**UNITED STATES**
**NUCLEAR REGULATORY COMMISSION**
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 11, 2010

EA-09-263

Mr. R. P. Cochrane
General Manager
Babcock and Wilcox
Nuclear Operations Group, Inc.
P. O. Box 785
Lynchburg, VA 24505-0785

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY - $35,000 (SPECIAL INSPECTION TEAM REPORT NO. 70-27/2009-006)

Dear Mr. Cochrane:

This letter refers to the inspection conducted from July 20 through September 14, 2009, at the Babcock and Wilcox (B&W) Nuclear Operations Group facility in Lynchburg, VA. The purpose of the inspection was to review the circumstances surrounding the discovery of an unfavorable geometry vessel containing cutting fluid and fissile material in a band saw located in the uranium recovery area which resulted in your declaration of an Alert emergency condition on July 15, 2009. The results of our review of this event, including the identification of four apparent violations, were documented in Nuclear Regulatory Commission (NRC) Inspection Report No. 70-27/2009-006, dated October 14, 2009.

In the letter transmitting the inspection report, we requested you to attend a predecisional enforcement conference (PEC) to discuss the apparent violations. On November 6, 2009, a PEC was conducted in the Region II office with you, your staff and Mr. W. Nash, President, B&W Nuclear Operations Group to discuss the apparent violations, their significance, their root causes, and your corrective actions.

Based on the information developed during the inspection and the information provided during the conference, the NRC has determined that four violations of NRC requirements occurred. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The first violation involved a failure to declare an Alert in a timely manner when conditions of Appendix G to your Emergency Plan were satisfied for such a declaration. The additional violations involved: a failure to ensure that the band saw's built-in coolant reservoir was disabled and not usable prior to operation of the band saw, as required by Safety Evaluation Report 03-087 and your license; the failure to ensure that double contingency was established or maintained for the band saw cutting fluid reservoir, as required by your license; and the failure to limit the risk of a nuclear criticality accident in the band saw under normal and credible abnormal conditions as required by Title 10 of the Code of Federal Regulations (10 CFR), Part 70.61.

Although the failure to declare an Alert in a timely manner did not result in any actual consequences, this matter is a significant concern to the NRC because the potential consequences of an untimely emergency declaration could be significant under different circumstances. In this case, your staff was aware of the situation (accumulation of high enriched uranium and moderator in the band saw cutting fluid reservoir), on July 15, 2009, at approximately 5:30 p.m., and soon thereafter had determined that conditions were stable. As discussed at the conference on July 15, 2009, your staff was focused on evaluating the condition for reportability and had adopted the mindset that the stable condition did not represent an active incident, which contributed to a failure to recognize that an Alert declaration was required. The Alert was declared at 8:01 p.m., when the conditions were evaluated by the Manager of Environment, Safety, Health and Safeguards, after which the Emergency Operations Center (EOC) was activated. The NRC considers the timely declaration of incidents in accordance with Emergency Plans to be a crucial component of successful implementation of emergency response measures, because of the initiation of a number of time crucial onsite and offsite emergency response activities. Based on the above and in accordance with the NRC Enforcement Policy, the NRC has concluded that this violation should be characterized at Severity Level III.

The three additional violations are associated with the failure to disable the band saw's built-in coolant reservoir, and are also a significant concern to the NRC because of the loss of controls to ensure that a criticality accident could not occur. In this case, the condition existed and remained undetected by your staff for approximately five years, when records indicate that the band saw was modified. As you presented at the conference, measures were in place which served to limit the likelihood that highly enriched uranium would accumulate in the built in reservoir, which was an unfavorable geometry, and could result in a criticality accident if uncontrolled. The configuration and volume of the band saw cooling fluid system, and administrative limits on the use of the band saw to cut components containing enriched uranium, served to mitigate the likelihood of the incident. Although the NRC acknowledges that these measures represented barriers to reduce the likelihood of a criticality accident, they do not represent and had not been evaluated as formal controls for the band saw fluid cutting reservoir to ensure that double contingency was established or maintained. In addition, these barriers were not established as part of your criticality safety evaluation of an accident scenario involving the accumulation of high enriched uranium and moderator in the band saw cutting fluid reservoir. Therefore, the NRC has characterized these three violations collectively as a Severity Level III Problem, in accordance with the NRC Enforcement Policy.

In accordance with the Enforcement Policy, a base civil penalty in the amount of $35,000 is considered for each Severity Level III violation or problem. Because B&W Nuclear Operations Group has been the subject of escalated enforcement within the last two years[1], the NRC considered whether credit was warranted for *Identification* and for *Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy.

With respect to determining whether credit for *Identification* was warranted, the NRC concluded that the conditions for declaring an Alert were self-revealing and readily apparent at the time (approximately 5:30 p.m. on July 15, 2009) when your staff was considering a one hour report

1 A Severity Level III Problem consisting of three violations was issued on August 8, 2008, involving a Raschig ring-filled vacuum cleaner that contained an inadequate level of Raschig rings (EA-08-171).

under Appendix A to 10 CFR Part 70. The NRC acknowledges that while B&W Nuclear Operations Group later established the need to and, in fact, declared an Alert at approximately 8:00 p.m. on July 15, 2009, conditions existed for making an emergency declaration in accordance with your Emergency Plan more than two hours earlier. However, this notification was not timely. In addition, the failure to declare an Alert in a timely manner was not entered into the facility's corrective action program until after NRC inspectors questioned licensee staff five days later. Based on the above, the NRC concludes that credit is not warranted for the factor of *Identification* for this violation. Regarding the additional three violations, B&W Nuclear Operations Group's subsequent review of the incident and causal factors for the identified violations was sufficient such that credit is warranted for the factor of *Identification*.

With respect to determining whether credit for *Corrective Action* is warranted, NRC recognized that your immediate and long-term corrective actions in response to the incident included but were not limited to the following: (1) the immediate completion of an extent of condition review to determine if similar unfavorable geometry conditions existed and establishment of an investigation team; (2) revision to the B&W Nuclear Operations Group reportability procedure, training of Emergency Directors on lessons learned from the incident, and incorporation of lessons learned into the annual training; (3) a review of the failure mode of the favorable geometry coolant system; (4) revision of the safety release program to include independent verification; (5) review of Nuclear Criticality Safety Releases for the past ten years to confirm that similar oversights did not occur; (6) communication of the incident to all B&W Nuclear Operations Group onsite management; and (7) plans to adequately disable the saw reservoir prior to full production restart. Based on the above, the NRC determined that credit is warranted for the factor of *Corrective Action* for all four violations.

Therefore, to emphasize the importance of prompt identification of violations of your Emergency Plan, and in recognition of your previous escalated enforcement action, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the base amount of $35,000 for the violation associated with the failure to declare an Alert in a timely manner. In recognition of your prompt identification and comprehensive corrective actions regarding the additional violations discussed in the Notice, I have been authorized, after consultation with the Director, Office of Enforcement, to not propose a civil penalty for this problem. Please be advised that issuance of this Notice constitutes escalated enforcement action that may subject you to increased inspection effort.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter and its enclosures will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agency-Wide Document Access and Management System (ADAMS) on the Internet at http://www.nrc.gov/reading-rm/adams.html. The NRC also includes significant enforcement actions on its Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions regarding this matter, please contact Mr. D. Charles Payne at (404) 562-4711.

Sincerely,

/RA/ V. MCCREE FOR

Luis A. Reyes
Regional Administrator

Docket No. 70-27
License No. SNM-42

Enclosures:
1. Notice of Violation and Proposed Imposition of Civil Penalty
2. NUREG/BR-0254

cc w/encls:
Barry L. Cole, Manager
Licensing and Safety Analysis
Babcock and Wilcox Nuclear Operations Group
P.O. Box 785
Lynchburg, VA 24505-0785

Leslie P. Foldesi, Director
Bureau of Radiological Health
Division of Health Hazards Control
Department of Health
1500 East Main Street, Room 240
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C. Evans, RII
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C. Payne, RII
A. Gooden, RII
S. Subosits, RII
R. Hannah, RII
J. Ledford, RII
R. Trojanowski, RII
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ADAMS: X Yes ACCESSION NUMBER:_____

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| SIGNATURE | /RA/ | /RA/ECOBEY | /RA/ | /RA/ | | |
| NAME | CPAYNE | JSHEA | CEVANS | MCCREE | | |
| DATE | 12/22/09 | 12/22/09 | 01/05/10 | 01/11/10 | | |
| E-MAIL COPY? | YES | YES | YES | YES | YES NO | YES NO |
| OFFICE | OE | OGC | NMSS | | | |
| SIGNATURE | EMAIL | EMAIL | EMAIL | | | |
| NAME | JWRAY | BKIUKAN | DDORMAN | | | |
| DATE | 1/6/10 | 1/6/10 | 1/6/10 | | | |
| E-MAIL COPY? | YES | YES | YES | YES | YES NO | YES NO |

OFFICIAL RECORD COPY DOCUMENT NAME:

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Babcock and Wilcox
Nuclear Operations Group, Inc.
Lynchburg, VA

Docket No. 70-27
License No. SNM-42
EA-09-263

During an NRC Inspection conducted July 20 through September 14, 2009, violations of NRC requirements were 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 violations and associated civil penalty are set forth in the following paragraphs.

I. Violation Assessed a Civil Penalty

Safety Condition S-2 of Special Nuclear Material License 42 dated April 10, 2009, requires that the licensee shall maintain and execute the response measures in the Emergency Plan, Revision 19, dated April 15, 2007, or as further revised in accordance with 10 CFR 70.32(i).

Appendix G to the Emergency Plan states, in part, that an Alert is declared when the loss of control of all parameters preventing criticality for which control can not be immediately reestablished occurs.

Contrary to the above, at 5:30 p.m. on July 15, 2009, the licensee failed to declare an Alert once the conditions of Appendix G had been met. Specifically, staff members were cognizant of the issues surrounding the band saw reservoir (i.e., that all parameters preventing criticality from occurring were lost and controls could not be immediately reestablished) yet concluded that the situation should be described as an unanalyzed condition and reported to NRC within twenty-four hours as required by Appendix A to 10 CFR Part 70, but failed to recognize in a timely manner that the situation required an Alert emergency declaration until 8:01 p.m. that same day.

This is a Severity Level III Violation (Supplement VIII).
Civil Penalty Amount - $35,000

II. Violations Not Assessed a Civil Penalty

A. Safety Condition S-1 of Special Nuclear Material License 42 authorizes the use of nuclear material in accordance with chapters 1 through 11 of the license application submitted on October 24, 2006, and supplements thereto.

Section 11.4, “Procedures,” of the license application states, in part, that activities at the NOG [Nuclear Operations Group] Site involving licensed material shall be conducted in accordance with written and approved procedures.

Quality Work Instruction 5.1.7, “Safety Evaluation Requests,” Appendix B states, in part, that a Safety Evaluation Report (SER) Originator completes the requirements of the SER, and the evaluator verifies the requirements of the SER are met.

Safety Evaluation Request 03-087 states, in part, that if each machine has a built-in coolant reservoir, it shall be disabled such that it is not usable.

Contrary to the above, on or before July 15, 2009, the licensee failed to complete or verify the requirements of SER-03-087. Specifically, the licensee failed to ensure that the band saw’s built-in coolant reservoir was disabled and not usable prior to operation of the band saw.

B. Safety Condition S-1 of Special Nuclear Material License 42 authorizes the use of nuclear material in accordance with chapters 1 through 11 of the license application submitted on October 24, 2006, and supplements thereto.

Section 5.1, “Nuclear Criticality Safety Specifications,” of the license application states, in part, that NOG [Nuclear Operations Group] is committed to the following double contingency policy: “Process designs shall incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible.”

Contrary to the above, on and before July 15, 2009, the licensee failed to ensure that double contingency was established or maintained for the band saw cutting fluid reservoir. Specifically, the licensee failed to establish any controls on the band saw cutting fluid reservoir to prevent process changes which would make a criticality accident possible such as accumulation of cutting fluid or fissile material in the reservoir.

C. 10 CFR 70.61(a) states, in part, that each licensee shall evaluate in the integrated safety analysis performed in accordance with 10 CFR 70.62 its compliance with the performance requirements in paragraphs (b), (c), and (d) of this section.

10 CFR 70.61(d) states, in part, that the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety.

Contrary to the above, on and before July 15, 2009, the licensee failed to limit the risk of a nuclear criticality accident in the sectioning band saw, Specifically, the licensee failed to evaluate an accident scenario or establish appropriate controls preventing the accumulation of high enriched uranium and moderator in the band saw cutting fluid reservoir, an unfavorable geometry vessel.

This is a Severity Level III problem (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Babcock and Wilcox Nuclear Operations Group, Inc. (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this

Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; (EA-09-263)" and should include for each alleged violation: (1) admission or denial of the alleged violation; (2) the reasons for the violation if admitted, and if denied, the basis for denying the validity of the violation; (3) the corrective steps that have been taken and the results achieved; and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, the NRC may issue an order or a Demand for Information requiring you to explain why your license should not be modified, suspended, or revoked or why the NRC should not take other action as may be proper. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time provided for the response required under 10 CFR 2.201, the Licensee may pay the civil penalty proposed above in accordance with NUREG/BR-0254 and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, a statement indicating when and by what method payment was made, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within 30 days of the date of this Notice, the NRC will issue an order imposing the civil penalty. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violation listed in this Notice, in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the response should address the factors addressed in Section VI.C.2, “Civil Penalty Assessment,” of the Enforcement Policy. Any written answer addressing these factors pursuant to 10 CFR 2.205, should be set forth separately from the statement or explanation provided pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205 to be due, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The responses noted above, i.e., Reply to Notice of Violation, Statement as to payment of civil penalty, and Answer to a Notice of Violation, should be addressed to: Roy Zimmerman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region II, and to the resident inspector at the facility that is subject to this Notice.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC’s document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, classified or safeguards information so that

it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 11th day of January 2010