



March 31, 2010  
10-027

Roy Zimmerman  
Director, Office of Enforcement  
U.S. Nuclear Regulatory Commission  
One White Flint North, 11555 Rockville Pike  
Rockville, MD 20852-2738

- References:
- (1) License SNM-42, Docket 70-27
  - (2) Letter dated July 31, 2008, Shea (NRC) to Cochrane (BWXT), NRC Inspection Report No. 70-27/2008-002 and Notice of Violation
  - (3) Letter dated August 29, 2008, Cochrane (BWXT) to NRC (Document Control), Response to Apparent Violation in Inspection Report No. 70-27/2008-002; EA 08-204
  - (4) Letter dated October 20, 2008, Reyes (NRC) to Cochrane (BWXT), Notice of Violation and Proposed Imposition of Civil Penalty – \$32,500 (NRC Inspection Report No. 70-27/2008-002)
  - (5) Letter dated November 14, 2008, Cochrane (B&W) to Carpenter (NRC), Reply to a Notice of Violation; (EA-08-204)
  - (6) Letter dated February 23, 2010, Reyes (NRC) to Cochrane (B&W), Notice of Violation and Proposed Imposition of Civil Penalty – \$32,500 (NRC Inspection Report No. 70-27/2008-002)

Subject: Answer to a Notice of Violation; (EA-08-204)

Dear Sir:

Pursuant to the provisions of 10 CFR 2.201 and 10 CFR 2.205, Babcock & Wilcox Nuclear Operations Group, Inc. (B&W NOG), Lynchburg facility, is providing this written statement of explanation to the U.S. Nuclear Regulatory Commission (NRC) in reply to the Notice of Violation that was received by letter dated February 23, 2010 (Reference 6). Per phone conversation with Steve Vias, NRC Branch Chief Region II on March 22, 2010, B&W NOG was granted an additional 7 days to respond to this violation. B&W NOG is denying the severity level of this violation, and therefore is also protesting the civil penalty in whole. B&W NOG will present the reason in **Enclosure 1** that the violation should be less than a Severity Level III.

If there are any questions in this regard, please contact Barry Cole at (434) 522-5665.

Sincerely,

Roger Cochrane  
General Manager  
B&W NOG, Inc., Lynchburg

Enclosure

cc: NRC, Regional Administrator, Region II  
NRC, Senior Resident Inspector  
NRC, Merritt Baker

# ENCLOSURE 1

**Answer to a Notice of Violation EA-08-204****NOV EA-08-204:**

Per the Notice of Violation dated February 23, 2010:

During an NRC inspection conducted March 23 through June 21, 2008, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violation and associated civil penalty is set forth below:

Safety Condition S-1 of Special Nuclear Material License No. 42 authorizes the use of nuclear material in accordance with Chapters 1-11 of the license application, submitted on October 24, 2006, and supplements thereto.

Chapter 6, "Chemical Safety Process", Section 6.1.2, "Procedures", of the license application states, in part, that the program shall be implemented as described in Chapter 11. Procedures will be implemented that establish requirements to minimize and control chemical safety risk resulting in: (a) radiation risk produced by licensed material; (b) chemical risk produced by licensed material; and (c) plant conditions that may affect the safety of licensed materials and thus present a radiation risk to workers, the public or the environment.

Chapter 11, "Management Measures", Section 11.4, "Procedures", of the license application states, in part, that activities at the Nuclear Operations Group Site involving licensed material shall be conducted in accordance with written and approved procedures.

Contrary to the above, Operations Procedure OP-0061167, "Spill and Leak Handling Emergency Procedure", failed to include instructions regarding how to neutralize acid spills. As a result, on April 28, 2008, a process operator took inappropriate actions to neutralize the spill by adding Sodium Hydroxide (NaOH), a strong base, which reacted violently with liquid hydrogen fluoride (HF) acid and which could have led to irreversible or other serious, long-lasting health effects to the process operator.

**The Reason for Denying the Severity Level of the Violation and Imposition of Civil Penalty:**

B&W NOG's denial of the severity level of the violation is a result of a review of the facts surrounding the incident as presented by the root cause analysis team, a concern over the precedent set by concurring with the assessment of a procedure inadequacy leading to a violation of this severity, and a continued concern over the interpretation of this incident as one that could have led to irreversible or other serious, long-lasting health effects to the operator.

The violation states that the OP-0061167, "Spill and Leak Handling Emergency Procedure" failed to include instructions regarding how to neutralize acid spills. In reviewing the root cause investigation of this incident the active error of the event was the process operator's selection and use of Sodium Hydroxide instead of Sodium

Carbonate (soda ash) on the spill. The operator knew by his training and previous experience with neutralizing HF spills that he needed soda ash. The report confirmed that the operator's course of action was confirmed by his supervisor. Several factors led to the selection of the wrong chemical: a) the drums of chemicals were not easily distinguishable (ie. both black in color); b) drums were not distinguishable due to label orientation and fading of the labels; and c) storage location of the chemicals had changed and the soda ash drum had been moved from its normal location. It is B&W NOG's belief that specific instructions in the procedure on how to neutralize HF would not have prevented the selection of the wrong chemical in this situation due to the issues with the drums. B&W NOG has taken the necessary measures to address the issues with the drums.

OP-0061167 Revision 19 was active at the time of the incident. The procedure had the following elements: it identified HF as a hazardous substance; it provided some guidance for acid spills; it required operators to notify the supervisor, IH&S and RP in the event of a spill; it required spills to be controlled safely with appropriate PPE, and it provided respiratory protection requirements specifically for HF. Therefore, the NRC contention in the Notice of Violation that OP-0061167 "failed to include instructions regarding how to neutralize acid spills" is inaccurate. B&W NOG did have a spill program in place.

Another concern with the violation as presented in the NRC's letter (Reference 6) is the precedent set by classifying the violation as a Severity Level III. A review of the violations at our facility from the 2004 LPR period through 2009 LPR period showed a total of sixteen violations which cited the reference "activities at the Nuclear Operations Group Site involving licensed material shall be conducted in accordance with written and approved procedures." Thirteen were classified as Severity Level IV violations and three were classified as Non-Cited violations. None were classified as Severity Level III which has led to B&W NOG's concern that this violation being categorized as a Severity Level III will set a precedent for future violations involving written and approved procedures. It appears to be a deviation of the NRC's historical interpretation of the enforcement policy involving procedural compliance by a licensee. Therefore, B&W NOG can only assume that the NRC's sole basis for the decision to characterize the issue as a Severity Level III Violation and impose a civil penalty is based on the opinion that "Under different circumstances, the event could have resulted in a more severe consequence to the operator". B&W NOG takes exception to this assessment as described in the following paragraphs:

1. B&W NOG agrees with the NRC's determination in the cover letter (Reference 6) transmitting the Notice of Violation (NOV) that 10 CFR 70.61(c)(4) is not applicable to the incident. In making this determination, it makes logical sense that the NRC has also concluded that the other paragraphs in Part 70.61 are not applicable to this incident since the chemical was not a "hazardous chemical produced from licensed material". B&W NOG Management is concerned that the NRC has clearly selected language from the performance requirements of 10 CFR 70.61(c)(4) for an acute chemical exposure to assess the potential severity of this incident after making this determination. The language in the NRC cover letter transmitting the NOV states, "the event could have led to irreversible or other serious long lasting health effects". The underlined portion of the quote is language taken directly from 10 CFR 70.61(c)(4). B&W NOG thinks it is inappropriate in one case to

say that 70.61 does not apply and then select the performance requirement from the regulation to assess this violation. Part 70.61 either applies in its entirety or does not apply.

2. The NRC has not stated their regulatory basis for determining that our prompt emergency actions and programmatic mitigators are not available and reliable in their assessment of the potential safety significance of the event. The NRC simply states in the cover letter to the NOV that "Under different circumstances, this event could have resulted in a more severe consequence to the operator." The NRC does not give a basis for this determination and therefore B&W NOG must assume that in the NRC assessment of the potential safety significance these actions and mitigators are considered unavailable. The B&W NOG prompt emergency response actions (onsite medical care provided by co-workers and the B&W emergency response team) and programmatic mitigators (eye wash stations, personal protective equipment, operating procedures, and hazardous chemical training) provide a defense-in-depth set of barriers that ensure a worker exposed to hazardous chemicals will not be seriously injured. The loss of any action or mitigators will not in itself result in a serious injury. All of these actions and mitigators are implemented to meet OSHA worker safety regulations and therefore should be considered available and reliable. It is important to note that the following emergency response actions and programmatic mitigators were in place and did not fail on the day of the incident:

- a. Operator training on hazardous chemical response that resulted in a co-worker directing the exposed employee to an eyewash station.
- b. An eyewash station free of obstructions that is inspected monthly.
- c. Trained emergency medical response.
- d. Calcium gluconate topical and ocular solution available.

It should be noted that the operator in this incident did have safety glasses with side shields; PPE required by procedure. However a face shield is also required by procedure when dealing with acidic substances and the operator did not don his face shield, which contributed to the injury. The face shield was available and reliable as was the case with all of our programmatic mitigators.

3. As stated in the cover letter transmitting the NOV, the physician contracted by the NRC to review this case and the employee's treating physicians interviewed by the NRC contracted physician all concluded that the prompt emergency response and programmatic mitigators prevented serious eye injury to the employee. This conclusion by qualified medical professionals familiar with the chemical hazards of HF and ocular exposure to the eye from hazardous chemicals should guide the NRC in their potential safety significance determination.
4. Finally, the NRC assumes in their assessment of severity that the employee was exposed to 49% Hydrofluoric Acid. There is in fact no evidence that the employee was exposed to the full concentration of the acid. Since the incident occurred after application of the Sodium Hydroxide it is equally as likely that the HF that entered the employee's eye was neutralized lowering

the Ph or that the Sodium Hydroxide was in fact the chemical that entered the eye. Both situations would result in the potential for a less severe eye injury.

Based on this information, B&W NOG believes that the NRC has incorrectly assessed the potential safety significance and that under different circumstances the event would likely have been no more severe than the actual event.