

September 23, 2008

EA-08-223

Mr. David A. Christian  
President and Chief Nuclear Officer  
Dominion Energy Kewaunee, Inc.  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

SUBJECT: NRC EMERGENCY PREPAREDNESS INSPECTION REPORT  
05000305/2008503; PRELIMINARY WHITE FINDING FOR  
KEWAUNEE POWER STATION

Dear Mr. Christian:

On August 29, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an Emergency Preparedness inspection at your Kewaunee Power Station. The inspection included on-site inspection on June 16 through 20, 2008, and periodic in-office inspection through August 29, 2008. The inspection covered one or more of the key attributes of the emergency preparedness cornerstone of the NRC's Reactor Oversight Process. The enclosed inspection report documents the inspection results, which were discussed on August 29, 2008, with Mr. S. Scace and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel.

This letter transmits a finding that has preliminarily been determined to be White, a finding with low to moderate increased importance to safety that may require additional NRC inspections. As described in Section 1EP4 of this report, a finding was identified for failure to comply with 10 CFR 50.47(b)(4). Specifically, from August 2006 to May 2008, the Kewaunee's emergency plan emergency action levels (EALs) RU1.2, RA1.1 and RA1.2 specified instrument threshold values that were beyond the limits of the effluent radiation monitors' capabilities to accurately measure and indicate. The inability to classify emergencies with these EALs does not comply with the requirements in 10 CFR 50.54(q) associated with planning standard 50.47(b)(4). This finding was assessed based on the best available information, using the Emergency Preparedness Significance Determination Process (SDP). The final resolution of this finding will be conveyed in separate correspondence.

The finding is also an apparent violation of NRC requirements and is being considered for escalated enforcement action in accordance with the Enforcement Policy, which can be found on the NRC's Web site at <http://www.nrc.gov/reading-rm/doc-collections/enforcement>.

In accordance with NRC Inspection Manual Chapter (IMC) 0609, we intend to complete our evaluation using the best available information and issue our final determination of safety significance within 90 days of the date of this letter. Although the SDP encourages an open dialogue between the NRC staff and the licensee, the dialogue should not impact the timeliness of the staff's final determination.

Before we make a final decision on this matter, we are providing you with an opportunity: (1) to attend a Regulatory Conference where you can present to the NRC your perspective on the facts and assumptions the NRC used to arrive at the finding and assess its significance; or (2) submit your position on the finding to the NRC in writing. If you request a Regulatory Conference, it should be held within 30 days of the receipt of this letter and we encourage you to submit supporting documentation at least one week prior to the conference in an effort to make the conference more efficient and effective. If a Regulatory Conference is held, it will be open for public observation. If you decide to submit only a written response, such submittal should be sent to the NRC within 30 days of your receipt of this letter. If you decline to request a Regulatory Conference or submit a written response, you relinquish your right to appeal the final SDP determination, in that by not doing either, you fail to meet the appeal requirements stated in the Prerequisite and Limitation sections of Attachment 2 of IMC 0609.

Please contact Hironori Peterson, Chief, Operations Branch, at 630-829-9707 and in writing within 10 days from the issue date of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision. The final resolution of this matter will be conveyed in separate correspondence.

Because the NRC has not made a final determination in this matter, no Notice of Violation is being issued for these inspection findings at this time. In addition, please be advised that the number and characterization of the apparent violation described in the enclosed inspection report may change as a result of further NRC review.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC

D. Christian

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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>

Sincerely,

*/RA/*

Steven West, Director  
Division of Reactor Safety

Docket No. 50-305  
License No. DPR-43

Enclosure: Inspection Report No. 05000305/2008503(DRS)  
w/Attachment: Supplemental Information

cc w/encl: S. Scace, Site Vice President  
M. Wilson, Director, Nuclear Safety and Licensing  
C. Funderburk, Director, Nuclear Licensing and  
Operations Support  
T. Breene, Manager, Nuclear Licensing  
L. Cuoco, Senior Counsel  
D. Zellner, Chairman, Town of Carlton  
J. Kitsembel, Public Service Commission of Wisconsin  
P. Schmidt, State Liaison Officer

D. Christian

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M. Wilson, Director, Nuclear Safety and Licensing  
C. Funderburk, Director, Nuclear Licensing and Operations Support  
T. Breene, Manager, Nuclear Licensing  
L. Cuoco, Senior Counsel  
D. Zellner, Chairman, Town of Carlton  
J. Kitsembel, Public Service Commission of Wisconsin  
P. Schmidt, State Liaison Officer

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Letter to David A. Christian from Steven West dated September 23, 2008.

SUBJECT: NRC EMERGENCY PREPAREDNESS INSPECTION REPORT  
05000305/2008503; PRELIMINARY WHITE FINDING FOR  
KEWAUNEE POWER STATION

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-305  
License No: DPR-43

Report No: 05000305/2008503

Licensee: Dominion Energy Kewaunee, Inc.

Facility: Kewaunee Power Station

Location: Kewaunee, WI

Dates: June 16 through July 30, 2008

Inspector: Robert Jickling, Sr. Emergency Preparedness Inspector

Approved by: Steven West, Director  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000305/2008; 06/16/2008 - 08/29/2008; Kewaunee Power Station; Emergency Action Level and Plan Changes

This report covered a 2-month period of inspection by a regional emergency preparedness inspector. One Apparent Violation (AV) item with potential White safety significance was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

### A. NRC-Identified and Self-Revealed Findings

#### Cornerstone: Emergency Preparedness

- TBD. An AV was identified by the inspector for failure to follow and maintain in effect emergency plans which use a standard emergency classification and action level scheme. Specifically, the licensee's emergency plan Alert emergency action levels (EALs) RA1.1 and RA1.2 specified instrument setpoints that were beyond the limits of the effluent radiation monitors capabilities.

This finding was considered more than minor because the licensee is required to be capable to implement adequate measures to protect public health and safety in the event of a radiological emergency. Regulations require a standard emergency classification and action level scheme, the bases which included facility system and effluent parameters, in use by the licensee and State and local response plans call for reliance on information provided by the licensee for determination of minimum initial offsite response measures. As a result of having Alert EAL threshold values that were beyond the range of the associated effluent radiation monitors, Kewaunee personnel would not have been able to classify an emergency based upon an effluent radioactive material release in a timely manner. Emergency response actions directed by the State and local emergency response plans, which rely on information provided by the licensee, could have potentially been delayed.

The cause of the finding is related to the human performance cross-cutting element of H.2(c) for ensuring that personnel, equipment, and procedures are available and adequate to assure nuclear safety. Specifically, those necessary for complete, accurate, and up-to-date design documentation, procedures, and work packages. (Section 1EP4)

### B. Licensee-Identified Violations

No violations of significance were identified.

## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstone: Emergency Preparedness

#### 1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

##### .1 Emergency Action Level and Emergency Plan Changes

##### a. Inspection Scope

The inspector completed a screening review of revisions made to the licensee's emergency plan to determine whether the changes identified in those revisions may have reduced the effectiveness of the licensee's emergency plan. The screening review of these revisions does not constitute approval of the changes and, as such, the changes are subject to future NRC inspection to ensure the emergency plan continues to meet NRC regulations. Documents reviewed are listed in the Attachment to this report.

The inspector also reviewed licensee actions to resolve identified problems with effluent radiation monitors, starting in April 2006, and emergency plan emergency action levels (EALs), starting in November 2006.

This emergency action level and emergency plan changes inspection constituted one sample as defined in IP 71114.04-05.

##### b. Findings

Introduction: The inspector identified an apparent violation (AV) for failure to promptly identify and correct problems with the licensee's emergency plan Alert EALs RA1.1 and RA1.2 specified instrument setpoints that were beyond the limits of the effluent radiation monitors capabilities. This has potential safety significance greater than very low safety significance and will remain unresolved pending completion of the Significance Determination Process (SDP).

Description: On April 28, 2006, the licensee initiated a corrective action program (CAP) to document questions asked by a NRC inspector regarding whether the technical specification definition for channel calibration was met for R-18 (Monitor-R18/Waste Disposal Liquid) and R-19 (Monitor-R19/Steam Generator Blowdown Liquid) calibrations. In an unrelated action in April of 2006, the NRC approved a Dominion request to upgrade the Kewanee EAL scheme based on the NRC-endorsed NEI 99-01 guidance. These EAL changes were subsequently implemented in August of 2006. On September 16, 2006, the licensee initiated a CAP documenting calibration results that indicated that monitors R-18 and R-19 responded non-linearly above approximately 1E+6 counts per minute (cpm). As a result, the monitors were taken out of service and a grab sampling program initiated to meet conditions of the Offsite Dose Calculation Manual (ODCM). On November 6, 2006, emergency preparedness personnel initiated a CAP to evaluate the capability to read the threshold values for EALs RU1.2, RA1.1, and RA1.2 on radiation monitors R-16, 18, 19, and 20. In addition to the questionable R-16, 18, 19, and 20 readings above

1E+6 cpm, this CAP also identified that EALs RU1.2, RA1.1 and, RA1.2 threshold values would be well beyond the linear range and in some cases beyond the measurement and display range of the instruments. With EALs RU1.2, RA1.1, and RA1.2 rendered ineffective, Kewaunee personnel would have had to rely on the analysis of samples taken from these effluent release pathways, a condition that would have resulted in delays and significantly less timely emergency classifications. On February 21, 2007, a Design Change Request was initiated to modify R-18 and 19 monitors to accommodate Kewaunee's EALs and to consider pursuit of higher range detectors for R-18 and 19.

On October 11, 2007, a corrective action (CA) was initiated by the licensee identifying that in addition to EALs RA1.1 and RA1.2 threshold values not falling within the range of monitors R-16, 19, and 20 to classifying Alert conditions, the EAL threshold values were also outside the operating range for monitors R-12, 13, 14, and 21. On April 7, 2008, a NRC resident inspector questioned the adequacy and timeliness of manually sampling the effluent streams. On May 2, 2008, the licensee completed a root cause evaluation which identified that the EALs implemented on August 24, 2006, contained effluent radiation monitor threshold values for Alert classifications that were outside the display range of the specified effluent radiation monitors. The root cause evaluation identified the cause as revision and control of the emergency plan and EALs did not contain sufficient guidance for development, validation, and approval of EAL threshold values. On May 29, 2008, the EAL threshold values in RU1.2, RA1.1, and RA1.2 were lowered in Revision 4 to the EALs.

From this information, the inspector determined the problem that led to implementing EALs threshold values higher than the capabilities of the effluent radiation monitors occurred because the calculated values were not verified prior to implementation in August of 2006. Because the problem with EAL threshold values for RU1.2, RA1.1, and RA1.2 existed from August 24, 2006 until May 29, 2008, the inspector concluded that the licensee failed to, in a timely manner, identify and correct a problem that resulted in the failure to maintain a standard emergency classification scheme, which included facility system and effluent parameters. The inspector's determination was in alignment with the licensee's detailed root cause evaluation.

Analysis: The inspector determined that the failure to verify that threshold values specified in the EALs were compatible with the installed plant equipment was contrary to 10 CFR 50.47(b)(4) and was a performance deficiency. This finding was considered more than minor because the finding, if left uncorrected, would become a more significant safety concern. Specifically, in the event of a radiological emergency, the deficiency could lead to the failure to declare two Alert conditions in a timely manner.

The inspector determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Appendix B, "Emergency Preparedness Significance Determination Process." Using the "Failure to Comply" flowchart, the first decision box asks if it is a planning standard problem. Following the yes path to the second decision asks if it is a risk significant planning standard. Again, follow the yes path to the decision which asks if it is a risk significant planning standard failure. The no path leads to the decision which asks if it was a risk significant planning standard degraded function. Answering yes results in a White finding. The inspector determined this was a degraded risk significant planning standard, rather than failed, because even though the two Alerts (RA1.1 and RA1.2) would not be able

to be declared due to the EAL threshold values being beyond the range of the associated instruments, an Alert could be declared, although in a delayed manner, using RA1.3 which is based on grab sample and analysis results obtained by a chemistry technician and reported to the shift manager.

This finding has a cross-cutting aspect in the area human performance, resources, because the licensee did not ensure adequate procedures to assure nuclear safety H.2(c). Specifically, processes for revision and control of emergency plan EALs did not contain adequate guidance for development, validation, and approval. Kewaunee processes were such that changes were made, without verification, to EAL setpoint values which were beyond the range of the instruments.

Enforcement: Title 10 of the Code of Federal Regulations, Part 50.54(q) requires that licensees follow and maintain in effect emergency plans which meet the standards in 50.47(b) and requirements in Appendix E. The requirements of 10 CFR 50.47(b)(4) state, in part, that the emergency plans must have a standard emergency classification and action level scheme, the bases which include facility system and effluent parameters, in use by the licensee and that State and local response plans call for reliance on information provided by the licensee for determination of minimum initial offsite response measures.

Contrary to the above, Kewaunee failed to maintain a standard emergency classification scheme, which included facility system and effluent parameters, that the State and local response plans can rely on for information to determine minimum initial offsite response measures. This is a degraded, rather than a failed, risk significant planning standard function. Even though the two Alerts (RA1.1 and RA1.2) would not be able to be declared due to the EAL threshold values being beyond the range of the instruments, an Alert could be declared, although in a delayed manner, using RA1.3 which is based on grab sample and analysis results obtained by a chemistry technician to sample and reported to the shift manager. Pending determination of safety significance, this finding is identified as an apparent violation (AV) 05000305/2008503-01, Failure to Maintain a Standard Emergency Action Level Scheme.

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On August 29, 2008, the inspector presented the inspection results to Mr. S. Scace, and other members of the licensee staff by teleconference. The licensee acknowledged the issues presented. The inspector confirmed that none of the potential report input discussed was considered proprietary.

The inspector confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

S. Scace, Site Vice President

P. Blasioli, Nuclear Protective Services and Emergency Preparedness Director, Innsbrook

T. Breene, Licensing Manager

J. Costello, Emergency Preparedness Supervisor, Innsbrook

J. Egdorf, Emergency Preparedness Supervisor

R. Repshas, Licensing Engineer

P. Serra, Nuclear Fleet Emergency Preparedness Manager, Innsbrook

C. Sly, Licensing Engineer, Innsbrook

M. Wilson, Nuclear Station Safety and Licensing Director

S. Wood, Emergency Preparedness Manager

#### Nuclear Regulatory Commission

S. Burton, Senior Resident Inspector

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

05000305/2008503-01 AV Failure to Maintain a Standard EAL Scheme

#### Closed and Discussed

None

## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather, that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

### Section 1EP4 Emergency Action Level and Emergency Plan Changes

#### **PLANT PROCEDURES**

<b><u>Number</u></b>	<b><u>Title</u></b>	<b><u>Revision or Date</u></b>
	Kewaunee Power Station Emergency Plan	May 22, 2008
	Kewaunee Power Station Emergency Plan	August 24, 2006
	EAL Technical Bases Document	May 29, 2008
EPIP-AD-02	Emergency Class Determination	August 24, 2006
EPIP-AD-02	Emergency Class Determination	May 15, 2006
EPIP-AD-02	Emergency Class Determination	December 20, 2005

#### **REPORTS**

<b><u>Number</u></b>	<b><u>Title</u></b>	<b><u>Date</u></b>
RCE-2008-221	Evaluate EAL Setpoint Issues Root Cause	May 2, 2008

#### **CONDITION REPORTS**

<b><u>Number</u></b>	<b><u>Issue</u></b>	<b><u>Date Originated</u></b>
CR090741	Identified UE and Alert EAL Setpoint Issues with Plant Effluent Monitors	February 8, 2008
CA019123	Track Implementation of EAL Calculation	
CA028726	Evaluate EAL ICs Based on R-16/18/19/20	December 18, 2006
CA026592	Non-Linear Response for R-18 and R-19 Detectors	September 27, 2006
CE018812	Non-Linear Response for R-18 and R-19 Detectors	September 17, 2006
CE0176641	NRC Question about R-18 and R-19 Calibration	May 3, 2006
CAP039122	Evaluate EAL ICs Based on R-16/18/19/20	November 6, 2006
CAP037265	Non-Linear Response for R-18 and R-19 Detectors	September 16, 2006
CAP033340	NRC Question about R-18 and R-19 Calibration	April 28, 2006
DCR029923	Non-Linear Response for R-18 and R-19 Detectors	February 21, 2007
DCR026981	Non-Linear Response for R-18 and R-19 Detectors	October 4, 2006
OTH014874	R-18 is Out of Service for Liquid RadWaste Discharge	August 24, 2006

## LIST OF ACRONYMS USED

ADAMS	NRC's Document System
AR	Action Request
AV	Apparent Violation
CA	Corrective Action
CAP	Corrective Action Program
CE	Condition Evaluation
CFR	Code of Federal Regulations
cpm	counts per minute
EALs	Emergency Action Levels
IMC	Inspection Manual Chapter
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Off-Site Dose Calculation Manual
SDP	Significance Determination Process