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Federal Mine Safety and Health Review Commission
Office of Administrative Law Judges

SECRETARY OF LABOR,
MINE SAFETY AND HEALTH
ADMINISTRATION (MSHA),
PETITIONER

CIVIL PENALTY PROCEEDING

Docket No. WEST 84-145-M
A.C. No. 05-03695-05511

v.

Iron Clad Mine and Mill

SILVER STATE MINING CORP.,
RESPONDENT

DECISION

Appearances: James H. Barkley, Esq., Office of the
Solicitor, U.S. Department of Labor, Denver,
Colorado, for Petitioner; Randy L. Parcel, Es
q., Parcel & Mauro, Denver, Colorado, for
Respondent.

Before: Judge Melick

This case is before me upon the petition for civil penalty filed by the Secretary of Labor pursuant to section 105(d) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. 801, et seq., the "Act," charging the Silver State Mining Corporation (Silver State) with four violations of regulatory standards. (FOOTNOTE 1) The general issues before me are whether Silver State violated the cited regulatory standards and, where alleged, whether those violations were of such a nature as could significantly and substantially contribute to the cause and effect of a mine safety or health hazard, i.e., whether the violations were "significant and substantial." If violations are found, it will also be necessary to determine the appropriate civil penalty to be assessed in accordance with section 110(i) of the Act.

Background

During relevant times, Silver State operated the subject gold mine and mill in Cripple Creek, Colorado. In the milling process, gold is leached from gold ore using a sodium cyanide solution. After a period of usage, the pipes and vats in the system become clogged with a mineral build-up known as scale. Silver State decided to use a hydrochloric acid (HCl) wash to remove the scale even though it had never used this procedure before.

The HCl could not safely be added directly to the leaching system since the resulting chemical reaction would produce highly toxic cyanide gas (hydrogen cyanide or HCN) if combined with sodium cyanide. To avoid this dangerous situation, as much of the cyanide leaching solution as possible was first removed from the tanks. Inasmuch as drain valves were located 10 inches from the bottom of the tanks, however, not all of the cyanide solution could be removed. Accordingly, approximately 700 gallons of the cyanide solution remained in each of the 2 smaller tanks and approximately 2,300 gallons remained in each of the 3 larger tanks.

During the evening of December 2, 1983, 5,000 gallons of sodium hypochlorite (hypochlorite) was added to neutralize the cyanide in the remaining solution and in the scale. If sodium cyanide is not neutralized, the highly toxic cyanide gas is produced as soon as the cyanide is mixed with HCl. After the hypochlorite had been pumped through the system, the remaining solution was discharged into an outside waste holding pond.

Eight hundred gallons of a 30 percent solution of HCl, in fourteen 40 and 50 gallon barrels was to be placed in the system on December 3, 1983, by a number of employees, including Bill Richter, George Swank, Loren Rice, J.W. Brumley and Doug Holley. Swank, Rice and Richter wore safety glasses (not goggles) and Wilson respirators with RÅ25 cartridges during the acid wash process. The Wilson RÅ25 cartridges protected against 10 parts per million (ppm) chlorine and 50 ppm hydrogen chloride. Three full-face respirators were also available at the work site. One was apparently worn at least part of the time by Tom Stone, a control room operator, another by Burt Bielz, the Supervisor in charge of the acid pouring operation and present for a disputed period of time, and the third was available on the control room wall but, for reasons never made clear, was never used.

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During a safety meeting the previous month, the operation of the Wilson half-face respirators was explained to the employees and they were told that replacement cartridges would be available during the acid wash operation. There is a dispute as to whether the RÅ25 replacement cartridges actually did arrive, but the employees apparently believed that the only replacement cartridges available were Wilson RÅ15's affording inadequate protection from the anticipated gases. The respirators were also tested for proper seal and no one involved in the process had facial hair that would affect the seal. As a half-face respirator, the Wilson did not cover or protect the eyes.

The acid was introduced into the system by manually dumping the barrels through a grate on top of one of the tanks into the liquid 5 feet below. The tank was approximately one-half full of the sodium cyanide-hypochlorite solution. The acid barrels were first placed on top of the tank with an electric lift. Swank and Rice then tipped the barrels over allowing the acid to splash through the grate and into the tank. What happened next is in dispute.

Swank and Rice maintain that within seconds of dumping the first barrel of acid they were enveloped with fumes and that within 10 seconds the fumes penetrated their respirators. They experienced burning in their eyes and throats, and had difficulty breathing. The acid purportedly ate holes in Swank's coat and peeled the paint off the walls and pumps where it splashed. Rice says that he was also nauseous by the time the third barrel was dumped. At the same time, Swank was coughing and gagging and had a runny nose and chest pain. The inside of the building became enveloped in a yellowish-brown cloud and, after dumping 8 of the 14 barrels they reportedly could no longer tolerate the fumes. Rice was disoriented and had difficulty moving. Later he was overcome, fell to the floor and had to be helped from the building by a co-worker, Doug Holley. Swank and Richter later struggled out of the building to the parking lot where they began vomiting. Swank and Rice both suffered a skin irritation that looked like a sunburn.

The dumping of the 8 barrels of acid took about 30 minutes. All of the men inside the building were exposed to the fumes and some apparently had similar symptoms. After the dumping began, the building was evacuated. After the acid was dumped into the system, the solution was routed through the pipes and vats of the leaching system for approximately 6 hours. During this period, the men would stay outside as long as possible, then hold their breath,

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return to check on the system, and then return outside. The yellow-brown cloud continued to linger in the building. Bielz left the mill after the acid dumping and was not present for the acid wash which took place between December 3 and December 6. Even Bielz, who was wearing a full-face, self-contained respirator, acknowledged that he detected fumes through his respirator that smelled like "chlorox" and that he saw HCl mist during the acid dumping operation. (FOOTNOTE 2)

When Swank awoke the morning after the acid dumping, he could not open his eyes. After his wife helped him wash them, he was eventually able to open them, but still could not read the numbers on a digital clock next to his bed. His doctor prescribed ointment for his eyes and cream for the burns on his face. Swank also experienced chest pain, coughing and breathing problems. Swank's diagnosis, was severe conjunctivitis (an inflammation of the mucous lining under the eyelid and on the eyeball itself) and dermatitis (an inflammation of the skin) caused by chemical exposure. Swank continued to experience shortness of breath and blurred vision.

Rice worked intermittently between December third and the eighth. Some 4 hours after the incident, Rice's nose began to bleed and bled for almost 11 days. Rice experienced continued coughing for a number of days. By the eighth of December, Rice had developed difficulty in breathing and was coughing up greenish/blackish sputum. His eyes were badly burned and some skin on his arms was peeling. On December eighth, Rice visited his doctor.

Hydrogen chloride is a gas. When mixed in an aqueous (water) solution it becomes hydrochloric acid. Harmful exposure to the acid can result from splashing of mist or from the gas contacting a moist surface, such as a nasal membrane. Hydrogen chloride may be slightly yellow in color, and has a sharp, pungent, irritating odor. At a

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concentration of one part per million (ppm) it can be detected by smell and its smell becomes disagreeable at 5 to 10 ppm. It begins to cause throat irritation at 35 ppm and work becomes barely tolerable between 50 and 100 ppm. The threshold limit value (TLV) is 5 ppm.

Chemical respirators may be used for disagreeable, but relatively harmless, concentrations of this gas, however, cartridge respirators are not recommended where toxic quantities may be encountered. Contact with the eyes rapidly causes severe irritation of the eyes and eyelids, and if not quickly removed, can cause permanent and total sight loss. Inhalation of excessive concentrations causes severe irritation of the upper respiratory tract resulting in coughing, burning of the throat, and a choking sensation. If inhaled deeply, edema of the lungs (the potentially fatal outpouring of body fluid into the lungs) may occur.

The NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards sets forth the minimum respiratory protection required above 5 ppm of hydrogen chloride. Between 5 ppm and 50 ppm a chemical cartridge is allowed; over 50 ppm but less than 100 ppm the same type of respirator is allowed but with a full-face piece; over 100 ppm, or in unknown concentrations, a self-contained breathing apparatus with full-face piece is required.

The properties of chlorine are also set out in the NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards and are noted as follows:

Chlorine gas may cause severe irritation of the eyes and respiratory tract with tearing, runny nose, sneezing, coughing, choking and chest pains. Severe breathing difficulties may occur which may be delayed at the onset. Pneumonia may result. Severe exposure may be fatal.

The TLV for chlorine is 1 ppm. Concentrations of 1 to 3 ppm result in slight irritation, but work is possible without interruption. Concentrations of 3 to 6 parts per million of chlorine cause burning of the eyes, nose, throat, lachrymation, sneezing, coughing, bleeding nose or blood-tinged sputum. For concentrations of chlorine above 1 ppm, but less than 25 ppm, the NIOSH minimum respiratory protection requires a chemical cartridge respirator with a full-face piece or air-supplied respirator. For concentrations over 26 ppm, NIOSH requires a self-contained breathing apparatus.

The Alleged Violations

Citation No. 2099742, as amended, alleges a "significant and substantial" violation of the regulatory standard at 30 C.F.R. 55.5 (presently 30 C.F.R. 56.5005) and charges as follows:

Between December 3, 1983 and December 6, 1983, while performing an inherently hazardous maintenance operation, miners were exposed to airborne contaminants exceeding permissible levels and were not provided appropriate respiratory protective equipment. Several employees were exposed to gas concentrations that had a reasonable potential to cause death.

The cited standard reads as follows:

Control of employee exposure to harmful airborne contaminants shall be, insofar as feasible, by prevention of contamination, removal by exhaust ventilation, or by dilution with uncontaminated air. However, where accepted engineering control measures have not been developed or when necessary by the nature of work involved (for example, while establishing controls or occasional entry into hazardous atmospheres to perform maintenance or investigation), employees may work for reasonable periods of time in concentrations of airborne contaminants exceeding permissible levels if they are protected by appropriate respiratory protective equipment. Whenever respiratory protective equipment is used, a program for selection, maintenance, training, fitting, supervision, cleaning, and use shall meet the following minimum requirements:

(a) Mine Safety and Health Administration approved respirators which are applicable and suitable for the purpose intended shall be furnished, and employees shall use the protective equipment in accordance with training and instruction.

(b) A respirator program consistent with the requirements of ANSI Z88.2-1969, published by the American National Standards Institute and entitled "American National Standards Practices for Respiratory Protection ANSI Z88 2-1969," approved August 11, 1969, which is hereby incorporated by reference and made a part hereof. This publication

may be obtained from the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018, or may be examined in any Metal and Nonmetal Mine Safety and Health District or Subdistrict Office of the Mine Safety and Health Administration.

It is not disputed that MSHA's respirator selection and approval procedure referred to in the above regulation is found in 30 C.F.R. Part 11. Under section 11.2Ä1 entitled "Selection, fit, use and maintenance of approved respirators," respirator selection is to be made in accordance with ANSI Standard Z88.2. ANSI Standard Z88.2 (1969) does not, however, set forth the specific types of respirators to be used for specific concentrations of air contaminants. Rather, in Part 6, it sets forth only the criteria for the selection of a respirator.

The Secretary argues that the Wilson respirators with RÄ25 cartridges selected by Respondent were not appropriate and were in violation of the cited standard under two theories: (1) since the respirators were overcome and penetrated by gas fumes, they were not appropriate, and (2) the selection criteria under ANSI Standard Z88.2 was violated. In support of the first theory, the Secretary observes that two of the men directly involved in the acid dumping, i.e., Rice and Swank, testified that their Wilson respirators became ineffectual almost immediately after the acid dumping began. They experienced coughing, runny noses, gagging, burning throats, burning eyes, and difficulty breathingÄsymptoms consistent with exposure to hydrochloric acid mist, hydrogen chloride gas, and chlorine gas. The Secretary argues that if the respiratory protection had been appropriate, then Swank and Rice would have been able to work for at least 35 minutes in a concentration of 500 ppm chlorine, and for 50 minutes in a concentration of 500 ppm of HCl (Table 11, Ex. PÄ5), without experiencing discomfort. The Secretary further argues that since Rice was overcome within minutes and later had to be helped from the building, and that since both men once outside began vomiting, the respirator protection was demonstrably inadequate.

Respondent argues, on the other hand, that Mssrs. Swank and Rice are not credible and, presumably, that they therefore really did not suffer the severe discomfort and injuries they allege or that they failed to properly fit their respirators, thereby causing their own discomfort and injuries. I find, however, adequate corroboration in the medical evidence and undisputed physical manifestations of injury, to conclude that Swank at least suffered severe

conjunctivities and dermatitis and most likely suffered chemical pneumonitis from short-term exposure to a hydrochloric acid mist (Exs. PÄ8 and R-6). In addition, the medical evidence clearly supports a finding that Rice at least suffered chemical pneumonitis and chemical conjunctivities from exposure to hydrochloric acid mist. (Ex. RÄ12). It is also undisputed that acute chemical pneumonitis, when severe, can be disabling or fatal (Ex. RÄ12) and that exposure of the eyes to hydrochloric acid can cause permanent and total sight loss.

Under the circumstances it may reasonably be inferred that at least two miners were exposed to airborne contaminants exceeding permissible levels and were not provided appropriate respiratory protective equipment. It is also clear therefore, that the violation was serious and "significant and substantial." Secretary v. Mathies Coal Co., 6 FMSHRC 1 (1984).

In reaching these conclusions I have not disregarded Respondent's allegations that the employees failed to properly fit the respirators provided and that it had a full-face, self-contained, air-supplied respirator available. There is no affirmative evidence, however, that the respirators were not properly fit. The employees had previously been instructed in the proper use of the respirators and it is unlikely that all of the affected employees would have had ill-fitting respirators. In addition, the chemical over-exposure is corroborated by the medical evidence of dermatitis and conjunctivitis. Moreover, the one remaining full-face, self-contained, air-supplied respirator was insufficient for the number of employees involved in the acid dumping operation. Finally, since the credible evidence is that the respirators actually worn by Swank and Rice were penetrated almost immediately, it is immaterial whether or not replacement RÄ25 cartridges were available. The Respondent's allegations herein are accordingly rejected.

I further find that the violation was the result of operator negligence in failing to provide appropriate respirators in sufficient quantity for contaminants reasonably expected from the acid wash operation. Bielz was admittedly concerned that hydrochloric acid mist, cyanide, and chlorine gas could be generated by the acid dumping process and he knew that exposure to such gasses without adequate protection could lead to serious and even fatal injuries.

I further find that the violation is established under the Secretary's alternative theory, i.e., that the selection criteria set forth in ANSI Standard Z88.2 was violated. The Secretary argues in this regard that the selection criteria was violated based on what Silver State knew and expected before the acid dumping and also based on what actually occurred. There were three air contaminants that could have or did develop from the acid wash, i.e., HCl gas and HCl acid mist generated by pouring the acid, cyanide gas if the remaining leaching solution had not been sufficiently neutralized when the HCl was added, and chlorine gas if the remaining leaching solution had too much neutralizing agent when the HCl was added.

Under Part 2 of ANSI Standard Z88.2, the phrase "immediately dangerous to life and health" is defined as follows:

Included are conditions that pose an immediate threat to life or health and conditions that pose an immediate threat of severe exposure to contaminants such as radioactive materials which are likely to have adverse delayed effects on health.

In addition, each of the three gases cited (HCN, HCl, and chlorine) is classified as a gas or vapor contaminant in Table 1. Under the heading "Combinations of Gas, Vapor, and Particulate Contaminants" and Note 2 of Table 1 the hazards are described as follows:

Combinations of contaminants may occur simultaneously in the atmosphere. Contaminants may be entirely different substances (dusts and gases from blasting) or the particulate and vapor forms of the same substance. Synergistic effects (joint action of two or more agents that result in an effect which is greater than the sum of their individual effects) may occur. Such effects may require extraordinary protective measures.

NOTE 2: CONDITIONS IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (see Section 2, Definitions) may result from most of the above hazards with the probable exception of nuisance or low toxicity dusts. Such conditions constitute atmospheres that would rapidly lead to death or to injury that would eventually impair health. For example, a ten-minute exposure to 120 parts per million (ppm) of phosgene may be fatal, and exposure to very high

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concentrations of radioactive material such as plutonium 239 could present a danger to health from delayed effects of radiation damage to body tissues.

From Note 2 of Table 1, it is clear that HCN, HCl and chlorine are considered to be immediately dangerous to life and health since they are not nuisance or low toxicity dusts. The table also describes the synergistic effect of the combined agents and the necessity for extraordinary protective measures under those conditions. The credible evidence in this case is that the gases may indeed have had a synergistic effect thereby requiring extraordinary protective measures. In any event, because the gases herein individually posed an immediate danger to life or health, and because the synergistic effect was even more dangerous, the use of half-face chemical cartridge respirators was in violation of the standard. See Parts 6.3.2.1 and 6.3.2.2.

Accordingly, considering the gases that were anticipated by Silver State before the acid dumping, ANSI Standard Z88.2 required air supplied respirators. Alternatively, considering by reasonable inference the gases that did in fact develop, the standard also required air supplied respirators. These findings are further corroborated by the health professionals, who testified for the government, who found that the Wilson respirators with RÅ25 cartridges were inappropriate. Significantly, this testimony was not rebutted by Respondent's experts, Drs. Repsher and Kornberg.

The cited standard may also be interpreted to require respiratory protection consistent with safe industry practice. In this regard, chemical cartridge respirators as opposed to a self-contained breathing apparatus are not recommended for protection where toxic quantities of hydrochloric acid or hydrogen chloride may be encountered (see Ex. PÅ6 %57 5.3.3(e)). Similarly, where unknown concentrations of chlorine may be encountered a self-contained breathing apparatus with a full-face piece is required. (See Ex. PÅ4 p. 5).

In this case, Silver State knew or had reason to believe of the potential exposure to its employees from unknown quantities of cyanide, chlorine, hydrochloric acid and hydrogen chloride resulting from the acid dumping process yet did not provide a sufficient number of self-contained breathing devices with full-face coverage to protect these employees. Accordingly, for this additional reason, I find the "significant and substantial" violation to be proven as charged.

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Citation No. 2099741 alleges "significant and substantial" violation of the standard at 30 C.F.R. 55.5Å2 and reads as follows:

On December 3, 1983, miners began performing an inherently hazardous maintenance operation that did result in the the liberation of toxic gases. This operation continued until December 6, 1983. During this time gas, mist or fumes surveys were not conducted as frequently as necessary to determine gas concentrations. Several employees working in the mine were exposed to this noxious gas resulting in injuries which had a reasonable potential to cause death. The cited standard then in effect provided that "dust, gas, mist, and fumes survey shall be conducted as frequently as necessary to determine the adequacy of control measures."

Burt Bielz, Silver State's processing and laboratory supervisor during relevant times and the supervisor in charge of the acid wash process at issue herein acknowledged his concern about the potential for employee exposure to cyanide, hydrochloric acid mist and chlorine during the acid dumping and wash process. Bielz also acknowledged that he had testing devices available during this process only to detect the presence of cyanide. Moreover, the available cyanide detection tubes were rendered ineffective because of the mixture of gases present. Under the circumstances, fume surveys could not be made for any of the three anticipated gases. Accordingly, the violation herein is proven as charged.

I find that the violation was also serious and "significant and substantial." Had Silver State provided adequate fume surveys during the acid dumping process, it may reasonably be inferred that the injuries suffered by its employees could have been reduced or avoided by speedy evacuation. Conversely, it is reasonably likely that the failure to provide these tests led to the serious injuries herein. Inasmuch as Bielz was also concerned with potential exposure to hydrogen cyanide, hydrogen chloride, and chlorine gas during the acid dumping process, yet failed to provide fume any surveys for the latter two gases, it is clear that the violation was the result of operator negligence.

Citation No. 2099579 alleges a violation of the standard at 30 C.F.R. 50.10 and charges as follows:

Evidence indicates that MSHA was not immediately contacted when an accident occurred at this mine from December 3, 1983 through December 6, 1983. On those dates an unplanned inundation of gas occurred at the mine. This inundation of noxious gas caused illness and injuries which had a reasonable potential to cause death.

The cited standard requires in essence that if an accident (as defined in 30 C.F.R. 50.2) occurs, the mine operator shall immediately contact MSHA. Under 30 C.F.R. 50.2 the term "accident" includes "an injury to an individual at a mine which has a reasonable potential to cause death" and "an unplanned inundation of a mine by a liquid or gas."

Even accepting Respondent's medical evidence from Drs. Repsher and Kornberg that neither Rice nor Swank suffered an injury which had a reasonable potential to cause death, there is sufficient evidence to find that there was an unplanned inundation of a mine by hydrogen chloride and/or hydrochloric acid mist. There is persuasive credible evidence that the interior of Respondent's mill contained a dense yellow-brown cloud following the commencement of the acid dumping process and even Respondent's own witness acknowledged the presence of a visible hydrochloric acid mist during the acid dumping process. In addition, the medically documented injuries and discomfort suffered by Swank and Rice are clearly consistent with a serious exposure to at least hydrogen chloride or hydrochloric acid mist. Within this framework of evidence, I am satisfied that the Secretary has met his burden of proving that a reportable accident occurred.

The evidence further shows that the "unplanned inundation" occurred on December 3, 1983, and that MSHA did not learn of the accident until January 5, 1984, by way of an anonymous phone call. Accident reports purportedly prepared by the operator on December 29, 1983, had not been received by MSHA as of the date of the anonymous phone call and there is no evidence as to when the accident reports were actually received. In any event, it is clear that the reporting on January 5, 1984, of an accident that occurred on December 3, 1983, was not an immediate contact within the meaning of the cited standard. The violation is accordingly proven as charged. I also find that the violation was the result of operator negligence. Even assuming, arguendo, that its employees delayed a full day in informing management of the injuries sustained during the acid dumping process, there is no valid reason why management could not have contacted MSHA

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immediately thereafter. There is simply no excuse for its failure to file a report or contact MSHA for almost a month after the inundation.

Citation No. 2099580 alleges a violation of the standard at 30 C.F.R. 50.12 and charges as follows:

Evidence indicates that an accident involving an unplanned inundation of gas occurred from December 3, 1983 through December 6, 1983. The accident site was altered by the mine operator shortly after the accident without permission from MSHA.

The cited standard then in effect reads as follows:

Unless granted permission by an MSHA district manager or subdistrict manager, no operator may alter an accident site or an accident related area until completion of all investigations pertaining to the accident except to the extent necessary to rescue or recover an individual, prevent or eliminate an imminent danger, or prevent destruction of mining equipment.

The Secretary argues in his posthearing brief that once the acid had been removed and the fumes disbursed from the acid wash process Respondent should not have altered the site by resuming production. The Secretary fails to show however, how the accident site was indeed "altered" following the removal and disbursal of the fumes. It is apparent moreover, as Respondent observes in its brief, that the Secretary is confusing the standard here at issue with the requirements for the immediate reporting of an accident. The thrust of this standard is the "alteration" of an accident scene, a matter that has simply not been proven by the Secretary. Accordingly, Citation No. 2099580 is dismissed and vacated.

In determining the appropriate civil penalties to be assessed in this case I have also considered the evidence that the operator was not large had a relatively modest history of violations. It also appears that the violative conditions were abated in compliance with the Secretary's directions. Under the circumstances, I find the following civil penalties to be appropriate: Citation No. 2099742-\$5,000, Citation No. 2099741-\$1,000 and Citation No. 2099579-\$ 100.

