DANGEROUS OPPORTUNITY: THEMES OF CHANGE

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Chinese is a rich language. It uses two symbols to stand for change; one means danger, the other opportunity.

We can certainly see change as a dangerous opportunity. It can threaten us or challenge us. But either way, it is undeniably the context in which the mining community works today.

Far-reaching, dramatic changes are occurring in mining and in the culture that is mining. These changes affect all of us involved in the industry.

Nowhere is this fact more drastically apparent than in the marketplace itself. Coal that would have sold for $100 a ton in 1978 now sells for less than $20. Mineral producers face increased competition from low-cost foreign mining firms. Companies have had to change business practices, improve quality, and seek new markets for their products. Strong leadership and the hard work, innovation, and determination of miners have allowed coal and mineral producers to overcome adversity and achieve new production records.

Advances in mining technology have also helped. But technological change has been accompanied by new health and safety problems, creating the need for new efforts by miners, managers, researchers, and regulators.

Evidence of change is everywhere. The American Mining Congress recently merged with the National Coal Association to form the National Mining Association. Last year, this very conference broadened its scope to include the health and safety issues involved in nonfuel mineral production. Mining companies continue to merge and consolidate at an increasing pace.

We can find one of the most dramatic and encouraging examples of change in the 1993 National Bituminous Coal Wage Agreement. As part of this agreement, the United Mine Workers of America and the Bituminous Coal Operators Association established a Labor Management Positive Change Process. The agreement acknowledged that "...just as the coal industry has changed, and continues to change, so too must a new and different relationship be fostered between labor and management." It calls for "a joint commitment of continuous improvement to working relationships, productivity, health and safety, training, education, and investment in technology and, most importantly, human resources." The ability to reach this agreement is a tribute to dynamic, forward-thinking leadership on both sides.

Those of us in the public sector also face the challenges and opportunities of change and the need to forge "new and different relationships."

The American people demand a government that "works better and costs less." As part of the Clinton Administration's commitment to reinvent government, we see the Mine Safety and Health Administration pursuing new and innovative ways to improve enforcement of mine safety and health regulations. Efforts such as the Small Mines Summit and the study on roof bolter safety bring all facets of the mining community together to address health and safety problems.

At the Bureau, we too find ourselves responding to and creating change. Many of these changes are intended to improve the service we provide our customers—to make our piece of government "work better and cost less."

The USBM has been at the forefront of the drive to implement the Administration's National Performance Review. We were one of the first Federal agencies to conduct its own intensive, formal review of programs, operations, and facilities. We've gone even further, reorganizing and streamlining around our core research functions.

Reinventing the USBM has involved difficult choices, difficult changes. We remain committed to our core missions in such areas as mine health and safety. But we have reshaped and refined some of our research goals; we have redirected and, in some cases eliminated, efforts. We have absorbed budget cuts of 20 percent in two years and reduced staff over 20 percent. And we have embarked on a reorganization that will see us consolidate our research programs in four field centers.

Those of you who have experienced similar upheavals in your own organizations know all too well the internal pain involved. But these changes will ultimately allow us to serve our customers better. They will better equip us to provide the science needed by a society built on mining and mineral production—science that addresses such key national interests as worker health and safety, economic prosperity, and environmental protection.

Our most important goal in reinventing the USBM has been to make our work more responsive to these National needs—more responsive to our customers.

As you can see, it is not "business as usual" in the mining industry or in the Federal government. We are all working to create a "Positive Change Process"—one that forges "new and different relationships" not only between labor and management, but among all facets of the mining community.

What is the Bureau's role in a changing mining industry? The USBM is not a regulatory or enforcement agency. We do not take actions against people or business. What we do is provide the objective and impartial knowledge and information, and the technology needed by you, our customers to protect the health and safety of miners, resolve health and safety issues, and solve other mineral-related problems.

This basic and fundamental role becomes even more important in a rapidly changing world where new mining technologies and practices are constantly being introduced.

Our success in filling this role will depend in large part on the extent to which we improve our communication and cooperation with our customers--with you and the organizations you represent.

We have assembled an official Advisory Board, composed of experts from various minerals-related fields, to work with us on determining the direction, priority, and scope of our programs.

We have contracted with the National Research Council to provide a visiting committee to conduct a top-to-bottom review of our research program and its infrastructure.

We seek the critiques and counsel of all of our customers. We want detailed customer input to drive our research. For example, the Mining

Environment Roundtable (a group whose members represent companies with Superfund liabilities) is working with us to ensure the relevancy of our environmental remediation program.

We are also improving our partnerships with other Federal agencies. Better coordination and cooperation with MSHA, for example, will provide sound science to help industry, labor and government resolve regulatory issues.

Our efforts as partners working to solve mine health and safety problems continues the Nation's long-standing commitment to protecting workers in our mines and mineral processing plants. Health and safety is a priority of this administration and it remains a priority of the USBM. As President Clinton reminded us all in May, "protecting the health and safety of our country's workers is an important national value....We don't believe that anyone should have to endanger their personal health or their very lives to make a living for their families, to live a life of dignity."

Our commitment to mine health and safety may be long-standing, but our work in this area is not "business as usual." We are reinventing our health and safety research program, creating a focal point for this effort at our Pittsburgh research facility. We are empowering our scientists and engineers by eliminating unnecessary layers of management, capitalizing on our resources, and consolidating and targeting our efforts.

We are developing a conceptual framework for our health and safety research by defining our mission, shaping a vision, and setting specific goals. We've drafted a document that sets forth our mission, based on the Federal Mine Safety and Health Act, as "conduct[ing] objective and impartial scientific studies, research, experiments, and demonstrations in the mineral industry in the areas of: worker health; worker safety; and disaster prevention."

We envision the USBM Health and Safety Center striving to be "the premier source of impartial and objective technical knowledge and innovative technologies for the mining industry, including labor, mine management, and regulators of mineral production and processing."

We are sharing this draft document with you and other stakeholders. We welcome your comments and suggestions as we try to find ways to serve our customers more effectively.

With your help, we can continue to provide the science and technology needed to make American mines the safest and most productive in the world. To do so, we must address the complex issues affecting mining in the 1990s and beyond.

In the area of worker health, respirable dust is a top research priority. USBM dust control technologies are routinely used by coal mines in all regions of the country. But higher extraction rates and ever increasing levels of production are releasing more dust. Current control technology appears unable to keep pace.

The introduction and increased use of diesel-powered equipment in underground mines has contributed to mine safety and productivity, but created new air quality concerns. Our work here addresses technologies to measure and control particulate emissions as well as tests of "cleaner," alternative fuel compositions.

Noise is another key health issue where today's problems may be aggravated by tomorrow's technologies. MSHA statistics show that 25 percent of all coal miners surveyed have exposure to noise that exceeds acceptable levels. It is expected that extraction and haulage equipment will increase in size, power, and noise levels, making noise an even greater health threat.

Major issues in worker safety include roof fall fatalities. Between 1986 and 1994, roof falls killed 117 workers in underground coal mines.

During this same period, miners suffered more than 800 ground control injuries each year.

Safe use of extended cut mining has become an issue. Companies have been granted variances that allow them to mine cuts as deep as 50 feet using remote-controlled continuous miners. The ability to predict the stability of extended cuts and provide safe work practices for this mining environment is a major focus.

The introduction of larger mining machines—machines that require higher voltage—is creating new concerns about electrical safety. Haulage continues to threaten the lives of miners, particularly at surface operations.

From 80 to 90 percent of all mine accidents have human error as a causal factor. We need to understand why miners take unnecessary risks, find more effective ways to encourage self-protective behavior, and identify those areas where technological innovation can help eliminate the "paybacks" that motivate workers to ignore basic safety rules.

Many miners are injured because they are not able to identify hazards. We're working on training techniques to enhance hazard recognition skills. As the mining environment becomes more complicated, computer-based simulations will be needed to predict hazards and prepare miners to respond safely.

Workers at small mines and operations run by independent contractors suffer a disproportionate share of fatalities. Many hypotheses exist, but we need scientific investigations to pinpoint the problems and potential solutions. Detailed analyses to determine the actual causes for this phenomenon will help target future research and training efforts.

We're also looking at the problems involved when workers and machines come together. The human/machine interface practices in mining do not routinely apply state-of-the-art ergonomic principles. Ergonomics studies and new machine designs promise to improve the "fit" between miners, their jobs, and equipment.

We face similar challenges in the area of disaster prevention. Methane control technology developed by the Bureau in the '70s and '80s can't cope with the methane emission levels found in high-production mines operating in deep, gassy coalbeds. We're focusing now on determining the fundamental engineering and geologic factors that influence methane emissions.

We're working on ways to prevent mine fires and explosions and ways to help miners escape in emergencies. Reliable detection of fires in mines using diesel equipment is a particular concern. New survival and escape issues are emerging. As mines get deeper and panels larger, escape from the mine will take more time and be more stressful for miners and life-support apparatus. Better planning for escape operations and better self-rescuers are needed to protect miners in new work environments.

These research efforts should make a real contribution to the solution of mine health and safety problems. The changes we're making in the agency as a whole position us to help the industry and the Nation with other vital problems—problems that include environmental remediation, pollution prevention, materials conservation, and resource management.

But there are those who think even more change is needed. As many of you know, the House of Representatives voted to eliminate the USBM as part of its deficit reduction effort. But at what cost?

The USBM is the primary Federal agency that conducts research and analyzes data to help solve national problems involving minerals. No other organization—public or private—deals with the full range of mineral-related problems. No other organization has the research capabilities and physical facilities to do so.

Much of our work deals with problems that are so large in scope that they are beyond the resources of individual companies. In some cases, industry has little economic incentive to do this work. The other Federal agencies that deal with mineral issues do so primarily from a regulatory standpoint. But the mining community's success in addressing health and safety issues over the past two decades more than defends the wisdom of separating research from regulation.

The Bureau is the Nation's source of objective mineral data, unbiased analyses, and independent problem- (not profit-) driven research on mineral problems. Why should the United States keep this capability? Because as a Nation, we believe in the value of human life, we are committed to protecting our environment, and we want economic prosperity for ourselves and our children.

If you look only at the area of worker health and safety, you can see the dramatic difference the Bureau has made. The USBM's contributions include many things we now take for granted. For example, the Bureau:

- Discovered the explosibility of coal dust and developed rock dust criteria.

- Developed the criteria and testing for permissible explosives for underground mines.

- Provided dust suppression and ventilation techniques to bring exposure levels to where they are today.

- Developed emergency breathing apparatus that are used in every underground mine in the country.

To keep up with global competitors today, U.S. mines are introducing new technology at an ever increasing pace. But new technology can bring unanticipated threats to the health and safety of miners and to the environment. Many of these problems will require technological solutions—solutions like the ones we've developed in the past and the ones we're working on today.

For example, our coal airlift hydrohoist—which was cited by *R&D* magazine as one of the year's 100 most technologically significant new products—provides an efficient, safer way to transport coal. The R&D 100 honor—an award we've won 33 times since 1978—speaks to the vitality of our research program. The USBM ranks 13th in the list of perennial winners in an international competition that includes such R&D giants as NASA, the Department of Energy, Westinghouse, and General Electric.

I believe that the USBM is an important national asset—that we have contributions to make that are important to the mining community and the country. Forsaking those contributions builds up a deficit in access to impartial information, sound science, and innovative technology.

I see a strong USBM as essential to achieving our mutual goal of making mines a healthier, safer place to work. This year we've marked the 25th anniversary of the Federal Coal Mine Health and Safety Act and the 85th birthday of the Bureau of Mines. Many of us have had occasion to reflect on the significant successes that have been achieved over the years. We know that those successes have been the product of partnership—of cooperation among miners, mining companies, manufacturers, regulatory officials, and researchers.

We must nurture and strengthen these partnerships if we are to meet today's health and safety challenges. Together, we can take advantage of the dangerous opportunity that is change. We can use this opportunity to make mining less dangerous for the men and women who are the industry's "most precious resource."

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