UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

January 14, 2010

EA-09-018

Joseph Kowalewski, Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-3093

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND NOTICE OF VIOLATION; NRC INSPECTION REPORT 05000382/2009008

Dear Mr. Kowalewski:

The purpose of this letter is to provide you the final results of our significance determination of the preliminary White finding discussed in the subject inspection report. The report documented baseline inspection activities related to the Train B 125V dc battery surveillance failure in September 2008. In that report, we described a finding that was preliminarily determined to be White (i.e., a finding with low to moderate increased importance to safety that may require additional NRC inspections).

At your request, a Regulatory Conference was held on December 14, 2009, to further discuss your views on this issue. A copy of the handout you provided at this meeting was attached to the meeting summary (ADAMS ML093520050). During the meeting your staff described your assessment of the significance of the findings, as well as detailed corrective actions, including the root-cause evaluations for the issues. Specifically, we discussed three differences that existed between the risk assessments performed by the NRC staff and by your staff. Those differences were considered as follows:

- Your evaluation assumed a time of exposure for the loose battery connection of slightly less than 9 days. The NRC's evaluation considered a T/2 approach of the total exposure time of 100 days, plus the 2 days of repair time, resulting in 52 days of exposure. We also considered the finding would cross the Green-White threshold at approximately 9.3 days.

  After replacement of a single battery cell in May 2008, you conducted a service discharge test of the battery. This test demonstrated the battery was fully capable of providing required loads at that time, even though you subsequently determined an

intercell connector had been inappropriately loosened during the cell replacement activities. The NRC staff also concluded that you provided data and analysis to reasonably characterize the inoperable status of the battery connection between August 25 and the morning of September 3, 2008. This data and analysis was primarily focused on the weekly individual battery cell voltage readings and the calculated connection resistance from those readings. You further assumed the connection was functional prior to August 25, 2008, based on a step-change in the measured individual cell voltages. The NRC considered what meaning could be assigned to weekly individual cell voltages and concluded that while they give good status of the cell voltage, they show only limited information about the ampacity of the connection. Unlike the data from the May 2008 service test, this individual cell voltage data does not confirm the ability of the battery and its connections to supply accident-rated currents. The connection could have been disturbed to the point that it still had fairly low connection resistance, but would be unable to carry full-load demand. You indicated that the most likely cause of the connection going from a loose to a failed condition was technicians disturbing the connection during a weekly individual cell voltage test. As we discussed at the conference, this also creates the possibility that the connection was disturbed multiple times between May and August of 2008.

Based upon the sensitivity of the exposure time of this issue (i.e., Green-White threshold at approximately 9.3 days) and an inability to show confidence that your individual cell voltage data correlates to the battery's ability to provide design loads, we determined the T/2 approach discussed in NRC Inspection Manual Chapter 0609, "Significance Determination Process," was still appropriate for this evaluation. Therefore, the resulting 52-day exposure period resulted in the overall determination that the finding was appropriately characterized as White.

- We appreciated the information you brought forward regarding updated seismic data for areas east of the Rocky Mountains. To date, the NRC risk analysts are instructed to continue using the data supplied in the Risk Assessment Standardization Project manual. However, the Risk Assessment Standardization Project manual will eventually be revised to reflect the new data, at which time it will be used for NRC risk assessments. It should be noted that the seismic contribution to the significance of the subject battery issue was minimal and had no material effect on the final significance determination.

- During the conference, you stated that our assumption that the battery could not be recovered for the short-term core damage sequences was overly conservative. Although we recognize that this was a bounding assumption, it is our position that the recovery possibility for these sequences was sufficiently uncertain that the non-recovery assumption was not unreasonable or "overly-bounding." Further, the final significance of the finding was not particularly sensitive to changes in this non-recovery factor, even down to a value of 0.1, as was used in your analysis.

After considering the information developed during the inspection, and the information you provided at the conference, the NRC has concluded that the inspection finding is appropriately characterized as White (i.e., a finding with low-to-moderate increased importance to safety that may require additional NRC inspections).

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 has also determined that your failure to follow plant procedures during corrective maintenance on the safety-related battery is a violation of the Waterford Steam Electric Station's Technical Specification 6.8.1.a, as cited in the attached Notice of Violation. The circumstances surrounding the violation are described in detail in the subject inspection report. 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.

The NRC has concluded that the information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in NRC Inspection Report 05000382/2009008 and at the Regulatory Conference (meeting summary, ADAMS ML093520050). Therefore, you are not required to respond to this letter unless the description therein does not accurately reflect your corrective actions or your position.

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 performance. We will notify you by separate correspondence of that determination.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Elmo E. Collins
Regional Administrator

Docket: 50-382
License: NPF-38

Enclosure:
Notice of Violation

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OEMail.Resource; RidsEdoMailCenter Resource;
RidsOgcMailCenter Resource; RidsNrrMailCenter Resource;
RidsNroOd Resource; RidsOpaMail Resource;
RidsOiMailCenter Resource; RidsOigMailCenter Resource;
RidsOcfoMailCenter Resource; RidsRgn1MailCenter Resource;
RidsRgn3MailCenter Resource; OEWEB.Resource;
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ADAMS ML

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SUNSI Rev Compl.	☑Yes ☐ No	ADAMS	☑ Yes ☐ No	Reviewer Initials	msh
Publicly Avail	☑ Yes ☐ No	Sensitive	☐ Yes ☑ No	Sens. Type Initials	msh

RIV/DRP-PBE	RIV/DRS-PSA	RIV/DRS	RIV/DRP	RIV/ACES
JClark	MRunyan	RCaniano	DChamberlain	MSHaire
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1/04/10	1/04/10	1/06/10	1/06/10	1/06/10
Regional Counsel	RIV/ORA	OE	RIV/ORA	
KFuller	ECollins (concur)	GBowman	ECollins (sign)	
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1/08/10	1/08/10	1/11/10	1/14/10	

NOTICE OF VIOLATION

Entergy Operations, Inc. Docket: 50-382
Waterford Steam Electric Station, Unit 3 License: NFP-38
EA-09-018

During an NRC inspection at your Waterford Steam Electric Station, Unit 3, which concluded on September 24, 2009, a violation of NRC requirements, was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> Waterford Steam Electric Station, Unit 3 Technical Specification 6.8.1.a states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, Appendix A, "Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors," Section 9, "Procedures for Performing Maintenance," recommends procedures for maintenance that can affect the performance of safety-related equipment. Work Order 152819, which was used to replace the safety-related Train B 125V dc battery, was such a procedure. Work Order 152819 stated, in part:
>
> > The following work instructions can be worked out-of-sequence OR omitted at the discretion of the cognizant supervisor, as long as the work scope is fully met.
> >
> > 4.12 Torque in accordance with Vendor Technical Manual RS-1476 intercell connections to 160 in-pounds (+10/-0)
> >
> > [Note: Step 4.12 included a quality control hold point, which required that an independent quality control inspector verify that the appropriate torque was applied to each connection.]
> >
> > 4.13 Perform ME-004-213, "Station Battery 3A OR 3B OR 3AB Intercell Resistance (18-Month) Surveillance," Revision 301, Sections 9.3, 9.4 and 9.5 in conjunction with Vendor Technical Manual RS-1476 for interior and interaisle connections [intercell resistance checks].
> >
> > [Note: Step 4.13 also included a quality control hold point, which required that an independent quality control inspector verify that the intercell resistance values for each connection were less than the technical specification limits.]

Contrary to the above, on May 24, 2008, your staff did not adequately implement a written procedure recommended by Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Specifically, electricians performed Work Order 152819 steps out of sequence when battery cell 56 was replaced with a new cell, and failed to ensure that the work scope was fully met. In particular, the electricians did not: (1) torque all of the affected intercell connections to vendor required 160 in-pounds (+10/-0), (2) obtain the required quality control inspector verification that all affected connections were torqued appropriately, (3) ensure that all of the necessary intercell resistance checks were performed, and (4) obtain a quality control verification that the intercell

resistance checks met technical specification limits. This resulted in a loose intercell connection going undetected until it failed on September 2, 2008, resulting in the Train B 125V dc battery being inoperable.

This violation is associated with a White finding.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in NRC Inspection Report 05000382/2009008, and at the Regulatory Conference (meeting summary, ADAMS ML093520050). However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," include the EA number, and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region IV, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice.

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's website at www.nrc.gov/reading-rm/pdr.html or www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Dated this 14th day of January 2010