The State of Mining Research in NIOSH

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First of all, I would like to thank the Organizing Committee and Dr. Tien for the invitation to address you. I have what I believe will be a little bit of a "pep talk" for you, as I share the progress of mining research in NIOSH. I also offer my appreciation to the University of Missouri-Rolla and its administration for hosting this important symposium. I have fond memories of this campus.

It has been nearly four years since the dissolution of the Bureau of Mines and nearly three years, in October 1999, since the transfer of the health and safety research activities of the former Bureau to the National Institute for Occupational Safety and Health – NIOSH. The combination of *Contract for America* and *Reinvention of Government*, which drove the Government Performance and Results Act of 1994 (GPRA for short), had important consequences which have in turn driven, in the case of NIOSH, a strong re-linking effort with stakeholders across the United States, including occupational safety and health research professionals such as those represented here today.

In NIOSH, the ultimate impact today of these initiatives and the result of re-linking with constituencies is the National Occupational Research Agenda – NORA – which has successfully led to increased funding for occupational safety and health research, including mining-related research. The increased research funding predominantly translates into more funds to support extramural research. In fact, 75% of increased research funding for NIOSH finds it way to our extramural research partners. And it is partners – and partnerships, a cornerstone of the *Reinvention of Government* – that have been fostered through NORA and have instilled confidence in Congress about NIOSH. The bottom-line result is that, over the past two fiscal years, a total of $17 million have been added to the NIOSH budget to support NORA. This new money was leveraged with Federal-agency research partners to bring another $5.5 million, over two years, to focus on occupational health and safety research priorities. For your information, I have brought copies of the latest NORA update.

You may ask: well, what about mining research? Let me first say that no transition of a functional unit from one agency to another is easy, and sensitivities indeed run high when a significant reduction in force accompanies it or primary avenues for extramural research are eliminated. To quote a colleague of mine from the Spokane Research Laboratory, "Employees who remain (following a RIF) suffer fear, anger, sadness ..." – and, for some, hope. It is difficult for those who remain to focus on the future and mold a new and dynamic mission, replete with the motivation and pursuit of excellence that must characterize the new organizational entity for it to long survive in a very competitive environment. Similar impacts are essentially realized by university faculty who lose sources of funding to keep their personal productivity competitive in a demanding academic setting, to keep their departments viable, and to maintain development of the next generation of faculty.

Over the past two years, the mining research laboratories, whose leadership and employees have embraced their new roles, have gained substantial reputation and respect across NIOSH and have re-linked strongly with mining constituencies across the Nation. Old partnerships have been strengthened and new partnerships have emerged to support mining research that will improve the health and safety of miners, both in coal and non-coal. This is the goal of all of us here today, too. Our work strives inexorably to make the workplace better for miners. Each of us specializes in an often distinct way, but we all work toward that goal.

Let's focus on *you* for a moment – researchers who cannot do research without the availability of funds to support it, and graduate students who must ultimately become tomorrow's faculty. As you all know, along with the Bureau, also gone was the Mineral Institutes Program, which included the Generic Mineral Institute Centers. Over $11 million of mining-related research funds disappeared very quickly. NIOSH is working, with the support of other mining stakeholders, to fill this vacuum; but GPRA demands high-performance research efforts, targeted to the important needs of miners, and reasonable time lines in delivering research results. This is government's burden, including NIOSH, and it is yours, if you choose to do research under a new system of rules.

The processes of government, responsive to these new rules, translate research programs into limited funding that may be used, in the NIOSH case, to address general occupational safety and health needs, for which solicitations are announced on a periodic basis (three times per year in CDC). The larger part of earmarked funding, however, is dedicated to targeted needs which have been prioritized by the end-users, professionals, and surveillance data. NORA has done this, first by canvassing a wide array of stakeholders, over

what the priority research areas should be, and second by coupling this information with surveillance data. In the end, consensus was achieved as 21 priority areas were identified and then grouped in three major categories:

1) disease and injury,
2) work environment and workforce, and
3) research tools and approaches.

The Office for Mine Safety and Health Research, comprised of the Pittsburgh and Spokane Research Labs, used a similar process in prioritizing mining health and safety research needs, and is now finalizing a strategic plan, using the NIOSH strategic plan as a template, to reflect the goals and objectives derived from the data and information. An annual Performance Plan and an annual Performance Report will be done religiously, as will systematic and periodic linking with stakeholders for input into research programming and external review of the research program.

But you may still ask: where is the funding to support extramural mining research? And you may say: I haven't seen it. The answer follows. Two years ago, the first mining Request for Applications (RFA) was announced, offering $500,000 for extramural research fairly broadly across mining sub-disciplines which focus on safety and health, for example, in dust and toxic substance control, hearing loss, intervention effectiveness, etc. Only one of 13 applications was funded at roughly $75,000 per year for three years. A second mining RFA was announced last year, offering $700,000 plus unobligated funds from the last RFA, again fairly broadly across sub-disciplines. This time three applications of 32 have been awarded, totaling approximately $445,000 per year. Now over $500,000 per year has been obligated, and another mining RFA will be announced soon to try to obligate another $700,000 per year.

On another research-opportunity front, this year the recently announced NORA RFA gave special consideration to mining in the targeted area of intervention effectiveness research. Additionally strong research applications that address special populations at risk (e.g., women in mining and aging miners) and hearing loss, among other topics, will compete well in two other NORA priority areas in the RFA. Although applications were due in June, I have brought copies of the *NORA News* for your information, so that you may prepare to respond to the next RFA. The *NORA News* outlines the most recent NORA RFA (on page 5), presents the application process in detail (on page 2), and gives the web site URL so that you may access details on the NORA RFA.

Finally, Congress this past year allocated an additional $1 million to the NIOSH budget to support mining-related activities of the Colorado School of Mines. This occurred primarily because of the influence of western mining stakeholders who expressed a need to fill a training and research vacuum in the West. Further, a cooperative agreement was awarded this year, following an open solicitation, funding Penn State University to develop and demonstrate a Model Hearing Conservation Program. This effort was funded now, with another $700,000 pending obligation, and potential further funding occurring from the current NORA RFA. Thus, mining-related extramural funding has increased from $75,000 two years ago to $1.75 million today. Because of the success of NORA and the honest excitement of mining stakeholders regarding partnership opportunities, I see a bright future for increased mining-related extramural funding.

Much of the research you do, as ventilation experts, is important to the mining community. Unacceptable levels of silicosis and pneumoconiosis persist in the industry, and we are obligated to eradicate them in behalf of the miners. We are not absolutely certain of the impact of diesel particulate matter on human health, but the preponderance of evidence from global research indicates significant excess risk of miners to lung cancer, and possibly other disorders. We still fear explosions of methane gas in coal mines, especially in areas that are not well ventilated, such as gobs and bleeders. We still need to understand migration patterns of methane gas in gobs and integrate flow patterns in ventilation prediction models. I'm sure there are a host of other ventilation research topics that are important, but we have not yet begun to address them. You and your partners, hopefully, will bring the scientific hypotheses and methodologies to solve the problems outlined by them to NIOSH – and possibly to the Department of Energy's *Mining Industry of the Future* program – for funding consideration.

Finally, I do need to address a serious problem, in behalf of my colleagues, that is evolving. I share their concern. There is a significant depletion of ventilation expertise among the mining schools in our nation. Of course, we generally have an aging mining workforce as well, including on the technical and managerial side, which is leading to a similar depletion in other important skills industry-wide. I applaud those of you who wish to address these concerns, and NIOSH will be able to help by addressing the need for research funds, as mentioned previously. Important to this issue, I would like to let you know that two of the three mining-RFA applications recently awarded are related to the work you do. Thus, two mining engineering professors will have significant multi-year funds to support their research work and develop graduate students into mine ventilation and toxic substance control experts.

I'll close by saying that mining health and safety research is alive and well in NIOSH. I'm excited and proud that our Director was approached by major mining stakeholders and told that the right decision was made to bring the former Bureau of Mines health and safety activities to NIOSH – reversing their former stance. I thank you for the opportunity to address and join you – my career-long colleagues – at this significant symposium. As usual, you have an ambitious schedule, and a broad range of topics is covered. I will join you for a couple of days in assimilating the knowledge that will be transferred.

Thank you. I'll be happy to field any questions you may have.