behalf
of the Environmental Defense Fund, Mineral Policy Center, Montana
Environmental Information Center, and Sierra Club**

Mister Chairman, members of the Subcommittee,

My name is Philip M. Hocker; I am the President of the Mineral Policy Center. My testimony is submitted on behalf of the Environmental Defense Fund, Mineral Policy Center, Montana Environmental Information Center, and Sierra Club. We thank you for holding this hearing to bring attention to the unsolved problem of regulating environmental hazards from mining wastes.

INTRODUCTION:

The Environmental Defense Fund is a nationwide public interest organization of lawyers, scientists, and economists dedicated to protecting and improving environmental quality and public health, with over 150,000 members. Mineral Policy Center is a national non-profit institution working to prevent environmental damage from mining, and to assist local community groups to respond to mining proposals in a capable and effective manner. Montana Environmental Information Center is a Helena-based non-profit organization dedicated to protection of environmental quality for the citizens of Montana. Sierra Club is a national organization of over 600,000 members dedicated to preserving and enjoying the natural environment.

Our organizations have an enduring concern and involvement with the regulation of mining wastes. The Environmental Defense Fund has taken the Environmental Protection Agency to court for its failure to develop regulations for mining waste in the past. Mineral Policy Center joined with National Audubon Society and Environmental Defense fund to submit comments in October, 1990, on the recent EPA rulemaking on special wastes from mineral processing wastes.

These organizations, with others, were active in the EPA "Strawman" process to develop a comprehensive regulatory regime for mining wastes. I now coordinate the environmental team for the "Policy Dialogue Committee" which the Environmental Protection Agency has convened on non-coal mining waste regulation; Montana Environmental Information Center and Environmental Defense Fund, along with other organizations, participate in that effort.

We also cooperate closely with several dozen other local and national environmental organizations which are actively concerned with these issues, and which make a

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major contribution to the total effort. However, this statement only represents the position of the groups specifically named herein.

**NON-COAL MINING WASTES ARE
AN IMPORTANT ENVIRONMENTAL PROBLEM:**

Wastes from non-coal mining constitute an important national environmental problem. These wastes are produced in extremely large amounts. The amounts are increasing, and the trend is for further increases. The contamination caused by mining wastes has great permanence, and can be either extremely expensive, or effectively impossible, to correct.

In 1987, the EPA rated wastes from mining and oil-field operations high on its agenda of Unfinished Business. The 1979 National Academy of Sciences report, Surface Mining of Non-Coal Minerals noted that "some [mining] operations... produce unusual liquid, gaseous, and solid wastes that create difficult problems." And the Office of Technology Assessment's 1988 report, Copper: Technology and Competitiveness put the point concisely: "Copper production is not an environmentally benign activity."

Releases of cyanide from gold extraction operations have made many headlines recently. Those problems deserve public attention, but the less-spectacular threats of acid drainage from mines, and of groundwater contamination with heavy metals from tailings and open pits, are equally ominous in the long term.

WASTES FROM PAST MINING:

Wastes from non-coal mining in the past have created a legacy of damage across the country. The largest Superfund site in America, in the Clark Fork River below Butte, Montana, was created by disposal of mining wastes containing heavy metal contaminants. Residents of the mining-caused Superfund site of Butte have suffered chronically high mortality rates and other health impacts for many decades [HEW/NIH Pub. 79-1453, 1979]. A Colorado School of Mines survey identified 1361 miles of streams in Colorado contaminated by past mining, and the Bureau of Mines reports that the national total of mining-damaged surface waters exceeds ten thousand miles.

Our knowledge of the extent of mining waste damage is still seriously incomplete. The EPA Report to Con-

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gress in 1985 cited thirteen mining sites on the Superfund list; however, the current count is over 50 sites, and the eventual total is certain to be higher. A leading attorney in this field reported to the American Mining Congress in 1988 that "many more mining sites will be added to the National Priorities List in the coming years." Furthermore, because Superfund's principal emphasis is on hazardous-waste sites which endanger human health, many serious polluting sites which threaten fisheries and wildlife may not qualify for the NPL.

WASTES FROM ACTIVE MINES, TODAY:

The damage caused by past mining is undeniable. However, the problems of non-coal mining waste disposal are not limited to abandoned or inactive mines. And, those problems are not entirely prevented by present regulations and practices. First, the Subcommittee should be aware that many mines which are currently operating are causing waste disposal problems.

California: Noranda Grey Eagle Mine:

This gold/silver mine was opened in 1981. Waste management facilities conformed to all codes then in effect. However, cyanide leakage from the tailings dam exceeds permissible limits. Despite clay capping of the tailings impoundment, active pumping and treatment of seepage will be required for an estimated twenty years. Noranda has covered remediation costs. [Source: Calif. Mining Waste Study, 1988]

Florida: Phosphogypsum Mines:

Phosphate mining generates over 500 million tons of solid waste per year [EPA, Report to Congress, 1985]. Gypsum slurry wastes from eleven operating phosphate mining/processing facilities in Florida are actively contaminating the area's groundwater. Contaminant leaching is predicted to continue for 50 years after the cessation of production. At the C.F. Industries site, the following contaminant levels have been reported in groundwater:

Contaminant:	Measured Level:	State Standard:
arsenic	1.8 mg/L	.05 mg/L
cadmium	.51 mg/L	.01 mg/L
gross alpha	5480 pCi/L	15 pCi/L
sodium	2100 mg/L	160 mg/L
fluoride	4690 mg/L	2 mg/L

[Florida Department of Environmental Regulation]

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Idaho: Cyanide Leaks:

Numerous cyanide leaching facilities in Idaho have contaminated ground waters with cyanide. One of these recently-built facilities was said to "incorporate several new environmental protection features and... be a model for future operations." Contamination has been found at the Sunbeam Mine (1984), Yellow Jacket Mine (1983), Elk City (1984), and Comeback Mine (1986). EPA emergency remediation measures were performed at two of these sites at State request. Proposals to reopen some of them are expected. [Source: Idaho Department of Health & Welfare, 1990]

The foregoing is merely a brief set of examples; we are progressively compiling documented histories of additional mining waste damage sites, and accounts are available from EPA and various state sources. The problems of mining waste contamination are today's problems, not merely yesterday's.

WASTES FROM TODAY'S MINING, TOMORROW:

In addition to the problems of past mining, and of present mines which are known contaminators today, many mines which are not discharging hazardous contaminants today will do so in the future.

The nature of mining wastes is such that an engineering solution which complies with all current regulations, and which may not violate the Clean Water Act today, is often very similar to conditions at older mine sites which are now our most serious problems. Progressive flooding of mine workings only begins when the pumps are turned off, and it is only then that the worst groundwater contamination problems arise.

One of the forms in which delayed mining waste problems commonly arise is acid drainage. The California Mining Waste Study published in 1988 warned:

"... one of our principal concerns is that the potential continues to exist for mines to produce AMD [acid mine drainage]. In all likelihood, AMD would not form until after the mine is worked out and abandoned, because while it continues to operate the mine can control the acidity of its waste piles by adding neutralizing materials. Provided that the pH within a waste facility is maintained above about 4, the rate of acid formation is extremely slow. However, below this pH value bacterial action leads to a dramatic acceleration of the oxidation rates. Once this happens it is virtually impossible to reverse.

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In other words, a waste facility that may seem to be benign for years while the level of acidity is being controlled may, quite suddenly, begin to produce AMD and result in a problem that could persist for years." [page.xx]

Which waste materials will produce long-term problems? According to one presenter at the 1990 "Western Regional Symposium on Mining and Mineral Processing Wastes" at U.C. Berkeley [R.W.Lawrence]:

"Processes affecting [mining waste] behavior are complex and only poorly understood. [The nature of AMD production] does not allow a simple, reliable, and timely predictive methodology to be readily apparent." [Symposium Proceedings, p.115]

Montana: Berkeley Pit, Butte:

Groundwater contamination from open pits is another route by which currently-benign mines will damage the environment in the future. The pumps draining the Berkeley Pit open-pit copper-lead-zinc mine at Butte, Montana were shut off on April 23, 1983. The mine itself (as opposed to its tailings discharges) had not been a pollution source previously. The water is now over 700 feet deep in the pit, and in about seven more years, the water level will reach exposed alluvium in the pit walls. This highly acidic (pH 2.8) and metal-laden water will threaten groundwater quality in the valley to the south.

In the Nevada gold-mining districts, surface mines have been working deeper for several years. Several of these mines are now passing from oxidized near-surface ore zones into sulfide ores with a much greater contamination potential. When these mines are abandoned, if no preventive steps are taken, they may become conduits connecting pure aquifers with contaminated groundwater and ores. These pollution problems do not exist now. But the experience of past mines indicates that in time these pits may be tomorrow's Superfund sites.

South Dakota: Brohm Mining Corp:

Migration of leaks of contaminants can take time to show up in monitoring wells, by which time remedies may be very difficult. Brohm Mining Corp's leaching pads were shut down by State order in October, 1988; cyanide from leaks in the pads appeared in monitoring wells in December, 1989, thirteen months later. Longer delay times may often precede contamination discovery. [Source: Rapid City Journal, 30Dec89]

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Simple erosion of tailings can carry heavy-metal contamination into streams and render them unfishable and undrinkable. Much of the tailings material which now makes the Clark Fork River a Superfund site was originally stored in side valleys, but eventually was washed into the main stream by storms and neglect. Mill tailings are still routinely stored behind earthfill dams in side-stream channels.

Sound long-term environmental protection requires that the closure of mining sites meet "archival" standards, so that acid generation, groundwater migration, and erosion do not generate future pollution problems. Many sites which may appear benign while in active operation, or when viewed shortly after closure, are not engineered to prevent these future impacts.

**FEDERAL REGULATION UNDER RCRA
IS NEEDED AND APPROPRIATE:**

While some aspects of non-coal mining's environmental threats, such as point discharges into surface waters, come under existing Federal regulation, many aspects do not. There is no comprehensive Federal system of groundwater regulation. And the threat of future environmental problems from improper waste management -- the exact category of problem which Federal hazardous-waste legislation was intended to prevent -- is not addressed by any existing Federal programs.

Some states have management programs in place, but they vary widely in scope and effect. Some states have recently adopted tight regulatory legislation, but, as in the case of Oregon's 1991 cyanide statute, it is often narrowly focussed. In our judgment, no state has a regulatory system in place to address mining wastes which is sufficiently both comprehensive and rigorous to prevent environmental problems from mining wastes.

We believe that a strong Federal regulatory scheme mandating minimum standards of protection, enforcement, and public access, is needed. States may be granted primacy to implement this effort, subject to Federal audit of both the total state program and of contested individual permits. Some flexibility to minimize disruption to existing state regulatory programs should be afforded.

The complete span of environmental review of any given mining facility, whether by a state or Federal program, should be unified within a single "umbrella"

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permit. Such a permit could adopt by reference the approvals required for various media, and include, in addition, requirements for media not otherwise regulated (soils, groundwater). This umbrella concept would provide the optimum compromise between harmony with existing programs and maximizing the comprehensive multi-media review given to new facilities.

The past decade of Federal delay on mining waste regulation has led to much welcome state-initiated action to fill the Federal vacuum. However, the classic problems of leaving any arena of environmental protection exclusively to the states -- of industry "bottom-fishing" for the least-regulated state, and of states which by law cannot impose environmental standards which exceed Federal levels -- make total reliance on state efforts unrealistic. A strong Federal baseline, applying to standards, procedures, and levels of enforcement, is essential for mining waste regulation.

BEVILL AMENDMENT AND SUBTITLE C/D ISSUES:

Our groups believe that mining and processing wastes which have hazard characteristics which would normally require that they be regulated as hazardous wastes under the Resource Conservation and Recovery Act ("RCRA") should be so managed under Subtitle C of RCRA. The universe of "mining and mineral processing wastes" encompasses a very diverse variety of materials; not all fit the "high volume, low toxicity" generalization which led to the Bevill Exclusion. Some of these should be regulated under Subtitle C. We believe their classification should be based on their chemistry, not on their industry of origin.

Whatever practical objections there might once have been to this approach have been removed by the passage of Pub.L.98-616, the Hazardous and Solid Waste Amendments of 1984, which authorizes the Administrator to modify certain requirements "to take into account the special characteristics of such wastes [and] the practical difficulties associated with implementing such requirements...." [Pub.L.98-616 §209, 42 USC §6924(x)]

However, it is clear that some important mining waste categories will not be classified as hazardous due to low levels of toxicity. Nonetheless, many of these groups still must be regulated to prevent damage to human health and the environment over the long term. Their regulation will require more rigor than Subtitle D provides.

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Since the EPA issued its regulatory determination against managing mining wastes under Subtitle C of RCRA on July 3, 1986, discussion has encompassed regimes described vaguely as "C-minus" and "D-plus." C-minus, as used by EPA, refers to a "scenario that utilizes the flexibility provided by RCRA section 3004(x)." D-plus means "A subtitle D program similar to those being developed for extraction and beneficiation wastes." [EPA, 56 Fed.Reg. 27303 (1991)]

While a C-minus program could be developed using existing statutory authority, a D-plus system will require new legislation. Such legislation should address not only the character of the D-plus regime, but also the process for assigning waste types among a flexible array of programs.

Such an array must accomplish a range of goals, which are not being met by current law or EPA programs. Among other things, the array must address the problems posed by mined materials during the mining and processing phases, and must address closure and post-closure protection and monitoring. A full enforcement program, with citizen notice and access, must be included. These problems must be solved with a comprehensive multi-media approach which is open to public participation and scrutiny.

Thus, while we feel that the Bevill Exclusion was misguided, we do not feel that the goal of protecting the environment from mining waste contamination is met by simple yes/no debate over whether to eliminate the Exclusion. A more comprehensive and flexible approach may be more effective. The option of dealing with specific mining wastes which meet the RCRA standard of "hazardous" within Subtitle C should be part of that comprehensive approach, but it is not the whole answer.

Neither is relegating mining wastes to Subtitle D an answer. Subtitle D does not constitute a tangible or effective regulatory program for these materials, as it stands in current law. Legislation is needed to address those aspects of mining waste regulation which fall neither into Subtitles C or D, and to bring an end to the protracted dance over the extent of the Bevill exclusion.

I have mentioned the need for public access to the mining waste regulatory process several times in this testimony. Public involvement is meaningless without complete information disclosure. In addition to includ-

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ing disclosure provisions in a RCRA-based mining waste program, mining should be included in the Toxics Release Inventory established by the Emergency Planning and Community Right-to-Know Act. Hazardous waste from mining at least equals the entire volume of wastes currently required to be disclosed; the public is entitled to have access to this information.

THE EPA "STRAWMAN II" PROPOSAL:

On 21 May 1990, the EPA released the second version of its "Strawman" outline for a regulatory program for non-coal mining waste. The first thing to realize about "Strawman II" is that it is not a regulatory program. It is a generalized set of ideas, not focussed into a proposal for legislation or rulemaking. It is doubtful today whether Strawman II represents a position which EPA intends to pursue; if so, a recommendation for legislative action is overdue.

Strawman II Problems:

The Strawman II draft fails to resolve a number of issues which must be addressed firmly by an adequate regulatory program. Some of these are specific and quantitative; some are procedural. To list a sample of Strawman II problems:

- Under EPA's implementation schedule, existing mining waste facilities need not meet the requirements of Strawman II until the next century, 25 years after the original enactment of RCRA.
- Only new facilities, and existing facilities in active operation on the compliance date, are regulated [p.1]. Any mine which becomes inactive prior to the end of the State Plan certification process plus five-year delay period will evade regulation.
- By excluding inactive units within active sites from regulation, EPA enables an operator to avoid cleanup of new facilities by proving that the level of ambient site contamination has been elevated by the inactive unit.
- EPA's implementation of mining waste regulations in non-certified States is optional ["may develop", p.96]; there is no time requirement for EPA action if a State fails to develop a certified Plan.

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- Any transition between State and EPA implementation of regulation in a State would create a five-year window within which active mines could evade regulation by becoming inactive.
- No standards for public participation procedures are established. Current State practices vary widely, and both citizen groups and local government jurisdictions have complained to us about refusal of State agencies to allow access to mining information.
- EPA could certify ("codify") individual elements of a Plan, leaving no comprehensive test of the overall adequacy of a State's program.
- In-situ mining operations are not specifically included, despite the apparent intent to address soil contamination issues elsewhere in Strawman.
- No specific analytical process for evaluation of acid generation potential is prescribed.
- Closed mines would not be required to meet any specific standards for durability and self-maintenance. There are no closure requirements for units which are not active when the State's Plan becomes effective [pp.74-8].
- No master permit is required for the operation of a mining waste disposal facility. If multiple independent permits for specific impacts are used with no master approval, a "fragmenting" of environmental impact consideration is encouraged.
- The dispersion of State regulatory approaches to mining waste under Strawman will make evaluation of the adequacy of a State program, by either EPA or other parties, extremely onerous.

Strawman II Successes:

Despite the problems summarized above, we believe that the Strawman II draft contains a number of elements which could, if put into force, bring about a great improvement in the management of mining waste, and a great reduction in the future threat of mining-caused pollution. As a sample:

- States would be permitted to adopt standards more stringent than the Federal baseline.

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- The need for EPA to review the operation of a State's plan on both a scheduled basis and in response to petitions is recognized.
- Citizen suit opportunities under RCRA would be extended to State Plans (though the wording of this provision should be clarified) [p.8].
- A multi-media approach, in which emissions of mining waste from the operation into ground water, surface water, air, and soil are all considered, is included (though the provision for adopting isolated parts of a State's program undercuts this comprehensiveness).
- Active heap and dump leaching operations are to be regulated, recognizing that the character of eventual wastes is effectively a function of the operating design of these facilities.

However, these accomplishments would depend on translating Strawman II from a concept paper into a program in place. To accomplish that, EPA needs to frame a recommendation for legislation. Adequate regulation of mining waste will require new statutory authority. The Strawman draft recognizes this.

While there has been value in the Strawman process, and in the Policy Dialogue Committee which is its current successor, these activities have failed to result in Administration action. Congress should not wait any longer for EPA's meditations to lead to a breakthrough.

CONCLUSION:

In conclusion, Mr. Chairman, I would like to repeat my appreciation for this invitation to present environmental concerns and recommendations on the regulation of mining wastes.

Mining wastes are not being controlled today with the rigor which the public expects. We are not only failing to clean up the damage of the past, but mining today is creating new environmental damage sites to burden our children. A strong Federal program to address this problem is urgently needed.

We are grateful for the Subcommittee's attention to this issue, and we hope for prompt action, both by the Congress and the Administration, to put an effective and appropriate Federal system of mining waste regulation in place. I would be pleased to answer any questions. Thank you.

* * *

FORUM

Heaps of Gold, Pools of Poison

Cyanide Spring

by Philip M. Hocker

This article is the fruit of Mineral Policy Center research in Washington and at various mining sites over the past eighteen months. Sincere thanks are due to Frederick W. de Vries, of E. I. duPont de Nemours & Company, Susan van Kirk, Jim Jensen at MEIC, Dr. Glenn Miller, Steve Botts at Newmont, several anonymous agency officials (thanks, folks), and Congressional staff for their assistance and data sources. Congressman George Miller is particularly to be thanked for his efforts to reduce migratory bird mortalities. The opinions in this article are the author's, and in expressing my gratitude to these friends I do not intend to imply any endorsement or agreement by them.

Canoes made of gold are too soft to run over rocks and too heavy to portage well. Gold makes lousy pitons and carabiners for climbing. Did you ever hear of a gold-filled sleeping bag?

Nevertheless, gold appeals to some people, and that appeal is propelling a new gold rush around the world. The rush raised the annual rate of world gold production from 31 million ounces in 1980 to 44 million in 1987, and is still accelerating.

The increase in the United States has been even more dramatic, from one million ounces mined in 1980 to five million in 1987, still rising to seven and one-half million ounces in 1989.

Nevada is the heart of this rush, as host to fully half of U.S. gold production, and the impacts are massive in California, Montana, and Colorado. Utah and Washington are active. New mines are planned in eastern Oregon, where a surge of interest last fall brought tens of thousands of new claim filings. In South Carolina, one of the largest tailings impoundments in the country has just been completed for newly-opened gold mining. Maine's Bald Mountain is being developed by Boliden of Sweden.¹

While some of this boom has come from enlargement or re-opening of old mines, much is the result of a remarkable technological revolution: the new use on gold ores of an old mining technology called "heap-leaching," in which a cyanide solution is sprayed on vast open-air piles of ore to extract the gold. But there is a side to

heap-leaching which does not glitter: its environmental impacts.

GOLD AND CYANIDE

Gold mining always requires plucking the gold itself from a much larger mass of rocky ore. When the gold occurs in fairly coarse grains in a gravel streambed, "panning" will separate it by simple gravity. More sophisticated methods are needed as ores are mined from rockier sources. Most of the deeper mines of the nineteenth-century American rushes employed mercury amalgamation to concentrate the gold powder after quartz ores were crushed in a stamp mill. The environmental residues from mercury amalgamation still haunt many streams, both in the Appalachians and the west.

Besides being environmentally hazardous, the mercury process was inefficient. Recovery of 60% of the gold in an ore was typical. Inventors searched for a better method, and in 1887 a workable process using cyanide was developed in Scotland; it went into immediate use in the newly-developed Witwatersrand gold fields in South Africa. The much greater efficiency of cyanide extraction, better than 97% in mills, made it profitable to mine much lower grade ores than could be done otherwise.

EXQUISITELY TOXIC

But cyanide is better known as an extremely deadly poison than for its impact on the economic history of South African gold mining, and justly so. Sodium cyanide is "one of the most rapidly-acting lethal poisons and is well known to the public for such homicidal disasters as the Jonestown massacre and the cyanide-Tylenol deaths."² In lethal doses, which for humans can be as little as a teaspoon of 2% solution, the onset of symptoms is reckoned by seconds. Death follows swiftly.

Yet miners point out that there is no record of any person ever dying from a cyanide accident, that cyanide breaks down quickly in the environment, and that cyanide is a natural compo-

Clementine

nent of many biological processes. Why get so excited?

They have a point. However, the story is more complicated. First, the general term "cyanide" covers many compounds. All have in common the fundamental ion CN^- , carbon combined with nitrogen, but beyond that the different combinations have widely varying properties. Most public and regulatory attention is paid to the extremely toxic gas hydrogen cyanide and the simple compound $NaCN$, sodium cyanide, the form used in mining as a solid or a water solution.

Unlike many other environmentally hazardous chemicals, cyanide is not known to bioaccumulate—to build up in animal tissues. It is not generally believed to be a mutagen or a carcinogen, though the research on this is inadequate.³ Most ingested cyanide—some common foods contain traces—breaks down naturally; it is only fatal when a lethal dose is consumed at once; then it blocks the transport of oxygen across cell walls. In effect, the victim suffocates despite having fully-oxygenated blood; the central nervous system is the first organ to succumb.

In the natural environment, most cyanide breaks down harmlessly when exposed to sunlight or pH-neutral conditions. However, there is substantial evidence that cyanide persists in groundwater and in tailings or abandoned leach heaps, particularly where alkaline conditions are maintained.^{4,5}

Given the chemical mechanism of its toxicity, it is not surprising that fish are particularly sensitive to cyanide in water solutions. Concentrations of hydrogen cyanide exceeding 0.1 milligram/liter can be fatal to sensitive fish species, and levels one-twentieth of that have been shown to prevent fish reproduction. The EPA's 1980 freshwater aquatic life criterion for free cyanide permits a maximum of 3.5 micrograms/liter for any 24-hour average, with a limit of 52 micrograms/liter at any time.⁶

Public attention, and the mining industry's response, have focused on the spectre of deaths to humans from cyanide. Its long-term health effects have been commonly assumed to be minor compared to the threat of immediate death, and ignored. However, there is good reason to suspect that a compound as aggressive as cyanide in lethal doses also has serious health effects in long-term chronic exposures at low levels. Correlations have been observed be-



Strip-Mining for Gold: Heap-leaching areas of the Borealis Mine in Nevada are at left center, above the Freedom Flats open pit. Echo Bay Mines of Canada lists this as one of their "smaller" mines.

*

tween chronic low-level cyanide uptake and specific diseases in humans, and experiments in animals have demonstrated progressive damage to nervous and other tissues.^{7,8}

And there is a great deal we simply do not yet know about cyanide and its effects. The high price of this ignorance has already been seen: "There is surprisingly little information on the interactions of cyanide with birds," a comprehensive survey reported in 1978.⁹

Tragically, a great deal of empirical evidence has been acquired since then. Many thousands of birds have died from drinking from open cyanide ponds at mining sites, because we later learned that birds are highly sensitive to cyanide.

HEAP-LEACHING

For centuries, miners have sought ways to remove metal from an ore body without having to go to the expense of digging the ore from the ground, grinding it to a fine powder, and treating it in expensive facilities inside a mill.

At the limit, this ambition leads to "in-situ" mining, in which a chemical solution is injected into the ore body from wells drilled into the ground, and pumped out from extraction wells drilled in the ore some distance away. This process depends on the ore body being naturally porous, or being fractured in place by blasting.

Gold mining by injecting cyanide into the ground has been tried in Colorado, but is not in commercial use. The U.S. Bureau of Mines suggests that it would be a good thing to try; they gloss over the threats of massive groundwater contamination which could result.¹⁰

From a miner's viewpoint, the next best thing to in-situ mining is to pile the ore up in large mounds and soak the mounds with a solution which will remove the metal. Moving a metal-bearing liquid is much cheaper than moving masses of ore around, and the metal can be extracted to produce high-quality product. This technique, known as "dump leaching," has been used in copper mining since its initiation at the Rio Tinto area of Spain around 1750. For copper, sulfuric acid is the common leaching chemical. This brings its own set of environmental hazards... but that is another story.

In 1969, the U.S. Bureau of Mines proposed using open-air soaking with cyanide solution as a method of cheaply treating large volumes of low-grade gold ores.¹¹ The suggestion was timely. Rising manpower costs were making open-pit mines much more competitive with underground mines which required large amounts of hand labor, and new discoveries were made of low-grade gold ore in very large volumes. The low cost and ability to process immense amounts of material that characterized the new technique, which came to be known as "heap-leaching," attracted immediate attention. As skill at manipulating this new technology has developed, its use has accelerated.

Beginning at zero in the early '70s, heap leaching grew to an industry which treated almost four million tons of gold ore in 1980—one-third of all the ore processed in the country. By 1987 it had leapt to an annual rate of 65 million tons. Vat leaching (also using cyanide) had

tripled in those seven years, but heap leaching increased sixteen-fold. The growth rate is still increasing.

Still, for perspective, leaching of heaps and dumps of ore in the copper industry consumes several times as much ore as in gold—over 220 tons in 1980¹²—and is growing rapidly, though not as explosively as in gold.¹³ (A "heap" is ore piled over an impermeable liner—or one *supposed* to be impermeable; a "dump" is simply placed on the ground surface.)

The concentration levels of cyanide used in heap-leaching are quite low: from .015% to .25% of sodium cyanide by weight in solution.¹⁴ It is common mining industry folklore that the solutions are not really dangerous. In fact, managers of heap-leach mines are fond of telling visitors that they could take a drink out of the solution ponds without any ill effects. However, a little calculation shows that, in fact, less than a quart of the lower-concentration leach solution holds a lethal dose.

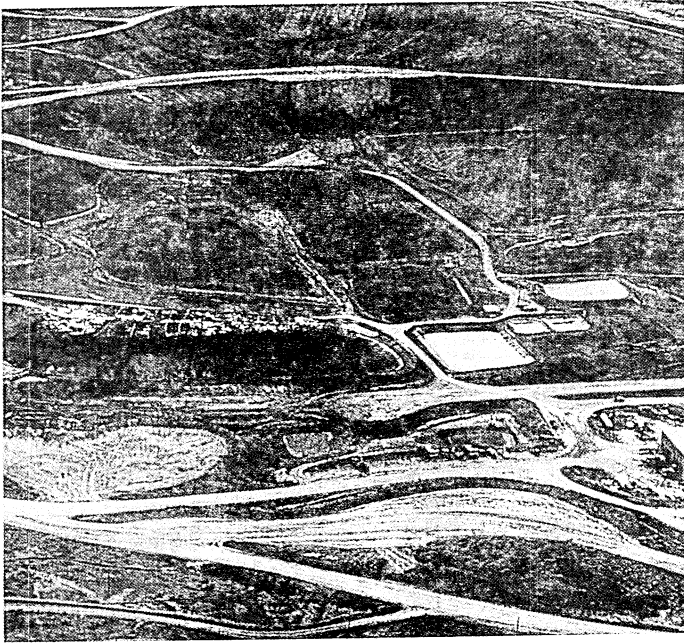
The rapidity of gold mining's expansion in the Eighties, and of the growing environmental exposure to unknown risks, can be gauged by the growth in the use of sodium cyanide itself: North American cyanide consumption—primarily for mining—has risen from 142 million pounds in 1988 to 215 million in 1989, a 51% increase in a single year. 1990 North American demand is projected at 254 million pounds. DuPont recently acknowledged that global demand will exceed production capacity at times in the next five years, despite the fact that it has tripled its manufacturing ability since 1986.¹⁵

PROBLEMS

Because cyanide is so notoriously toxic, the mining industry is used to taking precautions. Any discussion of cyanide has to point out that there is no known instance of a human fatality from accidental cyanide poisoning in the mining business. This is a remarkable record, and a credit to the care and training of many users and the manufacturers, particularly DuPont.

However, to limit our concern over cyanide to human fatalities is to fall prey to what one biochemist calls the "dead bodies in the street" theory of toxicology: the attitude that if you don't see corpses, everything is okay. Despite the absence of human corpses, there is evidence that everything is not okay.

The most dramatic evidence has been the killing of birds from cyanide poisoning at mining sites. Thousands of waterfowl deaths from



Pools of Poison sparkle on a gold leaching heap in Nevada. The cyanide solution is sprayed on top, percolates through the heap picking up gold as it goes, and flows to the pond at right. After the gold is removed from solution, the fluid is replenished and sprayed again.

*

cyanide poisoning have been reported; more deaths are alleged to have been concealed, but we may never know. Even more troubling is the unknown number of sickened birds which have succeeded in flying from the poison ponds, only to succumb farther along their flyways.

The mining industry has tried to reduce the toll, largely by "hazing" birds from ponds with flags and noisemakers, and responds angrily that waterfowl deaths have now been reduced to insignificant numbers. However, discussions with wildlife officials indicate that cooperation is still limited and grudging. The State of Nevada has adopted a Memorandum which only requires that toxic solution ponds "be covered in a manner that will prevent or at least inhibit access by avian wildlife," and that the ponds "be made unattractive to wildlife."¹⁶

The looseness of this State wildlife agency policy may result from the fact that it was actually developed by the Nevada Mining Association.¹⁷ Federal land managers, with similar laxness, routinely fail to notify wildlife agencies of proposals for new mines so preventive measures can be planned.

There are more subtle threats from widespread cyanide use, in addition to dead birds and wildlife. Numerous leaks in the liners underneath the "heaps" have been reported. In several cases, the leaks have resulted in contamination of drinking water supplies. But there are probably many more leaks which are steadily projecting cyanide solution toward and into groundwater, undetected.

A layer of impermeable material is placed beneath each gold ore heap, to ensure that the gold-bearing cyanide solution winds up in the

treatment equipment, and not in the ground. After all, recovery of the gold is what the entire operation is about. However, while there is an incentive to recover the solution, there is another to minimize the expense of the liner. Shortcuts in liner construction save money in the short run. "Many pad liners are punctured during heap construction," one trade article observes.¹⁸ Early heap-leaching operations often used liners of clay, which in practice are extremely difficult to keep leakproof.

Synthetic membranes are commonly used as liners today, usually of high-density polyethylene. But, because ore heaps for leaching are built up progressively to as much as 150 feet in height, many liners will fail due to progressive settlement and tearing from the massive weight of material bearing on their thin membrane.

**"If you prick us, do we not bleed?
if you tickle us, do we not laugh?
if you poison us, do we not die?
if you wrong us, shall we not revenge?"**

— William Shakespeare,
The Merchant of Venice.

There has been little practical study of membrane performance under these conditions. In copper leaching, "dumps," piles which are simply loaded on the ground with no liner, are sometimes used. When liners have been proposed under copper ore dumps to protect groundwater, the industry response has been that "...it has not been demonstrated that [liners] are applicable to practices covering hundreds of hectares and containing millions of tons of ore. The massive size of such practices may result in shear forces that would destroy the integrity of a liner."¹⁹ If liners are unreliable under copper ore dumps, why then should we have confidence about liners under comparable gold ore heaps?

Cyanide can be spilled in much simpler ways. At a small mining operation, a barrel of chemical may be tipped into a creek. A careless operator may ignore a maladjusted valve in the complex piping circuitry of a large leaching site and not notice before tens of gallons of cyanide spill into the ground. A heavy rain may flood the

pond-and-piping system and flush toxic solutions down the valley. These examples have all been recorded.

To reliably prevent environmental damage, a mine and heap-leaching plant would have to address, at a minimum:

- Rainfall management, to prevent storm-water flow in the cyanide leaching system from causing overflow of leaching solution into streams and groundwater.

- Surface water control to permanently divert all streams and runoff around the mine area, and to prevent silt from being washed into streams.

- Leak monitoring under the leaching pad and in the entire piping system. A double synthetic liner, over an engineered clay substrate, should be required, with leak monitoring between each of the three liners. The system should be shut down once a leak through the first layer is detected, until it is repaired.

- Fail-safe design of the entire process system, so that any spills from operator error would be safely contained.

- Provision of monitoring wells in the groundwater, with frequent testing. Several wells should be placed downgradient, with at least one 'baseline' well upgradient.

- Wildlife protection, including absolute physical prevention of any wildlife access to cyanide solution ponds or tailings where the concentration exceeds the Federal ambient water quality standard.

- Reclamation and landscaping, with steps to prevent acid drainage and leaching of toxic metals from the abandoned piles of mine waste and the spent leaching heaps. This may require runoff controls, treatment of runoff streams from the waste, or capping of waste piles with impermeable clay layers.²⁰

A long-term monitoring program should be required at all mine sites after completion of the mining and closure of the operation. This should include surface and groundwater testing, and a plan for corrective action if acid or toxic leakage develops.

Guaranteed funding for these steps should be required before mining is permitted to begin, so the public is not burdened with the costs of cleaning up after the mining companies once the glitter fades.

BEYOND CYANIDE

The impacts addressed in this article are only the immediate ones from heap-leach gold min-

Clementine

ing. Long-term problems from toxic metals leaching from heap-leach waste piles probably exceed the direct impact of cyanide itself. The low cost and wide applicability of heap-leaching, the rush to new ores and the general permissiveness of the Mining Law and the Federal managers, lead to a dangerous synergy. Hundreds of remote wilderness areas and wildlife routes are vulnerable to strip-mining for gold, thanks to heap-leaching.

But that is not directly the fault of leaching technology, or of cyanide. Rather, blame a set of laws and a set of mind which lets accidents of geology decide whether an area is mined, rather than using an intelligent multiple-use planning process to weigh mineral values against others.

VERDICT

Can cyanide and heap-leaching be environmentally safe? Yes, theoretically, they can. Is some of the alarm over cyanide's use in mining unwarranted? Yes, technically, it is.

Do we have enough knowledge to take the risks we are currently taking with this aggressive

poison? No, emphatically, we do not. Are the agencies on whom we rely to control the risks acting firmly and responsibly?

No, sadly, they are not.

The design requirements are inadequate, the agency inspection is nominal, the enforcement and penalties are less than lip-service. Because the spills have largely been remote, because the kills have been non-human species, we have not really awakened to this problem. We are spraying tens of thousands of tons of one of the most acute poisons known to man across the landscape.²¹ There will be more deaths if this program is not strictly controlled, and the dead will not all be birds and animals.

The cyanide manufacturers, users, and regulators need to adopt an attitude of "Yes, we have a problem; here is how we are treating it; come look." But too often, the reaction is "There is no problem; go away." Expletive deleted. That will not reassure the public, and when the spills occur, the reaction will be bitter. It should not come to this. It need not. But I fear that it will. *

CYANIDE SPRING NOTES:

Tons, throughout, refers to short tons, 2000 pounds. Mine production data and statistics generally are from U.S. Bureau of Mines publications.

1. Boliden: ENGINEERING AND MINING JOURNAL p.26 (July, 1989).
2. ELLENHORN & BARCELOUX, MEDICAL TOXICOLOGY, Elsevier Science Publishing Co., New York City, N.Y. (1988).
3. Skogerboe, *Research Update*, CYANIDE AND THE ENVIRONMENT, Colorado State University, p.552 (1985).
4. Engelhardt, *Long-Term Degradation of Cyanide in an Inactive Leach Heap*, CYANIDE AND THE ENVIRONMENT, *supra*, p.539.
5. LEWIS R. GOLDFRANK, ET AL., GOLDFRANK'S TOXICOLOGIC EMERGENCIES, 3rd Ed., p.587 (1986).
6. Heming & Thurston, *Physiological and Toxic Effects of Cyanides to Fishes: A Review and Recent Advances*, CYANIDE AND THE ENVIRONMENT, *supra*, p.85.
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8. L. GOLDFRANK, *supra*, p.592.
9. OAK RIDGE NATIONAL LABORATORY, *supra*, p.8.
10. U. S. BUREAU OF MINES, GOLD AND SILVER LEACHING PRACTICES IN THE UNITED STATES, IC 8949, p.4 (1984).
11. G. M. Potter, *Recovering Gold From Stripping Waste and Ore by Percolation Cyanide Leaching*, U.S. Bureau of Mines TPR 20 (1969).
12. U. S. ENVIRONMENTAL PROTECTION AGENCY, REPORT TO CONGRESS, WASTES FROM THE EXTRACTION AND BENEFICIATION OF METALLIC ORES..., p.2-22 (1985).

13. OFFICE OF TECHNOLOGY ASSESSMENT, COPPER, TECHNOLOGY AND COMPETITIVENESS, OTA-E-367, p.73 (1988).
14. GOLD AND SILVER LEACHING PRACTICES, *supra*, p.8.
15. E.I. du Pont de Nemours & Company, *Is Gold's Growth in North America Facing a Cyanide Short-Fall?*, DUPONT MINING INDUSTRY ANALYSIS (April, 1989). Copies available from Mineral Policy Center.
16. Nevada Department of Wildlife, Cyanide Related Wildlife Mortalities, Departmental Memorandum (15 May 1988). Emphasis added.
17. Nevada Department of Wildlife, letter to Lee Delaney, Surprise Resource Area Manager (5 October 1988).
18. *Liner Design for Heap-Leach Pads*, MINING MAGAZINE, (May, 1988).
19. U. S. ENVIRONMENTAL PROTECTION AGENCY, COPPER DUMP LEACHING AND MANAGEMENT PRACTICES THAT MINIMIZE THE POTENTIAL FOR ENVIRONMENTAL RELEASES, Contract 68-02-3995 (undated).
20. A recent California State mining waste study (July, 1988) recommends that all mining wastes should be tested for their potential to generate acid runoff, as well as toxic metal content. I strongly agree. Unfortunately, the science in these areas is not well-developed. Additionally, the long-term life of cyanide in groundwater is not completely understood.
21. The Nevada Mining Association states that annual cyanide consumption in that state is 80 million pounds, and Nevada delivers half of current U.S. gold production. See also DuPont, *supra*.

Mr. SWIFT. Thank you very much.

We have a final passage vote going on, and the subcommittee will have to adjourn when I get back.

It seems to me that we have got a certain area of at least general agreement on the panel. I have been around long enough to know the tempest, as well as the devil is in the details, but would like to explore with this panel—and I think it could be a very profitable opportunity to talk about how we can flesh out some of the generalities, what kind of Federal guidelines, what kind of enforcement and so forth and so on. We will undertake that as soon as I can get back.

Thank you very much. The subcommittee stands in recess for about 15 minutes.

[Brief recess.]

Mr. SWIFT. Mr. Ostler has to catch a plane and must leave here at 4 o'clock, and so if it's all right with all of you, Mr. Schaefer and I will kind of concentrate on him for the next 8 minutes and then broaden it to questions of the panel.

Also, I think, Mr. Ostler, you're a good place to begin because I think your testimony was extremely useful in laying out what are the broad areas of agreement, if I have those correct.

You feel that it is important that the States play a very key role but there needs to be Federal standards and some means of Federal enforcement of those standards, is that correct?

Mr. OSTLER. That's correct. The key is in the definition of the standards and the degree of enforcement.

Mr. SWIFT. You state it exactly. Now what can you do to help us figure out what those standards should be, how strict they should be and what is an appropriate enforcement mechanism?

I gather—does anybody here disagree—that that's really the crux of this issue, how tough the standards are and how you enforce them. Is that—okay, generally. I don't hold any of your silence against you in future testimony.

Can you help us a little bit? You obviously represent western governors. Therefore they have jurisdictional concerns as well as public policy concerns and if we were to delegate to the western governors where they drew the lines about the Federal standards and how they enforced them, what do you think they would come up with?

Mr. OSTLER. Well, that is a difficult question, Mr. Chairman, but one that is very important to the States and I think the first thing I would suggest is that we outline in standards specifically what should be regulated, what regulatory mechanisms must the State have to have an adequate State program. I mean such as ground-water standards, surface water standards, soil standards, closure requirements, those types of things. I think we can be very specific in identifying the areas that need to be regulated.

Once you have done that, we would like to see a broad-based, more general statement of the national principle of being protective of the health and environment and you must have a program which regulates and covers the closure, postclosure monitoring activities and to leave that up to the negotiation process between the States and their individual region where they consider the existing State programs, the State mechanisms, the delivery system of that

regulation and the site-specific characteristics that may be in place in that region—the climate, the rainfall and so forth.

It would require we think a guidance document on behalf of EPA but we are very much concerned that the flexibility is left, that you don't require revisions of substantial State programs when they really meet the broad general goal but their path of getting there may be different than what EPA may write.

Mr. SWIFT. So first of all, you think it is relatively easy to make a list of the things that should be in a regulatory structure?

Mr. OSTLER. Yes, I do.

Mr. SWIFT. The tempest, as I suggested earlier, then comes in exactly how specific the Federal authority is to enforce a certain standard within each of these categories of action?

Well—let me then throw this at you. You sat through the testimony that we had with the administrative agencies earlier where we got very specific. We said, you will do this by a certain date, and 8 years later it is still not done.

So when you come and talk to us about let's have these nice, feel good, broad, general kinds of things and everybody will go forth and do the right thing, there is some skepticism on this side of the dais which grows out of experience.

I am not advocating that the Federal Government has to take this over. I am suggesting that Federal guidelines that don't have any teeth in them are useless in my judgment. It basically means that your State agencies and our Federal agencies can play games and have meetings and dance around each other but when you get all the way done, I'm not sure what you have accomplished.

What would you say to a skeptic like that?

Mr. OSTLER. The concept that I think the States have is once they go through this negotiation process to meet broad-based national performance goals that there would be a process for Federal acceptance of that detailed State plan. The State plan would contain great detail in terms of regulatory mechanism, design requirements, numeric standards and so forth for that State and once it went through that acceptance process then the EPA would have the ability to enforce all of those mechanisms if the State failed to enforce the State plan or if there was a threat to public health or the environment.

That's where we see the teeth to come, upon the acceptance of the State plan.

Mr. SWIFT. Well, I think your statement has been very positive and we may want to get back to you and the organization you represent for further discussion of some of the specifics of the legislation.

I would like to yield to the gentleman from Colorado particularly while there is still time for Mr. Ostler to be here with us.

Mr. SCHAEFER. I thank the Chair and I will be very brief.

The Colorado legislature recently passed a resolution that mentions many of the concerns that I share and I think western governors share. That is first and foremost that we have primacy and in going with what you said, Mr. Ostler, that if indeed these plans are perpetuated, accepted, that they are to be carried out, if not by the state then certainly by the EPA.

Mr. Chairman, without objection, I would like to have this resolution passed in the Colorado legislature made part of the record.

Okay. A question: first of all, what does the WGA or does the WGA agree with the approach EPA takes in strawman II for the regulation of mine waste and if not what specifically does the WGA disagree with on this?

Mr. OSTLER. WGA has reviewed strawman II carefully and have provided rather lengthy written comments to EPA on our areas of disagreement or lack of sufficient clarification to know whether we agree or disagree.

I think to summarize quickly here, we have some disagreement in the amount of specificity in some of the program requirements such as requiring monitoring on a monthly basis for a particular type of activity.

It may very well be that quarterly is very appropriate for a particular site-specific—

Mr. SCHAEFER. Depending on the site.

Mr. OSTLER. Yes, site-specific definition. I think they went too far in terms of the specificity in that area.

We had some considerable concerns with the way it was written in whether in really defining the State-EPA relationship it was not clear to us in what was written whether the oversight would be on a daily basis and heavy oversight or whether it would be more program-oriented oversight.

As we have discussed with EPA, I think some of the problems were in the semantics but as written there were at least those areas of significant disagreement.

There were a lot of things in strawman II that did reflect the western governors' positions but there were some very significant ones that were a problem.

State and Federal relationship and degree of specificity is the two primary ones.

Mr. SCHAEFER. Then am I to assume that you agree that the States should have the enforcement authority of State-approved mined waste management programs, in other words State approved by the EPA?

Mr. OSTLER. That's correct.

Mr. SCHAEFER. One question on abandoned and inactive mines. What if anything is WGA doing to address the issue of abandoned and inactive mines?

Mr. OSTLER. The Western Governors' Task Force felt that abandoned and inactive mines were a very significant program. A lot of the examples you see of mining problems we think fit into that category.

We have conducted a study to identify all of the various policy options that we could come up with for dealing with abandoned and inactive mine problems. It is not obvious to us right now what the solution is, the best mechanism or vehicle. We think it is a separate process, separate from what we have been talking about in regulating the current minerals industry but we think it is very significant and we would offer that study to you. It's rather comprehensive and identifies a lot of different mechanisms but I think deserves a considerable study effort to decide what's the best way to make it work. It is an important problem.

Mr. SCHAEFER. Well, even there we are talking about different sites, some much more if you want to use the word waste oriented than others. If you drive from Frisco to Breckenridge you can see what happened over the past years and how it was all handles and I am glad we are making that association, the difference between the mining that we are doing at the present time versus what we have done in the past.

I would ask you if the WGA through the committee staff, both majority and minority, would be interested in helping us in saying to what degree are we going to allow EPA in to monitor or are we going to do it, as you indicated, sometimes there is disagreement on a daily basis or all that, if we could work together on some language because, you know, you are representing a number of States out in our area and if that would be a proposal—

Mr. OSTLER. We'd be very happy to do that.

Mr. SCHAEFER. One other question, Mr. Chairman. Once a State plan has been approved by the EPA in your, in the WGA's assessment, what do you feel becomes the role of the Federal Government once this plan has been accepted and we're now in the process—I think the chairman alluded a bit to that when he was asking his questions—but I want to clarify it a little bit more.

We have a plan, State of Colorado or State of Utah or whatever, and its been specifically approved by the EPA and you are out there carrying out the various aspects of this plan.

Oversight from the EPA—what's your concept here that we could kind of start drawing the line on?

Mr. OSTLER. Well, the Mine Waste Task Force definitely believes there is a place for oversight. In fact, we think that's the vehicle which will give existing adequate State programs credibility with the public.

We would like to see the oversight structured in such a way that it is not project-specific, that it relates more to the program. It is not on an individual decision basis but it's more audits, after the fact, on some frequency. The frequency I guess is up to debate but we would hope that that would happen.

Mr. SCHAEFER. And depending on the type of mine.

Mr. OSTLER. Depending on the type of mine perhaps but more upon the State program. Perhaps it would be an annual audit of State program actions to determine if the State has operated in accordance with their mine waste plan. If of course EPA is a able to participate just as the public in the issuance of permits as they are noticed to the public and if EPA through that process found that there was a permit being issued that was in nonconformance with the State plan, we would hope that they would go back to the State and give the State the ability to rectify it or correct it but we think that EPA would need to have the authority to take enforcement action if something is done out of compliance with the State plan.

Mr. SCHAEFER. That concludes my questioning, Mr. Chairman. I would just like to say to both sides of the aisle in this that I appreciate the way that the WGA has been active in this up to this point in time.

We have been dealing with them for a couple years now on this issue and certainly just your thoughts on the EPA as far as looking

over the shoulder if we might want to say in approving these plans I think is a good step.

I yield back, Mr. Chairman.

Mr. SWIFT. I thank the gentleman and Mr. Ostler. Thank you very much.

I do have some additional questions. If you don't mind, we'll submit them in writing so that you can be excused and catch your airplane.

Mr. OSTLER. Thank you, sir. I would be happy to stay another 5 minutes if you desire—

Mr. SWIFT. Well, I have a couple of questions I would like to ask if you have that time.

One is, do you have in your testimony or in some way that you can provide it to us, the specific areas in which you think there should be Federal standards—you know, by topic area rather than what the standards are.

Mr. OSTLER. Yes, we do. It's in the Mine Waste Task Force recommendations for a Mine Waste Program.

I will see that your committee has that and we identified very specifically the areas and the types of detail that we think would be necessary.

Mr. SWIFT. That would be very helpful and the last question is do you believe that the Federal Mine Program should require corrective action for environmental damage at inactive sites or just at active mining operations?

Mr. OSTLER. The States debated that at length and finally came to the conclusion that this new program should deal with current active sites and new sites, that inactive sites and abandoned sites would have to be dealt with through another mechanism.

Mr. SWIFT. Why? Because they couldn't agree?

Mr. OSTLER. There was not consensus.

Mr. SWIFT. Which is why we don't do a lot of things.

Mr. OSTLER. There was not consensus on that point and the primary thing was the difficulty in dealing with sites where you have no active mining operation ongoing as being somewhat similar to abandon the more difficult situation of being able to deal with it economically.

Mr. SWIFT. What about inactive sites at active facilities?

Mr. OSTLER. The States do believe that inactive sites at active facilities in some cases do need to be regulated. Oftentimes you can't differentiate the environmental effects from those two types of installations and they would need to be regulated concurrently.

Mr. SWIFT. Do you do that under this program?

Mr. OSTLER. That would be included under our proposal in this Federal program.

Mr. SWIFT. Okay. Well, thank you very much. What I'll do is ask you to stay as long as you can and when you have to leave, please leave.

I would like to broaden this a bit. I do have some questions for individuals but I would like to see some interaction on the panel now. I thank the panel for letting us deal with Mr. Ostler because of the time factor but I think some interaction here could be useful.

What we're trying to do is figure out what the Federal Government should set standards for; how directive, how regulatory those should be; what is the relative role of the State and the Federal governments; and how does the Federal Government enforce whatever it is we decide it should be doing.

That seems to me to be the core of what we're dealing with here.

The first question I'd ask is: Is that a fair—do you think that's a fair description of what decisions have to be made in general in the mining area?

Yes, anybody.

Mr. ROBINSON. Mr. Chairman, perhaps some additional elements. One critical question will be how to pay for the system.

Mr. SWIFT. Okay.

Mr. ROBINSON. I think another question is: What is the role of the public in not only the planning, but also the permitting and enforcement, since credibility needs to be not only with the agencies, but with the affected communities?

Mr. SWIFT. Okay. I think both of those are reasonable, and we'll add that to the list.

Anything else that one would think we to add?

[No response.]

Mr. SWIFT. Okay. This may not be at the beginning, but it seems to me that, whatever we decide is going to be the Federal role, the question of how do you enforce that is very important. And what we often do is something so Draconian—and we've done it in Superfund and so forth where we just say: Well, we'll take all your Superfund money away—well, one, in many instances that's just counterproductive, and two, it's providing the death penalty for pickpocketing in some instances.

And yet the proposal, at least some of the proposals here, are essentially that. Whatever we decide the Federal Government is going to do, it will have only one penalty, and that one would be pretty Draconian.

Is there reason to think that we should try to come up with something somewhat more graduated as an enforcement mechanism for whatever it is we finally decide is the Federal role.

Yes, please, Mr. Hocker.

Mr. HOCKER. Mr. Chairman, this is a question which, of course, has been debated quite a lot among the players over these series of discussions in the last couple of years.

The view of the environmental community is that while we recognize and respect many of the points that Mr. Ostler and the WGA have made about not unduly interfering with the effective State programs which are in place—and we think that in the end a program which relies for its day-to-day operation on State programs and grants them primacy subject to Federal oversight can be effective—nonetheless because of the issues you just raised, we think there needs to be a safety valve, if you will, or perhaps a petition process and an opportunity for EPA or the Federal enforcement authority to be brought in on a site-specific basis, not that that would be done in the normal course of events, but when we get an extraordinary case—and frankly, the States are under a great deal of pressure in some of these cases, and with all respect the members of the good State environmental agencies aren't

always the only players in these decisions—the amount of money that's involved in the potential benefits to a State economy can be very great.

Eventually that becomes a political decision, but that's a later situation. The day-to-day enforcement and permit process needs to be handled first by the agencies, and then in the case where the State program is not dealing properly with it, there needs to be that safety valve to call in a Federal review, not just of a program, because a Federal review of the State's enforcement program leads to only the decision of should we pull that program and put it out of business, and that's frequently a bad choice for all parties.

Mr. SWIFT. Anyone else on the panel care to comment on that?

Mr. OSBORNE. Well, from the perspective of the mining industry, we would by and large support Mr. Ostler's view, which I think has been very well thought out, of the proper relationship between State agencies and the EPA. I would strongly encourage the committee to avoid any Superfund-like role for any Federal oversight agencies in this area.

As we have defined it in our program, we see very much the same sort of role for the EPA as Mr. Ostler does, and I don't think it's necessary to repeat that.

Mr. SWIFT. Yes?

Mr. ROBINSON. A phrase that Don Ostler used was "Federal oversight and enforcement to assure compliance."

The idea of assuring compliance, if there's a standard out there, the State seeks compliance. Then the State is implementing the authority.

If there is a problem, and the State is not assuring compliance through some lack of resources or other reasons, then there should be an opportunity for the Federal agency to assure compliance or the public to take action, and that assurance can be through seeking corrective action or through remedial actions, or through penalties.

But assuring compliance, as opposed to conditional enforcement, is one of the major differences between a soft and hard performance.

Mr. SWIFT. Any comments on that.

Mr. KENNEDY. Mr. Chairman?

Mr. SWIFT. Yes.

Mr. KENNEDY. The world hasn't stood still in the last 10 years while we've been awaiting certain standards coming from the central government.

I represent an industry that barely existed in 1980. We have permitted over 50 mines as far east as South Carolina and as far west as Alaska. In that process, we have built an industry, I think, that has been environmentally sensitive, that has operated with sodium cyanide that you've heard about before. That is a very dangerous substance. We have handled it properly and safely.

We have built an industry that is world competitive, and we exist in the States that have addressed the issues that you are trying to deal with here.

We have addressed closure requirements. We have addressed reclamation requirements. We have addressed bonding. We have done that in different State capitals. We have done that realistically. We

have done that and remain competitive, and we have done that, we think, forthrightly in working with a collective interest group which represents some of the same interests that are at this table.

And clearly we have done that with the elected officials and the regulatory process in each of our locations, which have recognized rainfall and all the other things we talk about as differences.

And the concern I have in the process that I hear we're embarking on is to shred that experience that we've gained at the State level, where I think there was a much closer understanding and knowledge base on how to work on a problem and get a solution with it in a relatively short period time.

We had to permit a mine that we believe was an economic process to put into production, and we wanted to do that. But we also had to go through a process that didn't exist on regulation of certain substances we were going to introduce into that environment. So there was a need to come to answers in a diligent and responsible method.

And I would just hope that the process we're embarking on recognizes we have done some of that, and I think have done it very successfully.

Mr. SWIFT. Comments? But would that not lead one to conclude that perhaps you don't think there's any need for any Federal action at all? Yet that's not what you testified.

Mr. KENNEDY. No. I just want to—you're exactly right, Mr. Chairman, but I just want to say that we do believe that there are certain States—and I will tell you, we operate in the States of California, Nevada, and Idaho.

Idaho did not have a cyanide standard. They looked to the EPA to help them with that cyanide standard, just because they hadn't either the capacity or the need—quite honestly, the need—to develop such a standard.

And there are cases where there are other States which may or may not be mining States today—and I think South Carolina is a good example of that, where all of a sudden Ridgeway came in to mine gold in the eastern part of the United States, which had not been done since the mid-1800's, quite honestly, so they had a need to rely on some other source for guidance in those issues, and that turned out to be EPA.

Mr. SWIFT. It occurs to me—and maybe I'm totally wrong about this—but what I'm hearing from this panel is that the industry has decided to try to get ahead of the curve and has been trying to address these issues.

I'm hearing from those who represent the environmental community some understanding of the unique problems of the industry.

If we were to lock you all in a room, could you come out with a document that you could agree on?

Yes?

Mr. HOCKER. Mr. Chairman, I shouldn't speak for the other interests.

Mr. SWIFT. And I understand that none of you can, but I'm trying to determine how far apart you really are and where are the issues that we're going to have to play King Solomon on.

Mr. HOCKER. I'm not sure I'm going to answer the second question, which is the more serious one for you, but I've been pleased at what I've heard yesterday and today from the industry representatives.

I also, in my involvement with this industry over the last 4 years, have learned that it's a very diverse group of people, and I'm inclined to think that some of the more progressive elements in that are the ones sitting or representing and testifying today, which is to their credit. But it also indicates that—and there are many other diverse viewpoints in the environmental community, too.

Mr. SWIFT. I know that.

Mr. HOCKER. So locking us together in a room, we might emerge relatively unscathed, but that might not totally solve the problem or relieve you of a lot of difficult work nonetheless.

Mr. SWIFT. And I understand that, and I don't think there's anybody on this committee that thinks that when we ultimately make our calls, we're going to still be everybody's friend.

Right now, don't you find that, Dan? You're everybody's friend right now.

When we start making decisions, we cease to be everybody's friend.

We're willing to take the heat. I mean, that's what we get paid for, and that's what we run for reelection for.

But we aren't the experts. Every one of us who ever sits up here is a layman by definition. Whatever it is we did back home before we came here to earn a living, we get, you know, about one-tenth of 1 percent of our time to deal with those issues.

When you have as much expertise as sits at the witness table on these issues, and you appear to be as close as you are, even with differences, we're damn fools if we don't try to get you guys to help us draw those lines.

We ultimately will take the heat, but sending Dan and Bill and myself off without that expertise to make those decisions, which we ultimately will have to do, without being able to try and pull people as close together as you are closer together, so we can take advantage of that, seems to me to be an incredible waste of talent, expertise, and knowledge.

You seem awfully close together, and I just suspect that the five of you could write a better law than the 20 of us, if you were willing to undertake that—you know, to help us.

Yes?

Mr. ROBINSON. Mr. Chairman, I think that the process you describe is one that does have some potential. It is a higher stakes process than the policy dialogue, the committee process. That is not per se the goal of that. And so an appropriate pot at the end of the rainbow would get a little better performance, and I think that this is one of the difficulties between the discussion on generic issues and the need to work toward a target, which is the program and implementation that I think people agree is needed.

Mr. SWIFT. Well, I would like to figure out a way you people could help us more. I think the panel has been very helpful. But it seems to me that if we could begin to put some specifics on some of the generalities, get some reaction to those specifics, I am personal-

ly and perfectly willing to provide State flexibility, but if I am going to charge a Federal agency with some responsibility, I think I have the responsibility to see that it's very clear to them what it is and what it isn't and give them some meaningful enforcement authority, or I'm just asking them to spend an awful lot of time and effort to run around and not be able to get much done, and I don't want to do that.

And because of the experience the States, the industry, and the environmental community, particularly in the West, have had in dealing with these issues on a regular basis, it seems to me that you, on this narrow issue in this whole great big sweep of RCRA, might be able to be enormously valuable to us in making some cuts.

And I'll make you an offer. If you can help us do that informally, I won't hold you to supporting the bill. I mean, we're trying by the end of this year to get a bill introduced and then start the regular legislative process, and you may seek amendments, and you may, you know, want to kill the whole bill, or you may want a substitute. Keep all of those rights. But it's very important that we be able to tap into the kind of expertise that sits at this table and the kind of apparent willingness to understand the other guy's problem and the need to do something, which not every industry that is coming to us on RCRA understands. And that seems to be there, I think, in a fairly fulsome amount.

So I think we're going to, you know, come to you each individually or if we can get you all together in some fashion to help us make some of these cuts. We'll be doing this in the next little while.

We would greatly appreciate any assistance that you could give us. And then we'll make our cuts. We'll take the heat for it. You're free to go to do anything you want about the legislation when we get into the markup process.

Is that fair? Yes, sir?

Mr. OSBORNE. Mr. Chairman, from the industry's perspective, we would be very pleased to participate in whatever forum you think would help this process along. For my own part, I think I'd better get back to my office at some time.

Mr. SWIFT. Well, I understand that. But it's very helpful when we can get you all in a room at the same time, because then we don't end up being a shuttlecock: Yes, but he told us the other day that. . . . And then you get the rebuttal, and then you run back, and ta-da-ta-da.

And I find you can do things in one or two meetings that can take you months of talking back and forth to each other to do.

You mean you have a business to run?

Mr. OSBORNE. In between visits to Washington, sir.

Mr. SWIFT. Yes, Mr. Hocker?

Mr. HOCKER. Mr. Chairman, I think you've hit on some very promising areas for further work, and we would certainly stand ready to do anything we can to assist that, and I think that might fairly quickly bring to a focus those areas where consensus can be reached and those where it simply cannot.

Mr. SWIFT. If that's all you achieve, it would be extraordinarily helpful to the committee. And we're used to duking out the other things.

But I would also like to write a law that works as well as it can possibly can, and if you can help us in that regard, then we'll fight out the rest of it, if we have to.

Mr. HOCKER. We're at your disposal.

Mr. SWIFT. We will be talking to you.

I recognize the gentleman from Colorado.

Mr. SCHAEFER. Thank you, Mr. Chairman.

Just a couple of brief things, and I know the panel has been tied up here a long time.

Mr. Hocker, I caught some of your testimony where you had two particular environmental concerns. One is this heap leaching, and the other, the acid mine drainage.

In my conversations with WGA, it does not seem to me that you differ a lot on the fact that you have a problem. Am I misconstruing this? Are you pretty close together on some type of a Federal mining program situation here? Am I hearing this correctly?

Mr. Ostler, if you want to comment as well.

Mr. HOCKER. I cannot speak for WGA, except to the extent that we have reviewed their written product, and we think there are many points of common agreement. There are some areas of difference. A few of those have just come out in the discussion. Whether we could reach consensus on those, I am not sure I can predict an answer to that.

Mr. SCHAEFER. Do you want to comment, Mr. Ostler, on this?

Mr. OSTLER. I am equally unsure on being able to predict where we could reach consensus.

Mr. SCHAEFER. I am not asking where we can reach ultimate consensus, but recognizing that we have a couple problems here, that we have to try and figure out a way to solve. I am not asking you for a consensus or an answer at this point in time, but I think I we both recognize it, both sides recognize that. Is that correct?

Mr. HOCKER. I would agree with that.

Mr. OSTLER. Yes.

Mr. SCHAEFER. Mr. Kennedy, I do not know if this has been asked before, but it has been brought to my attention a number of times about the need for the use of cyanide in this heap leaching process.

Could you tell me what safeguards you are taking now that maybe were not taken before in this usage?

Mr. KENNEDY. I will talk from the reference of 1980 and beyond, and I just do not know the requirements prior to 1980. There was not much being done then.

The requirement is basically on a prepared surface that is compacted to put down an impermeable liner. In today's technology, for most of that, that is a plastic-based type of liner that is sealed and then has an inspection done on it to make sure that there are no leaks. We then put crushed rock and then on top of that we put our rock.

Now, recognize, we do not want to lose that solution. It is one thing to say we are environmentally conscious, and I would say we are. The second thing is, the reason we built and put all this money and effort in it is that solution contains the product that we are trying to get, which is gold.

So if there were no environmental requirements, and we could do anything we wanted, we would still be treating that just as it is. It is gold in liquid form that we want to recover as much as we can, and it is in our interest not to let it drop outside.

We have then come into other problems.

One, wildlife has become a problem, which we have turned out to protect in a couple of ways: one, fencing; second, by putting crushed rock in French drain form so there is no free-moving liquid, burying our dripping system so that we do not puddle, and have those kinds of issues.

Basically, we have then collected all that. Once finishing the process, that pile of spent or used rock becomes an in-place waste, as we would refer to it, in all consequences.

We flush, or take the cyanide now, that is still on the sides of the rocks that we have processed, and we detoxify that, and depending on the State, there are certain limits. In the State of Nevada, it is two-tenths of a milligram per liter, which is, I think, two-tenths of a part per million.

We then, once having detoxified it, contour it, put soil on it, and I am in the middle of desert, in that operation that I am referring to, and then we replant, and then that basically stays in place where it is.

So that is how we have treated heap leaches, and we are looking at doing that in similar fashions, but again a little bit differently, because of terrain differences in Idaho, and as well we are doing some of that in California, but much more limited scope.

Mr. SCHAEFER. Well, I think is important we brought that out as part of the record, because it has been discussed within the committee itself, and how this is all being handled, and whether or not we have adequate safeguards on it, this being a part of the problem on mine waste and how do we treat it.

I appreciate the explanation.

Mr. Osborne, you are representing the AMC, is that correct?

Mr. OSBORNE. That is correct.

Mr. SCHAEFER. How many members of AMC?

Mr. OSBORNE. There are 350 members of AMC.

Mr. SCHAEFER. Which takes in all kinds of areas, hard rock mining, et cetera?

Mr. OSBORNE. Hard rock, minerals, phosphates, coal, the full range of mining activities.

Mr. SCHAEFER. So can we assume what you are basically saying today in your testimony is agreeable to the other members of the AMC then, which has diversification?

Mr. OSBORNE. That is correct. Our formal statement has been worked out in consultation with other members of the committee, and has their support.

Mr. SCHAEFER. The reason I again bring that out is because of some of the statements that have been made on well, we have all these diversification, different kind of mining. We want to make sure that when we are talking environmentally, that we are saying okay, let us move a little bit to give the EPA some type of authority, and I just want to get that out.

One other thing. There are several mine sites on the NPL that include Leadville, which is in the State of Colorado. It does not have to be in my district.

To what extent are these problems associated with these results a result of mining practices that are no longer being used?

In other words, I want to make sure we separate the two issues of what we are doing now as far as mining versus what was done some time back, and the different types of practices that are being used.

Mr. OSBORNE. Mr. Congressman, I know a fair amount about the Leadville situation, inasmuch as we are involved as the principal responsible party in that Superfund site.

The major issue addressed so far has been acid mine drainage. That relates to the Yak tunnel, which was dug as a public works project by the people in the Leadville area, as I understand the history, sometime in the 1880's.

Mr. SCHAEFER. You actually are saying then you inherited part of this problem?

Mr. OSBORNE. We have a current mining operation there which had the misfortune of including the mouth of the Yak tunnel in the property boundaries, and we therefore inherited a problem that predates the formation of ASARCO by some 15 or 20 years.

The current problems have absolutely nothing to do with current mining operations, and the principal mining operations today in Leadville are conducted by ASARCO and Resurrection Mining, which is a Newmont Mining Co. subsidiary, and they cause no environmental or health impact at all on the area.

The problems are historic, and by and large date to the turn of the century.

Mr. SCHAEFER. There is no question if you go to Leadville, it looks like the whole town has been dug up, in many cases.

Yes, Mr. Hocker.

Mr. HOCKER. Congressman, thank you for the opportunity to respond to that a little bit, too.

It is certainly true that some of the most difficult environmental problems created by hard rock mining are the result of practices which are no longer legally permissible.

However, in my testimony I give a number of examples. We are not comfortable that that fully explains the situation, and it is our view that a number of practices which are perfectly legal today and which are in use in the industry may well be creating conditions which will lead to contamination problems which will have to be cleaned up in future years.

Just to pick a simple example, again, going to acid mine drainage, the question of first, how thoroughly you characterize both the ore and also the overburden in a mining site to determine whether it will generate acid mine drainage. The best scientists in the business will still describe this as much art as science. It is an art which takes more time than most mine managers want to wait to really narrow down the answer when you are in a gray zone.

Second, how well you are encapsulating or treating those materials, if they are either clearly acid or marginal. There are a number of situations being set up today which we think someone will be

paying to clean those up in the future. That is what we are hoping to remedy.

Mr. SCHAEFER. Then I think you all are not that far apart on trying, and recognizing the fact that we do have some problems out there, we do want to correct them; and as the chairman so well illustrated and stated, that we do not have all the answers, and we certainly look forward to your expertise in trying to draw up a good, balanced plan that is going to do the job for this country that we want done.

I truly appreciate you all being here today, and, Mr. Chairman, I yield back the balance of my time.

Mr. SWIFT. I thank the gentleman.

I recognize the gentleman from New Mexico.

Mr. RICHARDSON. Mr. Chairman, I sense from the dialogue that you want this panel concluded, so I will act accordingly.

I was going to ask Mr. Kennedy about the cyanide question, but that was done.

To Mr. Hocker and Mr. Robinson, again, talking about the role of we are giving the States primacy, again tell me your views on the enforcement issue and the Federal Government's role in that, very, very briefly, because I want to keep in spirit with my earlier comment about concluding.

Mr. ROBINSON. Mr. Chairman, Mr. Richardson, I believe that there are advantages to having State primacy in the enforcement, as long as it results in a fully effective program.

Mr. RICHARDSON. And citizens' losses would be part of that?

Mr. ROBINSON. Citizen-initiated enforcement and citizen suit, right of intervention in agency proceedings would be, I think, essential elements in that program.

Mr. RICHARDSON. Mr. Hocker.

Mr. HOCKER. Congressman, citizen suits are one element. I think that there are a number of other citizen both information and access provisions that go with that: right to know disclosure, access to information, and monitoring records. We would recommend that, on major long-term facilities, that a citizen advisory panel be part of the permitting process, for any long-term facility. Then, as a final last resort before a citizen suit, which I think we all agree is a last resort, that there should be an opportunity for citizens to petition for inspection, mandatory inspections.

Mr. ROBINSON. If I may, I would add one or two other points.

The Federal role should be to ensure effective performance in the States, and if the State cannot perform, then the Federal agency should come in.

The Federal agency should not be limited to withdrawing the State program as the only penalty. That is too onerous and puts the States and the Federal agencies in adversarial roles.

On the other hand, in New Mexico and other States, our legislature often sets the Federal minimis as the State maximum, a "no more stringent than" concept. So this limitation is a very difficult one to ensure full compliance of the Federal minimum.

Mr. RICHARDSON. Ms. Osborne, in 30 seconds or less, do you want to add anything?

Mr. OSBORNE. No, I really have very little to add to this point. It is not part of our program to include citizens' suits as part of the

enforcement mechanism. That simply adds another element of confusion in the issue, and we would like to avoid confusion and duality of responsibilities here.

Mr. RICHARDSON. Thank you.

Mr. SWIFT. Thank you very much.

The gentleman from Louisiana.

Mr. TAUZIN. No questions.

Mr. SWIFT. Members of the panel, I think you have been extremely positive, very helpful. We will be following up. We will come talk to you and see what you can do to further assist the committee in writing this provision of RCRA.

Thank you very, very much.

Our last panel is composed of Mr. Robert Krueger, who is Texas Railroad Commissioner, on behalf of the Interstate Oil & Gas Compact Commission; Mr. William A. Fontenot, who is environmental specialist with the environmental enforcement section of the land and natural resources division of the Louisiana Department of Justice; Mr. Larry N. Bell, vice president, ARCO Oil & Gas Co., on behalf of the American Petroleum Institute and Mid-Continent Oil and Gas Association; Ms. Denise Bode, who is president of the Independent Petroleum Association of America; Mr. W. Clark Street, of Waynesboro, Miss.; and Mr. David J. Lennett, on behalf of the National Audubon Society.

You are all welcome, including Mr. Lennett, with his name pronounced properly.

All of you will have your complete statements included in full in the record, and we will look toward kind of a 5-minute rule here, being as there are six panelists.

I would be happy to recognize Mr. Krueger.

STATEMENTS OF ROBERT KRUEGER, COMMISSIONER, TEXAS RAILROAD COMMISSION, ON BEHALF OF THE INTERSTATE OIL & GAS COMPACT COMMISSION; WILLIAM A. FONTENOT, ENVIRONMENTAL SPECIALIST, LOUISIANA DEPARTMENT OF JUSTICE, ON BEHALF OF THE LOUISIANA ATTORNEY GENERAL; LARRY N. BELL, VICE PRESIDENT, ARCO, ON BEHALF OF THE AMERICAN PETROLEUM INSTITUTE AND MID-CONTINENT OIL & GAS ASSOCIATION; DENISE A. BODE, PRESIDENT, INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA; W. CLARK STREET, RESIDENT, WAYNESBORO, MISS.; AND DAVID J. LENNETT, ON BEHALF OF THE NATIONAL AUDUBON SOCIETY AND THE NATIONAL CITIZENS NETWORK ON OIL & GAS WASTES

Mr. KRUEGER. Thank you very much for the opportunity to appear today. I'm appearing both as a member of the Texas Railroad Commission, which is a century old commission that since 1919 has regulated the exploration, production, and transportation of oil and gas in the State of Texas, and Texas today produces roughly a quarter of the oil and a third of the gas in the USA, but I'm additionally here to speak for the 29 States that make up the Interstate Oil and Gas Commission, and which in turn account for 99 percent of the oil and gas production in the country.

With your permission, I'd like not only to submit for the record the full written testimony, but I would also like to submit a state-

ment from the IOGCC and an additional statement by the current chairman of the Texas Railroad Commission, Lena Guerrero.

We appreciate the opportunity to appear here, and I would like first of all to point out that we, like you, are extremely concerned for the environment of our States. Indeed, it is one of the prime concerns that we have.

We recognize that in assessing this RCRA reauthorization, you will have potentially profound impact on this country and on our States in the future. Were the wrong policies to be enacted, I think candidly that the domestic energy industry could be killed. I obviously don't expect that to happen, but I think that there are profound impacts that could result from this legislation.

In my own State, Texas, there are 250,000 oil and gas wells. Last year, the Railroad Commission instigated 111,000 field inspections of these 250,000 oil and gas wells.

If production wastes were to be regulated as industrial wastes under RCRA, I think that oil and gas activity would decline precipitously. You may be aware of the Gruy Study, which was commissioned and which estimated for Texas that 147,000 existing oil wells in Texas alone would have to be plugged, a decrease of 74 percent, if oil field wastes were reclassified as industrial wastes.

I think that were something like that to happen, the major oil companies would survive, because they could go overseas and have downstream profits. But the independent oil and gas industry would be decimated in our country were production waste to be reclassified as industrial wastes.

Now our commission began in 1919 with the regulation of oil and gas, and at that time we began by protecting the fresh water supplies of our own State. Since that time the Railroad Commission has adopted increasingly stringent and more comprehensive water protection rules.

In the 1930's, the Commission strengthened its plugging requirements and began regulating the use of injection wells.

In 1969, we issued statewide pit orders.

We joined the Interstate Oil Commission in 1935, which was set up at the suggestion of President Franklin Roosevelt, and today there are 29 States that participate there. All of these are States that produce and that work with one another in regulatory programs.

Indeed, in January 1989, the Interstate Oil & Gas Commission began a project working with the EPA to develop a report to focus on the elements necessary for an effective State regulatory program, a project completed in December 1990. The IOGCC is continuing to support the State's efforts by collecting the State's regulations into a central database system, by developing a training program to further educate State field inspection personnel on environmental issues and by coordinating the State review projects where individual State regulatory programs are compared with that report.

Since 1980, there are a number of things that we at the Texas Railroad Commission have undertaken on our own initiative. I list them in my full testimony, but I will just mention, for example, that in 1983, were given the authority by the State legislature to

assess administrative penalties of up to \$10,000 a day for violations of our rules relating to pollution.

This past session, this May 1991, we were given a fund by the State legislature that we expect to exceed \$190 million a year to clean up oil field pollution. There are a number of other things that have gone on during that time, but I am going to try to respond to the 5-minute rule and conclude promptly.

I would mention that it's important to keep in perspective the wastes that are generated in producing energy for our country. As you know, 98 percent of the oil and gas wastes consist of saltwater. This saltwater is generally found and produced along with oil and gas and is normally returned by the producer to the very zones from underground from which it was taken. The saltwater which is found in nature is brought up; essentially the oil is harvested; the saltwater is returned to where it was before. In other words, the wheel has come full circle, and nature has its own position restored.

About 1.6 percent of the waste stream consists of drilling muds, which consist largely of water, clay, and barite, and 0.4 percent consist of so-called associated wastes.

I would say that it is important for States to be allowed to retain the flexibility to adjust to the regulation of these wastes, which we believe we are doing in a very effective way.

No single set of Federal regulations could substitute for the experience, the knowledge of direct operations, the flexible and specific understanding of various geological zones and geographical areas that State regulatory bodies have.

We at the Railroad Commission have a staff of almost 1,000 people. The majority of those people are in the oil and gas division. We have many years of experience, as I said, dating back to 1919.

We have a commitment. We are elected, like members of Congress, and there isn't anybody that is more concerned about the quality of water in Texas than the Texans who drink it. There isn't anybody who is more concerned with the quality of the air in Texas than the Texans who breathe it, and there isn't anybody more concerned about the quality of the soil after the soil has had wells drilled on it than the people who eat the food from that soil.

We, who are in elected offices in that State, are charged by our people to take the long-term view, and we will try to do that. We think we have done it effectively, not perfectly, but effectively, and we would like a chance to continue to minister to the needs of our people.

Thank you very much.

Mr. SWIFT. Mr. Krueger, thank you very much, and I was most remiss in not mentioning when I introduced you that you are a former member of this committee, and I'm terribly sorry to have to welcome you back to the Public Works Committee hearing room, instead of our own, but you are most welcome.

Mr. KRUEGER. Thank you, Chairman Swift. I must say that the pictures that I looked up at, while familiar, were not the ones that I was accustomed to in—what is it, 21—

Mr. SWIFT. 2123.

Mr. KRUEGER. 2123, that's right, where we now have Harley Stagers' picture on the wall, whereas we had his as Chair when I was there. But I'm delighted to be back with the committee.

Thank you very much.

Mr. SWIFT. Thank you so much.

Mr. William Fontenot.

[Testimony resumes on p. 219.]

[The prepared statements of Mr. Krueger and the Interstate Oil & Gas Compact Commission, with attachments, follow:]

**TESTIMONY
OF
ROBERT KRUEGER,
TEXAS RAILROAD COMMISSIONER
TO THE UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON TRANSPORTATION AND HAZARDOUS MATERIALS
SEPTEMBER 12, 1991**

A.

Introductory Statement

Mr. Chairman, Members of the Committee, thank you for the invitation to appear here today. I'm Robert Krueger, one of three members of the Texas Railroad Commission, a century-old commission that has, since 1919, regulated the exploration, production, and transportation of oil and gas in the State of Texas, which today produces roughly a quarter of this nation's oil, and a third of its natural gas. Additionally, I'm here to speak for the 29 states that make up the Interstate Oil and Gas Compact Commission and account for 99% of the oil and gas production in this country. With your permission, I would like to submit for the record a Section B of this testimony which applies particularly to IOGCC concerns.

We in Texas and we as members of the IOGCC appreciate your concern for the environment and your interest in energy production. All of us, whether we are Members of Congress, or of state conservation commissions, recognize that the public today is asking us to protect our environment and our people from hazardous substances so that the next generation may inherit a land blessed rather than defiled by our footprints.

Like you, we view our role primarily as stewards rather than users or destroyers.

A-1

With care and balance, you can benefit our environment and future generations by your legislative action. And yet, without care and attention, RCRA reauthorization could unintentionally destroy tens of thousands of American jobs, devastate the economies of several states, and transfer responsible environmental exploration drilling activities from the U.S.A. to locations abroad, where irresponsible exploration could wreak worldwide environmental harm.

It is no exaggeration to say that if the wrong policies were to be enacted, much of the domestic energy industry would be killed in the U.S.A. Only the multinational energy giants would survive. And they would speed their flight from America to search for oil and gas abroad. The sheiks would smile, while our unemployment lines grew. And our environment would be no better for the action.

I do not expect that to happen - but it could, if wrong policies were adopted.

Take my state, for example: Texas had 250,000 oil and gas wells producing in 1989. Over 150,000 people were employed in the state in jobs relating to oil and gas extraction; and approximately 1.9 million barrels of oil and 15.3 billion cubic feet of natural gas were produced each day.

If "production wastes" were to be re-regulated as "industrial wastes" under RCRA reauthorization, then oil and gas extraction activity would decline precipitously.

You are perhaps aware that the Gruy study estimated that under such regulation 147,912 existing oil wells in Texas alone would have to be plugged and abandoned - a decrease of 74 percent. Twenty-seven thousand, nine hundred and nine (27,909) existing gas wells would be plugged and abandoned, a decrease of 56 percent.

Legislation classifying production wastes as industrial waste would sweep like a scythe through the oil and gas fields, leveling derricks and crippling the educational and operational budgets of oil and gas producing states. Meanwhile, huge capital outflows would leave this country to satisfy our domestic demand for energy. The lines of oil tankers from overseas would increase; the unemployment lines in this country would lengthen; and the drain of dollars would be sucked up in the sands of the Middle East.

The major oil companies would survive: they have refining and marketing capacity; their major profits are from downstream activities. In fact, every major oil company but one already spends the majority of its exploration and production budget overseas. Thus their capital outflows would increase. But for many smaller domestic producers - the independent producers who historically have found 80% of the new oil in this country and who have no downstream activities - such re-regulation would mean an end to their business.

Like you, I am elected by the people. My constituents, like yours, value conservation and want a clean environment.

Just as Senate and House members justifiably have concern for the jobs and environment of their home states, and know that their constituents will look to them for protection, so the voters in Texas for a century have looked to the Texas Railroad Commission to protect their environment and their jobs. And we have been doing just that.

In 1919, more than half a century before the EPA was begun, the Railroad Commission adopted rules requiring that fresh water be protected during the drilling and plugging of oil wells. Since then, the Commission has adopted increasingly stringent and more comprehensive water protection rules.

- . In the 1930's, the Commission strengthened its plugging requirements and began regulating the use of injection wells.
- . In 1969, the Commission issued a statewide pit order that required Commission approval to use a surface pit to store or dispose of salt water.
- . A 1965 bill passed by the Texas Legislature appropriating monies for a new well-plugging fund has gone through various adaptations since. Most recently, the Texas Legislature in May, 1991, established an environmental clean-up fund from fees paid by the industry to clean up oil field pollution that might threaten surface and sub-surface waters.
- . Each week when the Commission meets, we vote to assess fines that can be set as high as \$10,000 per day against producers who through negligence or deceit have violated state environmental regulations.

We appreciate a concern in Washington for the water quality and environment of our State. But I guarantee you that nobody is more concerned about that quality than the people of Texas who drink that water, take their food from that soil, and breathe the air surrounding those wells.

In 1935, at the suggestion of President Franklin D. Roosevelt, the Interstate Oil Compact Commission was established among the major oil producing states. Today, each of the 29 member states has a regulatory agency that is directly concerned with and regulates the production of oil and gas and the disposition of wastes which are a necessary byproduct. No one is likely to be more concerned for the proper disposal of these wastes than the regulators charged by the people among whom they live to control them. And no one is likely to be more knowledgeable. We as regulators are the friends and neighbors of the people whom our environmental rules are intended to protect. We within the states have the expertise and experience with land technology and with the people within our borders. The Railroad Commission of Texas alone has about 1,000 employees, the largest number of which work in the Oil and Gas Division. Working together, the state regulatory agencies have demonstrated in many ways their ability to initiate and supervise these environmental programs.

Long before there was an EPA, or before Congress focussed its attention on these matters, the Railroad Commission, like comparable regulatory agencies in other states, began the Underground Injection Control Program. We regulators in various states continue to consult with one another and to upgrade our programs. In January, 1989, the Interstate Oil and Gas Compact Commission began a project with the EPA to develop a report to focus on the elements necessary for an effective state regulatory program. This project was completed in December 1990. The IOGCC is continuing to support the states' efforts by collecting the states' regulations into a central database system; developing a training

program to further educate state field inspection personnel in environmental issues; and coordinating a state review project where individual state regulatory programs are compared with the IOGCC report.

As a result of this work, a peer review process has already begun so that each state has the opportunity to have its regulatory program judged by its peers from comparable states. This peer review process is particularly appropriate because each state regulator understands that his state is likely to have some problems that are unique as well as many that are shared. Even within a state like Texas, for example, the arid plains of West Texas, where annual rainfall is ten inches or less per year, pose quite different environmental problems from East Texas, where rainfall exceeds 40 inches. The depth at which potable water is found varies considerably, as do the cementing requirements to protect these water supplies. State regulatory agencies have the experience and flexibility to accommodate these demands. A set of regulations or directives conceived in Washington and applied nationwide would not. The costs would compound; the beneficial results would diminish. And the complicated tiers of regulation would drive more drilling, more capital, and more jobs overseas at a time in which America's energy security is already precarious.

Like many IOGCC regulatory agencies, the Railroad Commission continually updates its regulations and seeks to improve its protection of the natural heritage which we are charged to conserve.

Let me cite a few examples of initiatives we have undertaken on our own since 1980, the year in which oil and gas E & P wastes were exempted from regulation under RCRA.

1. In 1981 the Commission amended its rules governing injection wells to establish more specific technical standards and new monitoring programs.
2. In 1981 the Commission adopted a new rule governing underground hydrocarbon storage wells.
3. In 1982 the Commission amended its rules to specify state-of-the-art requirements for casing, cementing, drilling, and completion of wells.
4. In 1983 the Commission was given authority to assess administrative penalties of up to \$10,000 per day for violation of its rules relating to pollution.
5. In 1984 the Commission amended its rules regulating surface storage and disposal of all oil and gas wastes. The amended rules require that storage and disposal methods either be authorized by rule or permitted. All previously permitted pits had to be re-permitted under the standards of the amended rules.
6. In 1986 the Commission adopted a new rule on discharges of oil and gas wastes in anticipation of obtaining federal authorization to administer the NPDES program, for which preliminary application was submitted to the EPA in 1990.
7. In 1990 the Commission adopted a new rule concerning the reclamation of crude oil to expand permitting requirements and to require a bond to ensure that reclamation plants are operated and closed in accordance with the Commission rules.

Working with our state legislature this year, the Commission has been given new authority to ensure compliance with environmental regulations:

- a. Oil and gas producers must comply with all state laws and Commission rules before new drilling permits may be granted.

- b. Before conducting any oil and gas operations, producers must prove their financial ability to correct or control any pollution that might be associated with their oil and gas activities.
- c. The Commission has new authority to regulate haulers of oil and gas waste.
- d. The Commission has enlarged authority over generators of non-exempt oil and gas wastes that are hazardous as defined in recent EPA regulations.
- e. The Commission is given a fund of approximately 10 million dollars per year to plug abandoned wells and clean up oil field pollution.

The Commission has recently taken other steps to protect the environment. This year the Commission adopted rules to protect migratory birds from harm which might befall them in oil and gas producing areas. All oil and gas producers must screen, net, cover or otherwise render harmless to birds all open-top storage tanks eight feet or more in diameter, and all pits likely to contain some oil.

Also, this year the Commission began developing a pollution prevention program to inform oil and gas producers of ways in which they can reduce the amounts of waste they generate in their E & P activities.

It is important to keep in perspective the wastes that are generated in producing energy for our country:

- 1. 98% by volume of all oil and gas wastes consist of salt water. This salt water is found and produced along with oil and gas, and is normally returned by the producer to the very zones underground from which it was initially removed. In short, "the wheel is come full circle." The salt water, found in nature, is returned to the same spot in nature from which it was taken.

2. Drilling muds, which consist largely of water, clay and barite, constitute approximately 1.6% of the waste stream. The volumes are high, the toxicity low.
3. The remaining portion of so-called "associated wastes" constitutes only .4 of 1% of the volume of the waste stream. Although some benzene is present (at very low levels, when compared with other industries or with gasoline), the items found here are generally high in volume but low in toxicity.

We in Texas, and indeed the people of most producing states, do not have sufficient good water so that we can waste it. It has not only been our intent but our success for most of the past half century to have developed the technology and the will to protect fresh water supplies, and to return produced (salt) waters to their original source.

We consider it absolutely essential that the exemption from RCRA Subtitle C of oil and gas wastes be continued, and be subject to state control rather than to distant, inflexible, and perhaps inappropriate federal directives.

We at the Railroad Commission and we of the IOGCC agree with the conclusions reached by the EPA in its report to Congress in December 1987, and its Regulatory Determination as reported in the Federal Register on July 8th, 1988. Basically, the EPA said it could not do as good a job as the state regulatories were doing, and in the immortal words of Bert Lance, "if it ain't broke, don't fix it."

The EPA believed that existing state and federal programs under the Safe Water Drinking Act and the Clean Water Act were generally adequate, and that any gaps should

be filled with the help of states rather than by imposing uniform federal waste regulations that define oil and gas wastes as hazardous.

In reality, oil and gas wastes pose no significant threat to public health and the environment when they are properly managed: they are relatively low in toxicity; state programs developed over a half century, and relatively recent federal programs have together protected the environment; and there have been remarkably few damage cases documented by the EPA.

Prescriptive RCRA requirements such as those in Subtitle C apply, appropriately, to industrial and petrochemical hazardous wastes. These requirements, in Texas, are enforced by the Texas Water Commission and necessarily have little flexibility. Flexibility, on the other hand, is required for the high-volume, low-toxicity wastes produced in the drilling process. It would be extraordinarily difficult to monitor the 250,000 well sites and 15,000 operators that are present in Texas alone. Yet, to shut down these wells would not only bring economic disaster to Texas, but would damage our entire national economy and have profound national security implications.

The existing waste disposal sites for Subsection C wastes would be entirely inadequate for the high volumes of oil and gas wastes (which are not fact hazardous), and would require an army of federal inspectors that could better protect our population by focussing their attention elsewhere.

Good cooperation already exists between the various states through the IOGCC, and through both peer review and self-review procedures.

Like you, we elected officials at the Railroad Commission, and the regulatory officers in other oil and gas producing states, have a profound concern for our own responsibilities and for protecting the environment and the people among whom we live. As our technical knowledge has advanced over the past 70 years so have our enforcement proceedings.

While imperfect, we are proud of our past performance, and of the initiative that state regulatory agencies undertook long before an EPA even existed. We have sought to make sure that, while our population gained the benefits of energy from under the earth's surface, it returned possibly dangerous wastes to depths beneath that surface. In doing so, our citizens could gain the benefits without suffering the risks of energy production. No set of federal regulations could substitute for the experience, the knowledge of direct operations, the flexible and specific understanding of varied geological zones and geographical areas that state regulatory bodies possess.

Please don't ask us to spend our time simply trying to understand and adhere to federal regulations, many of which might be inappropriate for our particular needs. Let us continue to improve in our task of protecting the citizens and preserving the natural heritage for which we have been given responsibilities as stewards.

We appreciate the concern that you have for the health and environment of our nation. We want you, and members of the Executive Branch whom your laws direct, to be able to devote your time and energy where they are best placed. That need is not with the high-volume and low-toxicity waste waters produced in pumping oil and gas. Those minor problems we at the state level are fully equipped to handle. We wish you to be free to address the other larger questions more deserving of your attention.

I thank you for this opportunity to appear before you, and will be pleased to respond to your questions.

B.

**STATEMENT OF
INTERSTATE OIL AND GAS COMPACT COMMISSION
TO THE UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
SUBCOMMITTEE ON TRANSPORTATION AND HAZARDOUS MATERIALS**

September 11, 1991

Mr. Chairman and members of the committee, I am Robert Krueger, a Commissioner of the Texas Railroad Commission. I am pleased to present the following comments on behalf of the Interstate Oil and Gas Compact Commission and its Chairman, Governor Norman Bangerter of Utah.

I am pleased to have been given the opportunity to present the views of the oil and gas producing states on the issue of protection of the environment and management of exploration and production waste from oil and gas operations. Because this has been a concern of the states for several decades, it is appropriate that the states address this issue through the Interstate Oil and Gas Compact Commission (IOGCC), an organization of the governors of 29 oil and gas producing states (a list of the states, the governors and their official representatives is attached as Appendix A).

B-1

There presently exists within each member state a regulatory agency that is directly concerned with, and regulates, the exploration and production of oil and gas and the disposition of the wastes which are a necessary byproduct. There are the wastes which you refer to as exploration and production (E&P) wastes.

We are prepared to demonstrate that these wastes are presently regulated and the environment is presently protected. A federal program will be wasteful and burdensome and threaten the development of badly needed resources for this country. A Congressional mandate for burdensome federal regulations on the states, will increase the cost of domestic oil and gas resources.

The petroleum industry has been producing oil and gas in the United States for more than one hundred and thirty years. Some aspects of the regulation of this industry go back more than sixty years. For the past thirty years, the environmental regulations adopted by the states, and presently in force, have been continuously strengthened and improved. There are more than eight hundred thousand well locations in the United States, ninety-nine percent of them in member states of the Interstate Oil and Gas Compact Commission (IOGCC). We are confident of the level of regulation of these wastes within our states; further, we believe the governors of the oil and gas producing states would make a similar statement. The states are committed to the principle of wise resource development with due regard to the environment. Further, the states have the expertise and experience to supervise these environmental programs. More importantly, we are the friends and neighbors of the people these environmental rules are intended

to protect. Utilizing the Environmental Protection Agency's (EPA) 1987 Report to Congress on the Management of Wastes from Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy, there were only sixty-two damage cases documented (roughly one in thirteen thousand) which indicates the effectiveness of current state regulatory programs. These state regulatory programs involve numerous state and local agencies and employ thousands of people nationwide.

The IOGCC agrees with the EPA's 1988 Regulatory Determination where exploration and production wastes were exempt from Subtitle C Regulation because, "(1) Subtitle C did not provide sufficient flexibility to consider costs and avoid the serious economic impacts that regulation would create for the industry's exploration and production operations; (2) Existing state and federal regulatory programs are generally adequate for controlling oil, gas, and geothermal wastes. Regulatory gaps in the Clean Water Act and the UIC Program are already being addressed, and the remaining gaps in state and federal regulatory programs can be effectively addressed by formulating requirements under Subtitle D of RCRA and by working with states; (3) Permitting delays would hinder new facilities, disrupting the search for new oil and gas deposits; (4) Subtitle C regulation of these wastes could severely strain existing Subtitle C facility capability; (5) it is impractical and inerrant to implement Subtitle C for all or some of these wastes because of the destruction and, in some cases, duplication of state authorities that administer programs through regulatory organization structures tailored to the oil and gas

industry; and (6) it is impractical and inefficient to implement Subtitle C for all or some of these wastes because of the permitting burden that the regulatory agencies would incur if even a small percentage of these sites were considered Treatment, Storage and Disposal Facilities (TSDF)." The IOGCC would further add that we must be sure to base additional regulation on good science. Our federal and state policymakers must demand credible evidence before instituting sweeping new regulatory programs. The industry and the consuming public deserve science-based policy.

We have become aware of the economic impact study done for the American Petroleum Institute showing that imposition of the provisions of S976 would result in massive losses of production, in fact, eight states would lose all of their production. We have not had an opportunity to investigate the methodology and to have an opinion as to the accuracy of this economic prediction, but should the study be half right, it indicates a loss far in excess of anything necessary to provide environmental protection.

As mentioned previously in this testimony, the IOGCC's member states have been responsible for regulating the oil and gas industry for more than sixty years and have been in the forefront in demonstrating the interest and ability of the state regulatory agencies to adequately protect human health and the environment while properly

managing the nations' resources. Attached as Appendix B are nine resolutions dating back to 1986 in which the IOGCC governors and official representatives have addressed the issues of exploration and production wastes and RCRA Reauthorization.

In January 1989, the IOGCC began a project with the EPA to develop a report that would contain the elements necessary for an effective state regulatory program. This project was completed in December 1990. One copy of this report is submitted to the Subcommittee for the record. We would be pleased to furnish additional copies as needed. The IOGCC is continuing to cooperate with the U.S. EPA in additional projects designed to improve and upgrade state regulatory programs where necessary. These projects include a collection of the states' regulations into a central database system; a training program designed to further educate state field inspection personnel in environmental issues; and a state review project where individual state regulatory programs are compared to the IOGCC report.

Some persons have publicly asserted that, because there is no federal regulatory program for E&P wastes, these wastes are not currently regulated. This is simply untrue, and ignores the efforts made by state governments which are vigorously regulating and upgrading regulations where necessary to ensure the protection of human health and the environment. We would further add that the IOGCC's states do not see the need for a duplicative federal regulatory program or a federally mandated program without proper

funding for implementation. If the Congress feels it necessary to develop a federal regulatory program for E&P wastes, it must be built upon the strengths of the existing state regulatory programs. Failure to build upon the strengths will lead to duplication of effort and waste of resources on the state and federal level.

The IOGCC's states support the exemption of exploration and production wastes from RCRA Subtitle C Classification. We support the EPA's Regulatory Determination and its definition and lists of exempt and nonexempt wastes. We also encourage proper disposal methods for any nonexempt wastes and recognize the need to test nonexempt wastes for hazardous characteristics which could require RCRA Subtitle C disposal methods.

In summary, the IOGCC's member states recommend that current state E&P waste management programs adequately protect human health and the environment. Additional regulation is necessary and duplicative.

I would like to once again thank the Committee for this opportunity to provide information on state E&P waste regulatory programs and recognize your insight in conducting this hearing prior to formulating RCRA reauthorization legislation on exempt E&P wastes.

APPENDIX A**GOVERNORS AND THEIR
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APPENDIX B

RESOLUTION ON HAZARDOUS WASTE EXEMPTION STUDY

WHEREAS, the Interstate Oil Compact Commission is an organization of 29 oil and gas producing states created and dedicated to prevention of waste; and

WHEREAS, member states recognize that environmental protection is a necessary adjunct of oil and gas development and prevention of waste; and

WHEREAS, such member states have developed staff expertise and knowledge, and data bases relative to oil and gas related environmental protection; and

WHEREAS, the Interstate Oil Compact Commission (IOCC) has become aware of the work of the Industrial Technology Division of the Environmental Protection Agency (EPA) relative to studies of the oil and gas extraction industry under provisions of the Clean Water Act, the Safe Drinking Water Act, and the Resource Conservation and Recovery Act (RCRA), and particularly that study of the hazardous waste exemption granted oil and gas drilling muds and produced water under RCRA Section 8002(m); and

WHEREAS, the Interstate Oil Compact Commission member states are concerned that:

- (1) Such study is restricted in scope due to limited utilization of available resources;
- (2) No plans apparently exist at EPA to consult with a broad base of states and with industry prior to issuance of the final report to Congress;
- (3) No apparent plans exist to utilize state or industry expertise in preparing or critiquing such report;
- (4) Classification of drilling muds and produced water as hazardous waste has the potential to cost the nation the exploration incentive needed to find and develop its hydrocarbon resources;

- (5) Review of the classification of drilling muds and produced water cannot be effectively considered complete without comments and recommendations from state oil and gas regulatory agencies and the oil and gas industry;

NOW, THEREFORE, BE IT RESOLVED THAT the Interstate Oil Compact Commission, meeting in Anchorage, Alaska, hereby calls upon the Administrator of the EPA to add immediately such IOCC representatives as may be considered appropriate to the EPA RCRA Section 8002(m) Production Waste Study Advisory Work Group.

BE IT FURTHER RESOLVED THAT the Administrator be urged to direct appropriate staff to consult with the state oil and gas regulatory agencies and appropriate industry representatives during collection, analysis, and review of data, and upon completion of a draft study report to consider, incorporate, and/or respond to comments received from such state agencies and industry representatives.

**RESOLUTION CALLING FOR IOCC MEMBER STATES TO
BE CLOSELY INVOLVED IN THE EPA PRODUCTION WASTE STUDY**

WHEREAS, the Interstate Oil Compact Commission is an organization of 29 oil and gas producing states created and dedicated to prevention of waste; and

WHEREAS, the member states are vitally concerned that should EPA's "Wastes from the Exploration, Development and Production of Crude Oil, Natural Gas and Geothermal Energy," be improperly structured and completed, it will have a devastating and unnecessary impact upon exploration for and production of these resources and an industry that is already in a severely depressed condition; and

WHEREAS, member states consider environmental protection as an important part of administering their regulatory responsibilities and such member states have developed staff expertise, knowledge and information relative to environmental protection as a necessary part of regulating oil and gas operations; and

WHEREAS, member states recognize that environmental protection is a necessary adjunct of oil and gas and geothermal development and prevention of waste and such member states have developed staff expertise and knowledge, and data bases relative to oil and gas and geothermal related environmental protection; and

WHEREAS, a resolution was passed at the Interstate Oil Compact Commission meeting in Anchorage, Alaska which called upon the Administrator of the EPA to add immediately such IOCC representatives as may be considered appropriate to the EPA RCRA Section 8002(m) Production Waste Study Advisory Work Group; and

WHEREAS, notwithstanding the positive initial step of including the Interstate Oil Compact Commission through a member state representative on the EPA Workshop for developing the Technical Report, the Interstate Oil Compact Commission member states remain concerned that:

- (1) Time and resources are inadequate to ensure a valid study.
- (2) Classification of drilling muds and produced waters as a hazardous waste will result in a significant cost penalty on exploration and production activities which will further reduce incentives needed to find and develop hydrocarbon and geothermal resources, thus creating a threat to national energy security.
- (3) The reduced level of exploration and production activity which would result from such reclassification would have a direct significant negative impact on the economies of oil, gas and geothermal producing states and through ripple effects and reduced available federal funds, the non-producing states as well; and

WHEREAS, the producing states' regulatory agencies have for many years administered laws and regulations intended to protect the environment and may be responsible for administering any laws and regulations resulting from EPA study and, therefore, have a vital interest in its validity.

NOW, THEREFORE, BE IT RESOLVED that the Interstate Oil Compact Commission meeting in Salt Lake City, Utah, in aid of the attainment of valid results of the study, hereby calls upon the Administrator of the EPA to work closely with producing states to ensure that state regulatory programs are accurately represented and to assure that risk analysis and damage case assessment reflect current regulatory policies.

BE IT FURTHER RESOLVED that all Interstate Oil Compact Commission member states are encouraged to provide input to EPA regarding state regulatory practices, damage cases and risk assessment methodology and to actively advocate the continuance of state primacy in the regulation of oil and gas and geothermal wastes.

RESOLUTION ON
OIL, GAS AND GEOTHERMAL EXPLORATION AND PRODUCTION WASTES

WHEREAS, the Interstate Oil Compact Commission (IOCC) has long advocated the production of oil and gas consistent with sound environmental policies; and

WHEREAS, the IOCC and its 29 member states have consistently taken the lead in developing and adopting those measures that are necessary to protect the environment, including groundwater, and

WHEREAS, the Environmental Protection Agency (EPA) has recently completed a study of wastes associated with oil, gas and geothermal exploration and development and has concluded that "risks to human health and the environment are very small to negligible when wastes are properly managed"; and

WHEREAS, states for many years have properly managed exploration and production (E&P) wastes, through implementation of extensive regulatory programs, and have utilized their authority to enforce these regulations and promulgate and enact new regulations; and

WHEREAS, IOCC and member states have participated on EPA's Interagency Advisory Committee on E&P wastes, have cooperated extensively with EPA in supplying data for EPA's Report to Congress and Regulatory Determination and will continue to cooperate with EPA to strengthen the states' role in environmental protection; and

WHEREAS, IOCC and its member States have established a task force charged with determining any additional regulatory controls needed on E&P wastes and reporting thereon at IOCC's December 1988 meeting; and

WHEREAS, there is a concern by IOCC and its member states that the EPA Regulatory Determination recommendations will not be consistent with the 1987 Report to Congress;

NOW, THEREFORE, BE IT RESOLVED THAT:

(1) The IOCC finds existing state oil and gas regulatory agencies are protecting human health and the environment through their existing programs and institutional structures.

(2) The IOCC supports the findings of EPA's 1987 Report to Congress that E&P wastes should be regulated as nonhazardous wastes and supports preserving the current exemption from hazardous waste regulation.

(3) The IOCC urges EPA to review its regulatory determination with the IOCC Task Force to retain appropriate state authority and to assure that the regulatory determination is consistent with its 1987 Report to Congress.

RESOLUTION OF THE IOCC PERTAINING TO
OIL, GAS AND GEOTHERMAL EXPLORATION AND PRODUCTION WASTES

WHEREAS, the Interstate Oil Compact Commission (IOCC) has long advocated the production of oil and gas consistent with sound environmental policies; and

WHEREAS, the IOCC and its 29 member states have consistently taken the lead in developing and adopting those measures that are necessary to protect the environment, including groundwater, and

WHEREAS, the Environmental Protection Agency (EPA) has recently completed a congressionally mandated regulatory determination for wastes associated with oil, gas, and geothermal exploration and development and has concluded that "risks to human health and the environment are very small to negligible when wastes are properly managed"; and

WHEREAS, states for many years have properly managed exploration and production (E&P) wastes, through implementation of extensive regulatory programs, and have utilized their authority to enforce these regulations and promulgate and enact new regulations; and

WHEREAS, the IOCC endorses the use of sound waste management practices by industry and supports efforts to identify and incorporate improved practices into regulations and daily operations; and

WHEREAS, the IOCC and its member states have participated on EPA's Interagency Advisory Committee on E&P wastes, have cooperated extensively with EPA in supplying data for EPA's Report to Congress and Regulatory Determination and will continue to cooperate with EPA to strengthen the states' role in environmental protection; and

WHEREAS, the IOCC and its member states have established a coordinating committee charged with: (1) advocating use of the sound waste management practices; (2) determining any additional regulatory controls needed on E&P

wastes; and (3) advising Congress on the appropriate level of regulation to be considered in Resource Conservation and Recovery Act (RCRA) reauthorization legislation.

NOW, THEREFORE, BE IT RESOLVED THAT:

(1) The IOCC finds that existing state oil and gas regulatory agencies are protecting human health and the environment through their existing programs and institutional structures.

(2) The IOCC supports the findings of EPA's 1988 Regulatory Determination that E&P wastes should be regulated as nonhazardous wastes and supports preserving their current exemption from hazardous waste regulation.

(3) The IOCC urges EPA, other federal agencies, congressional representatives, industry, environmental groups, and other interested parties, to participate with the coordinating committee in a cooperative effort to examine state regulatory programs and current waste management practices in order to effect any necessary improvements and develop criteria to be included in RCRA reauthorization legislation.

(4) The IOCC shall notify all interested parties of its plans and of the progress of the coordinating committee and shall solicit the presentation of pertinent information on E&P wastes at a meeting to be held in January 1989.

**RESOLUTION PERTAINING TO THE
COUNCIL ON REGULATORY NEEDS**

WHEREAS, with the support of the U.S. Environmental Protection Agency, the Interstate Oil Compact Commission (IOCC) formed the Council on Regulatory Needs; and

WHEREAS, the members of the Council are from state oil and gas regulatory agencies, state health and environmental agencies, environmental organizations, industry, and Federal agencies; and

WHEREAS, the Council formed committees on Technical and Administrative issues; and

WHEREAS, the Technical Committee has completed a draft of the criteria necessary for the regulation of exploration and production (E&P) wastes to protect human health and the environment; and

WHEREAS, the Administrative Committee is responsible for developing recommendations based on these criteria for the efficient and effective regulation of E&P wastes; and

WHEREAS, the Council on Regulatory Needs will present a final draft report to the Commission at its 1990 Midyear Meeting in Bismarck, North Dakota.

NOW, THEREFORE BE IT RESOLVED that:

1. The IOCC commends the Council on its work and efforts to date directed toward strengthening state regulation of E&P wastes.
2. Governors and Official Representatives of the compacting states will take an active role in supporting the work of the Council so that the Environmental Protection Agency, the member states, and other interest groups can

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Page 2

confidently recognize that the states are now regulating and will continue to regulate E&P wastes in a manner that effectively protects human health and the environment.

3. Based on the timely development of this comprehensive report on the management of E&P wastes, the IOCC urges Congress to delay consideration of reauthorization legislation under the Resource Conservation and Recovery Act (RCRA) pending recommendations resulting from this report.

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**RESOLUTION OF THE IOCC PERTAINING TO THE STATES'
REGULATION OF OIL & GAS EXPLORATION AND PRODUCTION WASTE**

WHEREAS, the IOCC has participated in and monitored the Environmental Protection Agency's Report to Congress and Regulatory Determination on Exploration and Production (E&P) Waste Management; and

WHEREAS, the IOCC's 29 member states have extensive regulatory programs that include the protection of human health and the environment; and

WHEREAS, the IOCC created the Council on Regulatory Needs and supports its efforts to produce a report on the necessary elements of an effective state regulatory program for exploration and production waste management; and

WHEREAS, the Council on Regulatory Needs, co-chaired by Governor George Sinner of North Dakota and Governor Garrey Carruthers of New Mexico, is composed of members from state oil and gas regulatory agencies, state health and environmental agencies, environmental interest groups, the petroleum industry and federal agencies; and

WHEREAS, the Council has completed a draft of its recommendations which is now open for public comment; and

WHEREAS, the final report to be adopted by the IOCC in December 1990 will establish the framework for effective state-based E&P waste regulatory programs; and

WHEREAS, Governor Sinner and other members of the Council have made extensive contacts with federal officials specifically with

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Resolution of the IOCC Pertaining to the States'
Regulation of Oil & Gas Exploration and Production Waste
Page 2

William Reilly, Administrator of the EPA and members of Congress,
to discuss the state regulation of E&P wastes;

NOW, THEREFORE, BE IT RESOLVED THAT:

- (1) The IOCC will continue to be the coordinating organization between state and federal agencies, environmental groups, and industry.
- (2) The IOCC expresses its appreciation to Administrator Reilly and the members of Congress for their consideration of comments of the states on this issue and urges the EPA and the Congress to support continued state regulation of oil and natural gas E&P wastes.

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RESOLUTION CONCERNING THE REGULATION OF WASTE CRUDE OIL
AND TANK BOTTOMS RECLAMATION OPERATIONS

WHEREAS, resource conservation is defined by the Resource Conservation and Recovery Act (RCRA) to include reduction of the amounts of generated solid wastes and utilization of recovered resources; and

WHEREAS, resource recovery is defined as material or energy recovered from solid wastes; and

WHEREAS, the reclamation of waste crude oil and crude oil tank bottoms recovers additional amounts of crude oil which otherwise would be discarded; and

WHEREAS, failure to process waste crude oil and crude oil tank bottoms will triple the volume of waste to be disposed; and

WHEREAS, without such oil recovery, disposal of increased volumes of solid sediments and liquids will severely impact the available surface and underground injection disposal facilities to dispose of these wastes in an environmentally sound manner; and

WHEREAS, these wastes are uniquely associated with oil production activities and are not generated as a result of transportation, refining or manufacturing; and

WHEREAS, recovery of oil from waste crude oil and crude oil tank bottoms may occur at the well site, at centralized facilities, and at off-site facilities including disposal facilities; and

WHEREAS, EPA's 1988 Regulatory Determination exempted certain exploration and production wastes and activities from consideration as hazardous wastes, not including off-site crude oil and tank bottom reclamation activities; and

WHEREAS, EPA has recently determined that on-site reclamation is permitted within the scope of the exemption; and

WHEREAS, the same reclamation operations when located off-site, should also be permitted within the scope of the exemption; and

WHEREAS, as a result of this regulatory inconsistency, most offsite reclamation facilities have ceased operations.

NOW, THEREFORE, BE IT RESOLVED that the Interstate Oil Compact Commission requests that the Environmental Protection Agency review and amend the Regulatory Determination on oil and gas exploration and production wastes to extend to off-site waste crude oil and tank bottoms reclamation activities the same exemption that is now afforded to on-site operations.

RESOLUTION PERTAINING TO THE COUNCIL ON REGULATORY NEEDS AND
STATES REGULATION OF OIL AND GAS EXPLORATION AND PRODUCTION WASTES

Through its Council on Regulatory Needs, the Interstate Oil Compact Commission has completed its task of defining the criteria by which state regulatory programs on exploration and production waste management should be measured. The Commission unanimously adopted the Council's report in September, recognizing its effort as an important first step in cooperating with all interest groups on the regulation of these wastes.

Through its affiliation with the Council, the IOCC has launched three new projects designed to emphasize and improve state regulation of E&P waste. These projects are training, data management and review of state programs.

NOW, THEREFORE, BE IT RESOLVED that the Commission urges the Administration and the Congress to consider the regulatory efforts of the states and recognize the ability of the states to regulate E&P wastes during the deliberations on the reauthorization of the Resource Conservation and Recovery Act in 1991.

**RESOLUTION ESTABLISHING THE
COUNCIL ON EXPLORATION AND PRODUCTION WASTES**

WHEREAS, there is a need for the Interstate Oil Compact Commission (Commission) to provide expertise and assistance to states concerning the regulation of oil and gas exploration and production (E&P) wastes and the protection of the environment, and to advise member states on regulations and practices concerning E&P wastes;

THEREFORE, BE IT RESOLVED, the Interstate Oil Compact Commission hereby endorses the previous work of the Council on Regulatory Needs and creates a Special Committee, the Council on Exploration and Production Wastes (Council), which will have the following structure and role:

1. The Council will be chaired by such person or persons as the Chairman of the Commission designates for a fixed term of two years. Council membership will be appointed by the Chairman of the Commission and will consist of twelve persons in addition to the Council Chairman. Six members will be representatives of state oil and gas regulatory agencies and six will be representatives of state environmental regulatory agencies. The oil and gas producing states will be divided into cohesive regions and each region will have one representative from the oil and gas agency and one representative from the environmental agency.

2. Committee member appointments to the Council will be for two years, except that initially the Chairman of the Commission will appoint one-half of the Council members to serve for a term of one year and one-half to serve for a term of two years. Thereafter, each appointment shall be for two years.
3. The Council will avail itself of an Advisory Committee. The Advisory Committee to the Council will be appointed by the Chairman of the Commission and will consist of three representatives from industry, three representatives from environmental organizations, and three additional state regulatory officials. Appointments to the Advisory Committee will also be for a term of two years. Initially, the Chairman of the Commission will name four representatives for a term of one year and five representatives for a term of two years.
4. The Council will welcome and recognize observers from those federal agencies that desire to participate, as well as any other industry or environmental organizations that wish to participate with observer status. Neither the observers nor the representatives of the Advisory Committee shall have a vote on the deliberations of the Council.
5. From time to time, the Council may, with the approval of the Commission, undertake projects which will result in the making of reports and recommendations to the Commission on the regulation of E&P waste management activities. Such

recommendations and reports will not be binding on the Commission, and the Commission may accept or reject such reports at its discretion. The staff of the Commission will keep the Commission advised of the activities of the Council and act as liaison between the Council and the Commission.

6. The Council is created for a period of up to two years, expiring no later than March 15, 1993. The Council may be reauthorized by the Commission in accordance with Commission Bylaws.