

June 29, 2006

EA-06-081

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND
NOTICE OF VIOLATION (NRC INSPECTION REPORT 05000456/2006012;
05000457/2006012 (DRS)); BRAIDWOOD NUCLEAR POWER PLANT,
UNITS 1 AND 2

Dear Mr. Crane:

The purpose of this letter is to provide you the final results of our significance determination of the preliminary White finding identified within Inspection Report 05000456/2006008(DRS); 05000457/2006008(DRS). The inspection finding was assessed using the Significance Determination Process (SDP) and was preliminarily characterized as a White finding, which may require additional NRC inspections. This White finding involved multiple failures by your staff to adequately evaluate the radiological hazards associated with the leaks from the circulating water blowdown line vacuum breakers and to assess the environmental impact of the resultant onsite and offsite tritium contamination.

In a telephone conversation with Ms. A. Boland of the NRC, Region III office, on June 2, 2006, Mr. K. Polson of your staff indicated that Exelon Nuclear did not contest the characterization of the significance of this finding and that you declined your opportunity to discuss this issue in a Regulatory Conference or provide a written response.

The NRC recognizes the extensive, recent monitoring performed by your staff to identify the extent of the contamination from the circulating water blowdown line vacuum breaker historical leaks. In this case, the contamination was limited to a single radionuclide, tritium. Tritium is a low energy beta emitter and represents a very low radiological risk as compared to other radionuclides. Based upon the current radiological conditions and the concentrations of tritium identified in the vicinity of the Braidwood site, the NRC estimated that the doses from the contamination to be a very small fraction of the NRC's limit for doses to members of the public and insignificant relative to the normal background radiation dose. Additional information relative to tritium, its properties, and its radiological characteristics may be found at <http://www.nrc.gov/reactors/operating/ops-experience/grndwtr-contam-tritium.html>.

Despite your recent monitoring activities to address the groundwater issue, we concluded that your staff did not perform adequate, timely radiological evaluations following the historical leaks, which impacted your ability to assess the environmental impact from the releases and to mitigate the releases; did not account for the potential public impact; and did not adequately control licensed material. After considering the information developed during the inspection, the NRC has concluded that the inspection finding is appropriately characterized as White. The NRC's Public Radiation Safety SDP was developed to assess the risk of noncompliance with regulatory requirements and licensee programs and procedures. In this case, the significance of the inspection finding was not based on the risk from offsite doses. Instead, the significance of the inspection finding was based upon an evaluation of the adequacy of your controls to preclude and to assess environmental impact of releases of radioactive material. Specifically, the Public Radiation Safety SDP also considers the potential impact of program breakdowns. In developing the Reactor Oversight Program, the NRC recognized that a licensee's control of radioactive material is of interest to members of the public, even when, as in this case, very low levels of radioactive material are involved. Consequently, the NRC integrated a deterministic factor into the Public Radiation Safety SDP, which provides for a higher level of significance than would be warranted based solely on the risk from exposure to the radioactive material.

You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified White finding. Such appeals will be considered to have merit only if they meet the criteria given in NRC Inspection Manual Chapter 0609, Attachment 2.

The NRC also determined that the inspection finding involved three violations of NRC requirements, as cited in the attached Notice of Violation (Notice). The three violations involved your staff's failure to: 1) perform adequate radiological surveys, as required by 10 CFR 20.1501; 2) adequately implement a program to assess the cumulative dose contributions, as required by Technical Specification 6.8.4.e.5; and 3) conduct an adequate environmental monitoring program to provide data on measurable levels of radiation and radioactivity in the environment resulting from the releases, as required by Technical Specification 6.9.1.6. The circumstances surrounding the violations are described in detail within NRC Inspection Report 05000456/2006008; 05000457/2006008 (DRS). In accordance with the NRC Enforcement Policy, the Notice of Violation is considered an escalated enforcement action because it is associated with a White finding.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response.

Because plant performance for this issue has been determined to be in the regulatory response band, we will use the NRC Action Matrix to determine the most appropriate NRC response for this event. We will notify you, by separate correspondence, of that determination.

The NRC also determined that two other apparent violations, as discussed in NRC Inspection Report 05000456/2006008; 05000457/2006008 (DRS), represented violations of NRC requirements. Specifically, your staff's failure to maintain complete records of the spread of contamination from the vacuum breaker valve leaks was determined to be an inspection finding of low safety significance (Green). This inspection finding was also determined to be a violation

of 10 CFR 50.75(g), which requires licensees to maintain records of information important to the safe and effective decommissioning of the facility. In addition, your staff's failure to fully report the leaks from the vacuum breaker valves in annual reports submitted to the NRC, as required by your Technical Specifications, was determined to be a Severity Level IV violation of NRC requirements. This finding was evaluated using the NRC's traditional enforcement process because inspection findings that involve reporting requirements are considered to have the potential to affect the NRC's ability to perform its regulatory function. The violation associated with the Green inspection finding, which was characterized by the SDP as having very low significance, and the Severity Level IV violation are being treated as Non-Cited Violations (NCVs), consistent with Section VI.A.1 of the NRC Enforcement Policy. The violations have been entered into your corrective action program. If you contest these NCVs, you should provide a response within 30 days of the date of this letter, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator and the Enforcement Officer, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Braidwood Nuclear Power Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to respond, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.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. The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do, Enforcement**, then **Significant Enforcement Actions**.

Sincerely,

/RA by Geoffrey E. Grant Acting for/

James L. Caldwell
Regional Administrator

Docket Nos. 50-456; 50-457
License Nos. NPF-72; NPF-77

Enclosure: Notice of Violation

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Sincerely,
/RA by Geoffrey E. Grant Acting for/
 James L. Caldwell
 Regional Administrator

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Enclosure: Notice of Violation

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DATE	06/28 /2006	06/28/2006	06/28/2006	06/28/2006	06/28/2006	06/28/2006

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¹ OE concurrence received on 06/28/2006 by D. Solorio per e-mail from D. Starkey

C. Crane

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cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear, Mid-West Regional
Operating Group
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
State Liaison Officer
Chairman, Illinois Commerce Commission

Letter to C. Crane from J. Caldwell dated June 29, 2006

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND
NOTICE OF VIOLATION

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NOTICE OF VIOLATION

Exelon Nuclear
Braidwood Nuclear Power Plant
Units 1 and 2

Docket No.: 50-456; 50-457
License No.: NPF-72; NPF-77
EA-06-081

During an NRC inspection completed on May 25, 2006, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

1. 10 CFR 20.1501 requires that each licensee make, or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Pursuant to 10 CFR 20.1003, *survey* means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

10 CFR 20.1301 requires the licensee to conduct operations so that the total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year.

Contrary to the above, as of March 2006, the licensee did not make surveys to assure compliance with 10 CFR 20.1301, which limits radiation exposure to 0.1 rem. As examples, in November 1996 and December 1998, failed vacuum breakers in the licensee's radioactive waste discharge line resulted in large volumes of liquid contaminated with radioactive material to leak in an uncontrolled manner to the unrestricted areas. Following identification of the leaks of radioactive material, the licensee failed to perform adequate surveys to identify the extent of radiation and contamination levels and the potential hazards associated with the radioactive material and to take actions necessary to control the material.

This violation is associated with a White Significance Determination Process finding for Units 1 and 2.

2. Technical Specification 6.8.4.e requires, in part, that the cumulative dose contributions from liquid effluents for the current calendar quarter and the current calendar year be determined in accordance with the methodology and parameters in the Offsite Dose Calculation Manual (ODCM) at least once per 31 days.

Contrary to the above, between November 1996 and March 2006, the licensee did not determine the cumulative dose contributions from liquid effluents inadvertently leaked to on-site and off-site locations resulting from failed vacuum breakers along the radioactive waste discharge line in 1996, 1998, and 2000 in accordance with the methodology and parameters in the ODCM within 31 days of the leaks. Specifically, the licensee did not determine the dose resulting from a: 1) November 1996 release from a Vacuum Breaker No. 1 leak of 250,000 gallons of water that included radioactive material to the

groundwater pathway; 2) December 1998 release from a Vacuum Breaker No. 3 leak of 3 million gallons of water that included radioactive material to the ground water pathway; and 3) November 2000 release from a Vacuum Breaker No. 2 leak of 3 million gallons of water that included radioactive material to the groundwater pathway.

This violation is associated with a White Significance Determination Process finding for Units 1 and 2.

3. Technical Specification 6.9.1.6 requires, in part, that the Annual Radiological Environmental Operating Report include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period and that the material shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

10 CFR 50, Appendix I, Section IV.B.2 states the licensee shall establish an appropriate surveillance and monitoring program to provide data on measurable levels of radiation and radioactive materials in the environment to evaluate the relationship between quantities of radioactive material released in effluents and resultant doses to individuals from principal pathways of exposure.

Contrary to the above, as of March 2006, the licensee did not establish an appropriate surveillance and monitoring program to evaluate the relationship between quantities of radioactive material released in effluents and resultant doses to individuals from principal pathways of exposure. Specifically, the radioactive material released in the 1996, 1998, and 2000 vacuum breaker leaks constituted new principal pathways of exposure (i.e., the groundwater pathway) which the licensee had not adequately evaluated with the existing Radiological Effluent Monitoring Program (REMP).

This violation is associated with a White Significance Determination Process finding for Units 1 and 2.

Pursuant to the provisions of 10 CFR 2.201, Exelon Nuclear is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with copies to the Regional Administrator and Enforcement Officer, Region III, and to the NRC Resident Inspector at the Braidwood Nuclear Power Plant, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-06-081" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required

response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time. If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. Therefore, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. 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 withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (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 29th day of June 2006