

Testimony of Bill Ferdinand
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North American Region

30 CFR Part 57
Proposed Rule
Diesel Particulate Matter Exposure
Of Underground Metal and Nonmetal Mines

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Salt Lake City, Utah

INTRODUCTION

Good Morning. My name is Bill Ferdinand. I am the Director, Environment, Health and Safety for the North American Region of Barrick Gold Corporation. I appreciate the opportunity to present information relative to this important issue.

Barrick conducts underground gold mining operations at its Goldstrike property in Nevada that are subject to MSHA regulations, including the diesel particulate rules. Goldstrike Operations include two underground mines—Meikle and Rodeo. Currently, Barrick's Goldstike Operations employ 686 underground miners and personnel. Our underground Goldstrike Operations produced more than half a million ounces of gold in 2005.

Barrick has closely followed the development of the diesel particulate regulations. This is an important issue for our company and for our employees. Our corporate policy is that sound safety and occupational health management practices are in the best interests of our employees, our business, our shareholders and the communities in which we operate. As I will explain, we have taken significant steps toward reducing

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diesel particulate concentrations in our Goldstrike Operations. However, we do not believe that further reductions are warranted by health evidence or achievable with technology that is currently available or expected to become available within the next few years.

Barrick will be providing detailed written comments in response to the issues raised in the September 7, 2005 Federal Register notice. My statement today will address those concerns which we feel are most significant and provide a summary of Barrick's experience with efforts to achieve the proposed final standards.

MSHA Should Not Adopt the 160 $\mu\text{g}/\text{m}^3$ EC Final Limit

First, and most importantly, we urge that MSHA adopt the current interim personal exposure limit of 308 $\mu\text{g}/\text{m}^3$ EC as a final standard and defer any further reductions in the regulatory PEL pending further research to develop an adequate scientific basis for further reductions and to determine whether further reductions are technologically and economically feasible. Our view of the record to date is that it does not include sufficient evidence to support reductions below the current interim limit. We are also convinced, based on the data in the record and our own experience at Goldstrike, that the proposed final limit of 160 $\mu\text{g}/\text{m}^3$ EC is not technologically or economically feasible within the foreseeable future. While we will comment on many of the issues raised in September 7, 2005 rulemaking, those comments should be considered in this context: MSHA should not adopt any rule which reduces the PEL below the current level.

The Assumptions Underlying the 2001 Final Rule Should Be Reassessed

MSHA has requested that commenters address whether certain assumptions underlying the 2001 rule were correct. Our experience over the past five years has shown that the initial assumptions were incorrect in at least three areas: First, the 2001 rulemaking overestimated the technological advances in diesel engines and particulate filters. Compliance with standards below the current interim limit will require significant breakthroughs in technology to provide either lower emission engines or more effective filters, yet the technology has changed little since 2001, and there is no reason to believe that dramatic changes will occur in the next five years. In fact, we believe that because the majority of the underground mining market is shifting to South America, Asia and other non-U.S. markets, there is little incentive for manufacturers to develop costly new control technologies for application only in the United States.

Second, the 2001 rulemaking assumed a more rapid replacement of diesel equipment than has occurred. The cost estimates supporting the 2001 rulemaking assumed that by the effective date of the final limit, 50% of the diesel equipment in underground mines would have new EPA approved Tier I or II engines. Based on our experience, this assumption was too optimistic. While most of our mine equipment – LHD, loaders and haulers—have Tier I or Tier II engines, more than two-thirds of our utility equipment—forklifts, tractors, bobcats, dozers, etc.—do not. At the Goldstrike operations, since 2001, approximately 28 engines change-outs have occurred and another 20 pieces of mine equipment have been purchased, all with tier rated engines. While we believe that the replacement of older engines holds promise for reducing

diesel particulate emissions, it will not occur quickly enough to achieve the reductions on the schedule contained in the proposed rule.

Finally, MSHA's 2001 cost estimates did not account for the rapid and unexpected rise in diesel fuel costs, which will dramatically affect the cost of compliance with the 160 $\mu\text{g}/\text{m}^3$ EC proposed final standard. In 2001, diesel costs were approximately \$1.40 per gallon. Currently, diesel prices are in the range of \$2.39 per gallon, an increase of over 70%. Available control technologies, particularly filters, reduce horsepower and increase fuel costs to accomplish the same work. The agency's cost estimates need to be reworked to acknowledge current diesel fuel prices. Under current price conditions, control technologies that increase fuel consumption are likely to render ore reserves uneconomic and may shorten mine life.

The Proposed Final Limits Are Not Technologically or Economically Feasible

MSHA has requested comments on whether it is technologically or economically feasible for operators to meet the 160 $\mu\text{g}/\text{m}^3$ EC proposed final standard. Our experience at Goldstrike since 2001 demonstrates to us that it is not.

Our efforts to significantly reduce the diesel particulates in the underground work environment have met with limited success using new technology coupled with enhancing present control technology. Barrick has tested regenerative filters, increased the number of engines meeting EPA Tier I and II requirements, significantly increased ventilation and implemented new high maintenance standards. Taken together, these

efforts have allowed us to meet the interim standard. We have reduced diesel particulates that were commonly in the range of 600 to 800 $\mu\text{g}/\text{m}^3$ (TC) in 2001 to levels today that typically range from 250 to 450 $\mu\text{g}/\text{m}^3$ (TC).

To meet the interim standard, we have increased ventilation from 800,000 cfm in 2002 to over 1,000,000 cfm by 2004, and again to nearly 1.5 million this year, effectively doubling the air volume moving through the mine. During this same period, we have significantly increased maintenance programs and have replaced some engines with EPA Tier I and Tier II engines. We have also modified mine designs to minimize DPM concentrations and we have installed a number of environmental cabs. Our estimate of the total cost of measures taken to achieve compliance with the current interim standard is approximately \$1.68 million annually (\$8.4 million since 2001). Our experience indicates that MSHA's 2001 cost estimates dramatically understated the costs of compliance.

At this time, we are unable to prepare a cost estimate for compliance with the 160 $\mu\text{g}/\text{m}^3$ EC proposed final standard, because we cannot reasonably describe control technologies or methodologies that would be effective for Goldstrike Operations. Our ventilation is near its capacity. Further increases are likely to create fugitive dust problems from haulage vehicles. Replacement of the remaining mine and utility equipment with Tier I and Tier II engines would not achieve the 160 $\mu\text{g}/\text{m}^3$ EC proposed final standard. We have not identified filters that would be effective at our site.

We have tested an active regenerative DPF system, specifically DCL Mine-X Black Out Soot filter on a Tamrock 1400, 8 yard³ scoop over an 8 month period. But

because of filter limitations, the scoop was only operational for 7 to 8 hours per shift before the backpressure increases caused the need for filter regeneration. This rendered the equipment unusable for the remainder of our normal 11 hour production shift. The active regeneration system was determined to be impractical because it was not effective for an entire shift and could not be regenerated between shifts (regeneration typically took between 2 and 5 hours).

As I mentioned, we have also installed six loaders with environmental cabs to decrease exposure to diesel particulate matters and achieve other work environment considerations such as dust and noise reductions. We anticipate that by the end of 2011, approximately 65% of the mine and support equipment will have been fitted with environmental cabs—approximately 100 units. We expect that the environmental cabs will be effective, but only for those who work within the cabs. Thus we do not believe this is an effective strategy for meeting $160 \mu\text{g}/\text{m}^3$ EC proposed final standard throughout the workplace. In addition, environmental cabs are tremendously expensive. It is estimated that the replacement of this equipment along with environmental cabs will cost nearly \$49 million (in 2005 dollars). We are investing in the environmental cabs because they provide us with additional benefits beyond protection from diesel particulates. They are not a cost effective means of meeting the proposed final standard.

Ultimately, if the reductions are implemented as proposed, we view respirators as the only effective means of insuring compliance. We estimate that in the early years of the phased reduction in the proposed rule, approximately 56% of our underground

miners would require respirators and that meeting 160 $\mu\text{g}/\text{m}^3$ EC proposed final standard would require that 70% of our underground miners wear respirators.

The Proposed Five Year Phase In Is Not Practical

We appreciate that the agency acknowledges that it will take substantial time to achieve any further reductions in diesel particulate concentrations. However, it is our view that the five year phase in, with arbitrary annual 50 microgram reductions, is not practical. Because there is no technology available that would allow us to meet the final limit, Barrick and other operators will be forced to design and implement a new plan every year to meet the lowering interim levels and maintain compliance with regulatory standards. Focusing on annual short-term reductions is not efficient. The annual reductions will also increase the time and effort devoted to preparing, submitting, reviewing and approving extensions.

If the agency ultimately determines to go forward with lower standards, we believe that MSHA should reevaluate information regarding technological and economic feasibility and reduce the number of phases and extend the time frame for compliance with the final standard. For example, the agency might consider two phases over an eight year time frame, establishing a lowered interim standard after the first four years and requiring compliance with the final standard at the end of eight years.

Conclusion

We appreciate the opportunity to provide comments at this hearing and my testimony will be supplemented by written comments that will be submitted by Barrick before the comment deadline. Thank you.