

United States of America  
**OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION**  
1120 20th Street, N.W., Ninth Floor  
Washington, DC 20036-3419

SECRETARY OF LABOR,

Complainant,

v.

ALL WASTE ENVIRONMENTAL  
SERVICES/NORTH ATLANTIC,

Respondent.

OSHRC DOCKET No. 97-2024

APPEARANCES: Paul J. Katz, Esquire  
U.S. Department of Labor  
Boston, Massachusetts  
For the Complainant.

Robert W. Kline, Esquire  
Portland, Maine  
For the Respondent.

BEFORE: Administrative Law Judge Ann Z. Cook

**DECISION AND ORDER**

This proceeding is before the Occupational Safety and Health Review Commission (“the Commission”) pursuant to section 10 of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 651 *et seq.* (“the Act”). All Waste Environmental Services/North Atlantic (“Respondent”) is an industrial cleaning company located in Bangor, Maine engaged in “hydroblasting,” a process that utilizes highly pressurized water. On June 23, 1997, the James River Paper Co. (“the paper company”) called upon Respondent to remove a paper stock blockage from a pipe. In attempting to do so, an employee of Respondent was injured seriously when the nozzle used in the hydroblasting process unexpectedly came out of the pipe. After conducting an inspection of the accident, the Occupational Safety and Health Administration (“OSHA”) issued Respondent a two-item serious citation. Respondent contested the citation, and the hearing in this matter took place in Bangor, Maine, on September 2 - 3, 1998. At the hearing, Complainant withdrew item 2 of the citation. (Tr. 6). Item 1, the remaining citation item, alleges a violation of the general duty clause, section 5(a)(1)

of the Act. In support of the alleged violation, Complainant presented the testimony of an expert witness, the OSHA compliance officer who conducted the inspection, and two employees of Respondent. Respondent likewise presented the testimony of an expert witness and two employees. The parties have stipulated to the Commission's jurisdiction in this matter, *see* Joint Exhibit 1, and have also filed post-hearing briefs. The section 5(a)(1) violation is affirmed.

### BACKGROUND

On June 23, 1997, Respondent sent a crew of four experienced employees to clean out a blocked pipe at the paper company by means of "line moling," which involved inserting a flexible lance similar to a hose into the pipe. At the front of the lance was a metal nozzle or "mole" which had one large forward-facing hole through which highly pressurized water shot out to clean the pipe. Water also shot out through 16 smaller backward-facing holes to propel the lance forward in the pipe.

Before calling Respondent, the paper company had pumped water into the 12-inch diameter pipe in an effort to clear it. When the crew arrived, the paper company was removing part of the pipe to make an opening for the crew to insert its lance. From the opening, which was 6 to 6.5 feet above the floor, the pipe rose vertically 15 to 20 feet and then turned 90 degrees and proceeded into a series of additional turns. No one knew then whether the blockage was above or below the 90-degree turn.

Respondent's crew consisted of a foreman, Dave Doane; the operator of the pressure-generating pump unit; and two cleaners, one of whom was Aaron Emerson, whose job involved inserting the lance into the pipe. Emerson stood on a ledge 1 to 1.5 feet above the floor, Doane stood on the floor behind him at an angle, and the other two crew members were some distance away. Because of the small working space and the fear that debris from the blockage would fall out of the pipe opening and onto Emerson, the lance operator, Emerson and Doane at some point agreed that Doane would control the lance's foot pedal.<sup>1</sup> Stepping down on the pedal sent pressure into the lance, while stepping off the pedal shut off the pressure. On the first one or two attempts, the lance fell out

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<sup>1</sup>The testimony of Doane and Emerson conflicted on some points. Doane said he took over the pedal after one or two attempts to insert the lance, while Emerson indicated Doane had the pedal from the start. Doane also said that Emerson stood 6 feet back from the pipe opening as he worked the lance, while Emerson put the distance at 2 feet. (Tr. 44-45, 53-54, 108-09, 643-44).

of the pipe before it was pressurized. The next attempt was successful, and Emerson began working the lance forward to clean the pipe. Some three to five minutes later, after cleaning the first 2 to 3 feet of the pipe, the lance flew out of the pipe under pressure. It hit the floor and flipped around out of control, shooting Emerson with water in the chest, groin and thigh and knocking him to the floor. Emerson was injured to the extent that he had not returned to full-time work 14 months later.

Emerson testified that he had no indication of a problem prior to the expulsion and that the mole exited backwards. Doane, on the other hand, testified that he felt the foot pedal jump suddenly but that the lance was out before he could take his foot off the pedal. Subsequent examination of the mole showed that a deteriorated “O” ring had dislodged and blocked several nozzle holes, causing the lance to erratically change direction and exit under pressure. The blockage in the pipe was ultimately removed by attaching the pump unit directly to the pipe at two locations further up the pipe, pressurizing the pipe to 600 to 700 p.s.i., and blowing the blockage out.

Respondent’s company policy, as stated in its safety manual, is that the person inserting the lance also be the person operating the foot pedal. The extreme urgency of depressurizing an exiting lance dictates that the person with the first opportunity to sense a problem with the lance control the pedal. Respondent’s company policy also requires the use of a “stinger” when line moling. A stinger is a rigid piece of pipe inserted between the lance and the mole that is longer than the width of the pipe and prevents the lance from turning and reversing direction in the pipe.

Although Respondent’s employees are trained specifically to follow the company safety rules on stingers and pedal control, the rules are nonetheless only guidelines. If the crew decides it is safe to disregard a rule it may do so without notifying or obtaining approval from headquarters. On the day of the accident the crew considered using a stinger but did not do so. The crew also had with it that day a retention device, also called a “flange adapter” or “lance catcher,” which fits over the pipe opening and through which the lance is inserted into the pipe. After the device is clamped shut, only the lance, and not the mole, can exit the pipe. Respondent had made the device and had been experimenting with it for a few weeks but had no safety rules about such devices. The crew did not use the device that day because it was too small to fit the pipe being cleared.

### CONTENTIONS AND ISSUES

Complainant alleges Respondent committed a serious violation of §5(a)(1), as follows:

[Respondent] did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to lacerations due to high pressure hydroblasting.

Pulp Mill, 2nd Floor - On June 23, 1997 employees were exposed to the hazard of being struck by high pressure water while hydroblasting a (12) twelve inch diameter vertical stock line and were not protected from the hose exiting the line while under pressure.

To establish a 5(a)(1) violation, the Secretary must show by a preponderance of the evidence that: (1) a condition or activity in the employer's workplace presented a hazard to employees, (2) the cited employer or the employer's industry recognized the hazard, (3) the hazard was causing or likely to cause death or serious physical harm, and (4) feasible means existed to eliminate or materially reduce the hazard. *Well Solutions, Inc.*, 17 BNA OSHC 1211, 1213 (No. 91-340, 1995).

In her amended complaint, Complainant asserts three feasible and acceptable abatement methods:

(1) to provide a device the hose passes through which is secured to the line being cleaned and prevents the nozzle from exiting the pipe [retention device], (2) if the possibility exists that the hose can turn in the line ... to install a "stinger" (metal extension) ... on the front end of the lance, and (3) to require that the person inserting/operating the lance be in control of the dump control vale (foot pedal).

In her brief, Complainant urges two additional abatement methods based upon entering the pipe at a different location. However, these two methods were not pleaded or argued at trial, and I find that Respondent had neither adequate notice of these methods nor adequate opportunity to contest them; accordingly, I will not consider them. *See* Federal Rule of Civil Procedure 15(b).

Respondent contends that the blockage of the nozzle holes by a disintegrated O ring was a freak occurrence and that neither it nor its industry recognized as a hazard the more general danger of a lance ejecting under pressure. Respondent also disputes the feasibility of the three proposed abatement methods, asserting that engulfment by the dislodged blockage posed a competing hazard justifying separation of the lance and pedal operations. Respondent further asserts that the pipe configuration precluded the use of a stinger, which in any event would not have prevented the

backward expulsion of the mole that caused the injury. Finally, Respondent asserts that retention devices were not then in general use and were not a recognized means of abatement.

Respondent correctly notes that the occurrence of the accident does not establish the existence of a hazard. It is the hazard, not the specific incident that resulted in injury, that is relevant in determining the existence of a recognized hazard. *Brennan v. OSHRC*, 494 F.2d 460, 463 (8th Cir. 1974). Similarly, in order to prevail, the Secretary must show not that an identified abatement measure would have prevented the accident, but, rather, that the abatement measure would have reduced the risk of severe injury from the hazard. The proposed measures are judged by what a reasonable person familiar with the conditions of the industry would have instituted. *Pratt & Whitney Aircraft v. Secretary of Labor*, 649 F.2d 96, 106 (2d Cir. 1980).

## DISCUSSION

### The Hazard

Complainant's expert, Dr. George Savanick, is president of the Waterjet Technology Association ("WJTA") and a recognized expert in hydroblasting. He stated that an out-of-control mole or lance is "the most hazardous situation confronted in the waterjet cleaning industry today" in that an expelled pressurized lance will hit the floor, bounce and ricochet out of control until it is depressurized. He further testified that forceful lance ejection is "universally recognized as a hazard" in the industry, that it is addressed in all company safety manuals, and that although it occurs infrequently it has caused fatalities and many serious injuries.<sup>2</sup> Dr. Savanick explained that pressurized lance ejections have one of three causes. Most commonly, it is caused by "hydro-locking," which creates a small explosion in the pipe that forces the mole out backward. Less commonly, ejection is caused by blockage of all of the backward-facing nozzle holes, resulting in the lance shooting out backwards, or by blockage of only some of the backward-facing holes, which usually results in the lance making a U-turn in the pipe and exiting mole-first. Even with a backward ejection there is

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<sup>2</sup>Emerson, the injured employee, and Galen Cook, Respondent's safety supervisor, testified that it was well known in the industry that lances could come out under pressure and cause serious injuries. (Tr. 626-27, 661-65). Doane, the crew foreman, and Wilbur Libby, the field supervisor, testified to the contrary; however, their testimony in this regard was evasive, equivocal and unpersuasive (Tr. 26-33, 38-39, 156, 165-67, 214).

usually some component of turn. Thus, an expelled lance may exit mole-first or mole-last. The hazard is that it can come out under pressure either way. (Tr. 384-93, 395, 398-400, 407, 438-39; Ex. G-9c, p. 2).

Dr. Savanick's extensive experience, practical knowledge of the industry, and clear and direct testimony made him a very credible witness. Based on his testimony, I find that Complainant has established that there was a hazard that a pressurized lance could eject from the pipe, that the hazard was recognized by the industry, and that the hazard could cause serious physical injury or death. This finding is bolstered by Respondent's safety manual, which mandates two practices designed to lessen the hazard of a forceful ejection, from which I infer that Respondent recognized the existence of the hazard. *See* Ex. G-1, p. III-22. Respondent's expert witness, James Ekedahl, a professional engineer, was accepted as an expert only for purposes of computing the forces bearing on the mole before it ejected and injured Emerson. (Tr. 590). His testimony did not rebut that of Dr. Savanick, and, accordingly, I need not consider it further.

#### The Abatement Methods

Dr. Savanick testified that the most commonly-employed precautions against a pressurized nozzle's unexpected expulsion are using a stinger and unifying control of the lance and the foot pedal. He explained that a stinger prevents a lance from turning in a pipe more than 90 degrees, impedes lesser rotations, and slows backward ejections. He also explained that the extreme importance of de-energizing the mole necessitates that pedal control be retained by the lance operator, the person most likely to sense anything going wrong. Dr. Savanick said that both means are "universal" safety requirements that are specified in all company safety manuals, including that of Respondent, and that both have been required by the WJTA since its inception. (Tr. 393-95, 399-400, 438-39, 441-42, 452-54).

Dr. Savanick strongly criticized the crew's decision to disregard Respondent's safety requirements and to proceed with this inherently dangerous job without consulting the company safety director or others at headquarters. He said that crew members are not the best persons to make such decisions because their eagerness to get the job done often interferes with prudent judgment. (Tr. 405, 433-35). He also said that a retention device would have stopped or slowed any ejecting

lance. (Tr. 430-33). Respondent's field supervisor and its safety supervisor concurred with Dr. Savanick's testimony that a retention device would have protected the lance operator by slowing or stopping a lance ejection. (Tr. 163, 167, 628). Dr. Savanick testified that at the time of the accident retention devices were used primarily by large firms, that they had to be fabricated in-house as they were not then commercially available, and that neither the WJTA nor Respondent's safety rules required them. (Tr. 433, 439-41, 488). However, Respondent's employees' testimony establishes that Respondent, a medium-sized firm, had manufactured a retention device in-house a few weeks earlier and had been experimenting with it. Their testimony also establishes that the crew had taken the retention device to the site of the accident but had not used it because it did not fit the pipe. (Tr. 89, 157, 159, 449-41, 621-25). Dr. Savanick faulted the crew for not having taken the half hour or so required to manufacture a retention device of the appropriate size.<sup>3</sup> (Tr. 431-32).

I conclude that Complainant has met her burden of demonstrating that a reasonable person familiar with the conditions of the industry would have used the abatement measures set out in the citation. The foregoing clearly establishes this is the case with respect to using a stinger and having the same person operate the lance and the foot pedal. As to using a retention device, Respondent argues that such devices were not a recognized means of abatement and that the one at the accident site was a "test piece" fabricated to protect against hand injuries during insertion of the lance or to facilitate cleaning the end of the pipe.<sup>4</sup> Although retention devices were not then required by industry safety rules or available commercially, the fact that the crew had one at the site belies Respondent's argument. Moreover, Respondent's own employees acknowledged that use of the device would have prevented Emerson's injury. (Tr. 89, 167). Finally, Dr. Savanick was plainly of the opinion that Respondent should have taken the time to fabricate a retention device for use at the site. (Tr. 431-33). Respondent's argument is therefore rejected.

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<sup>3</sup>The parties stipulated that the paper company was about 15 miles from Respondent's facility. (Joint Exhibit 1).

<sup>4</sup>Respondent's safety supervisor testified its purpose was to protect the operator's hand when inserting the lance into the pipe, while Respondent's field supervisor and crew foreman each testified its purpose was to facilitate cleaning the near end of the pipe. However, all agreed it either could or would stop a pressurized mole from coming out. (Tr. 89, 157, 159-60, 167, 621-24, 621-26, 628).

### Respondent's Asserted Defenses

Respondent contends that the proposed abatement measures were infeasible and/or a greater hazard, and asserts several reasons for disregarding its safety rule and separating lance operation and pedal control. Doane and Emerson testified they did so because, knowing of the paper company's attempt to flush the blockage out with water, they feared Emerson might be engulfed by debris falling from the opening of the vertically-aligned pipe when the blockage was cleared. (Tr. 77, 94-97, 642). They also said that inserting the lance in the pipe was complicated by the pipe opening being some 6 feet above the floor and the working space being cramped, both of which led Emerson to stand on a ledge not much wider than the foot pedal. (Tr. 104-06, 652, 653, 659, 661). However, neither witness considered entering the pipe at a different location or accomplishing the job in a different manner, and both testified that Emerson was not standing under the pipe opening, but, rather, some 2 feet to the side. (Tr. 77-79, 86, 90, 643). Moreover, Dr. Savanick's unrefuted testimony was that engulfment was not a recognized danger in the industry and that he had never heard of an instance in which it was a problem. In his estimation, had the blockage been dislodged, less than half a cubic yard of debris would have fallen on Emerson. Dr. Savanick further testified that any discharged water would have run off Emerson and into the drain. (Tr. 401-02, 542-43). Emerson would have gotten wetter and dirtier, but he would not have been engulfed.

Respondent's employees offered several reasons for not having used a stinger, including the difficulty of getting around the 90-degree turn 20 feet above the opening, the added weight of the stinger hindering the lance's climb, and the greater difficulty in re-climbing a clean pipe that offered less traction in the event the stinger had to be removed to clear the 90-degree turn. (Tr. 85-87, 98, 100-03, 173, 194-96, 199). However, Dr. Savanick persuasively countered these assertions. First, he testified that clearing the 90-degree turn in the upper pipe would probably require withdrawing the lance and removing the stinger but that doing so would take only a few minutes. Second, he testified that a stinger added little weight in comparison to thrust and would not noticeably slow a lance's climb. Third, he explained that it is no harder to climb a clean pipe because the mole climbs by the thrust from its backward-facing jets, much as a jet engine propels itself, and does not depend on traction. He emphasized that whatever inconvenience retracting the lance and removing the stinger

to navigate the 90-degree turn might have occasioned was outweighed by the protection provided by the stinger during the first ascent. (Tr. 416-21, 519-20, 541-42 ).

Respondent's final assertion is that retention devices were not a recognized abatement means at the time of the accident. However, this assertion has already been addressed and rejected *supra*. On the basis of the record, Respondent has failed to demonstrate that the proposed abatement means were infeasible or that they would have exposed its employees to a greater hazard. The alleged violation of section 5(a)(1) of the Act is consequently affirmed.

#### Penalty Assessment

The Commission is the final arbiter of penalties in all contested cases. In determining an appropriate penalty, the Commission considers the size of the employer's business, its history of previous violations, the employer's good faith, and the gravity of the violation. The gravity of the violation is the principal factor to be considered. Complainant has proposed a penalty of \$7,000.00 for this citation item. The record shows that Respondent is a medium-sized company with no demonstrated history of prior violations. The record also shows that the gravity of the violative condition was high because it posed the threat of death or very serious injury. In fact, the injuries that resulted from the violative condition were so serious that after 14 months the employee was still unable to return to his job. Upon considering the required penalty factors and the circumstances of this case, the proposed penalty of \$7,000.00 is appropriate and is accordingly assessed.

#### FINDINGS OF FACT

The foregoing constitutes my findings of fact in accordance with Federal Rule of Civil Procedure 52(a). Any proposed findings of fact inconsistent with this decision are hereby denied.

CONCLUSIONS OF LAW

1. Respondent was, at all times pertinent hereto, an employer within the meaning of section 3(5) of the Act, 29 U.S.C. §§ 651-678.
2. The Commission has jurisdiction over the parties and the subject matter.
3. Respondent was in violation of section 5(a)(1) of the Act in that it exposed its employees to the hazard of being struck by high-pressure water while hydroblasting. The violation was serious. A penalty of \$7,000 is appropriate.
4. Respondent was not in violation of section 5(a)(1) of the Act with respect to the allegation of item 2 of citation 1 as Complainant withdrew that item.

ORDER

On the basis of the foregoing Findings of Fact and Conclusions of Law, it is ordered that:

1. Item 1 of citation 1 is affirmed, and a penalty of \$7,000.00 is assessed.
2. Item 2 of citation 1 is vacated.

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Ann Z. Cook  
Judge, OSHRC

Dated:

Washington, D.C.