



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

May 13, 2011

Mr. Barry Allen
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, OH 43449-9760

**SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION – NRC TEMPORARY
INSTRUCTION 2515/183 INSPECTION REPORT 05000346/2011011**

Dear Mr. Allen:

On April 29, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Davis-Besse Nuclear Power Station, using Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The enclosed inspection report documents the inspection results which were discussed on April 29, 2011, with Mr. Vito Kaminskas, Director, Site Engineering, and other members of your staff.

The objective of this inspection was to promptly assess the capabilities of the Davis-Besse Nuclear Power Station to respond to extraordinary consequences similar to those that have recently occurred at the Japanese Fukushima Daiichi Nuclear Station. The results from this inspection, along with the results from this inspection performed at other operating commercial nuclear plants in the United States will be used to evaluate the U. S. nuclear industry's readiness to safely respond to similar events. These results will also help the NRC to determine if additional regulatory actions are warranted.

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report. You are not required to respond to this letter.

B. Allen

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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 any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 6
Division of Reactor Projects

Docket No. 50-346
License No. NPF-3

Enclosure: Inspection Report 05000346/2011011
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-346
License No: NPF-3

Report No: 05000346/2011011

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, OH

Dates: March 23, 2011, through April 29, 2011

Inspectors: D. Kimble, Senior Resident Inspector
A. Wilson, Resident Inspector

Approved by: Jamnes L. Cameron, Chief
Branch 6
Division of Reactor Projects

Enclosure

INSPECTION SCOPE

IR 05000346/2011011, 03/23/2011 – 04/29/2011; Davis-Besse Nuclear Power Station
Temporary Instruction 2515/183 - Followup to the Fukushima Daiichi Nuclear Station Fuel
Damage Event

This report covers an announced Temporary Instruction inspection. The inspection was conducted by Resident inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

INSPECTION SCOPE

The intent of the TI is to provide a broad overview of the industry's preparedness for events that may exceed the current design basis for a plant. The focus of the TI was on (1) assessing the licensee's capability to mitigate consequences from large fires or explosions on site, (2) assessing the licensee's capability to mitigate station blackout (SBO) conditions, (3) assessing the licensee's capability to mitigate internal and external flooding events accounted for by the station's design, and (4) assessing the thoroughness of the licensee's walk downs and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. If necessary, a more specific follow-up inspection will be performed at a later date.

INSPECTION RESULTS

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 of the Code of Federal Regulations (10 CFR) 50.54(hh). Use Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If IP 71111.05T was recently performed at the facility, the inspector should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe what the licensee did to test or inspect equipment.
<p>a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested.</p>	<p>Licensee actions included the identification of equipment (active and passive) utilized for implementation of B.5.b actions and any additional equipment used in Severe Accident Management Guidelines (SAMGs). The scope of the equipment was defined as that equipment specifically designated for B.5.b or SAMG mitigation (i.e., special hoses, fittings, diesel battery charger, etc.). Permanent plant equipment (i.e., in situ equipment) was not considered in the scope, since it is normally in service, subjected to planned maintenance, and/or checked on operator rounds. The licensee then identified surveillances/tests and performance frequencies for the identified equipment, and reviewed the results of recent tests. Active equipment within the scope defined above that did not have recent test results was tested. Passive equipment within the scope was walked down and inspected.</p>
<p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Describe inspector actions taken to confirm equipment readiness (e.g., observed a test, reviewed test results, discussed actions, reviewed records, etc.).</p> <p>The licensee's actions as discussed above were completed prior to the issuance of NRC TI 2515/183. The inspectors assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspectors independently walked down and inspected all major B.5.b contingency response equipment staged throughout the site. With one exception, the results of the inspectors' independent walkdowns confirmed the results obtained by the licensee.</p> <p>In one instance, however, the inspectors identified a discrepancy with the necessary equipment staged to perform the actions to start an Emergency Diesel Generator (EDG) without normal station direct current (dc) power available. Specifically, Attachment 8 of DB-OP-02600, "Operational Contingency Response Action Plan," requires a total of 11 prepared 8 gauge insulated wires. Nine wires are used to connect 10 emergency batteries in series, and 2 longer lead wires are provided to connect positive and negative sides of the series batteries to the EDG panel. When the batteries are connected they are able to produce an approximate 60 volts direct current (Vdc) supply used to provide excitation needed for field flash of the EDG. During a walkdown of the required inventory, the</p>

	<p>inspectors only found a total of 10 wires staged and available. One longer lead wire was missing from the bundle.</p> <p>The inspectors determined that this NRC-identified issue constituted a minor violation of Technical Specification (TS) 5.4.1 for the licensee's failure to establish, implement, and maintain procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, which requires, in part, procedures for abnormal occurrences. This failure to comply with TS 5.4.1 was determined to have been a violation of minor significance that was not subject to enforcement action in accordance with Section 2.3 of the NRC Enforcement Policy. The review by the inspectors concluded that the licensee's electric shop would have had the ability to create a wire in a reasonable amount of time, and that there was no significant impact to the licensee's ability to have been able to execute the procedure as a result of the missing electrical connector.</p> <p>The licensee entered the issue into their corrective action program (CAP) as condition report (CR) 11-92756 and had a replacement electrical connector fabricated and staged immediately. Additionally, a corrective action was initiated to revise abnormal procedure DB-OP-02600 to ensure that the procedure clearly and consistently listed the correct amount of wires (11) needed to perform Attachment 8.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>The licensee has no equipment designated for use in the SAMGs that is not considered in situ plant equipment. All equipment (active and passive) designated for B.5.b was verified by the licensee to be in applicable procedures. All passive equipment was walked down and verified to be in place and ready for use. Passive equipment which had surveillance and/or preventative maintenance tasks had those activities performed to verify readiness for use.</p> <p>All active equipment located at the site was verified in place by the licensee. The licensee retested almost all active equipment; flow testing was not performed on the designated B.5.b fire pump, a diesel fire pump mounted on a trailer. Testing is normally done by a vendor at their facilities, because after use the pump is sent to the vendor for special cleaning and lay-up to prevent corrosion of the internal parts. The licensee has entered the issue into their CAP as CR 11-91560 to track completion of the pump's flow testing.</p>
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Licensee Action	Describe the licensee's actions to verify that procedures are in place and can be executed (e.g. walkdowns, demonstrations, tests, etc.)
<p>b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable. Licensees may choose not to connect or operate permanently installed equipment during this verification.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Licensee actions included the identification of those procedures utilized to mitigate the consequences of a B.5.b related event and severe accidents. The licensee then compiled verification documentation for procedure validations and identified any procedures not issued or validated and any with open change requests. Open change requests were reviewed for potential impacts on procedure functionality. Licensee personnel were then dispatched to walk down all applicable procedures to verify the ability of the procedures to be executed.</p>
	<p>Describe inspector actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.</p>
	<p>The licensee's actions as discussed above were completed prior to the issuance of NRC TI 2515/183. The inspectors assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspectors selected several sections of a sample of the procedures walked down by the licensee and walked those down to independently verify the licensee's conclusions. As discussed in section 03.01(a) above, the inspectors did identify one instance where a licensee procedure could not be executed as written due to a missing piece of equipment.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
<p>The licensee reviewed SAMG strategies and did not identify any issues. Procedures used for B.5.b were reviewed by the licensee, and walkdowns were performed by operators to ensure actions taken in the field in response to a B.5.b event could be performed. Open procedure change requests were reviewed by the licensee to verify that no immediate procedure changes were required. Some minor enhancements were identified by the licensee and entered into the CAP. Specific CRs are listed in the Attachment.</p>	

<p align="center">Licensee Action</p>	<p>Describe the licensee’s actions and conclusions regarding training and qualifications of operators and support staff.</p>
<p>c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to Security Order Section B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).</p>	<p>Licensee actions included the identification of training/qualification requirements for operators for the implementation of actions needed to mitigate a B.5.b related event and for the implementation of actions needed for the SAMGs. The licensee documented that operator training requirements were current and identified those operators with qualification requirements that were not current. In addition, the licensee identified the training/qualification requirements for applicable emergency response organization (ERO) command and support staff for the implementation of actions needed to mitigate a B.5.b related event, and for the implementation of actions needed for the SAMGs, and documented that ERO command and support staff training requirements were current. Where applicable, those ERO command and support staff with qualification requirements that were not current were identified.</p> <p>Describe inspector actions and the sample strategies reviewed to assess training and qualifications of operators and support staff.</p> <p>The licensee’s actions as discussed above were completed prior to the issuance of NRC TI 2515/183. The inspectors assessed the licensee’s training and qualification activities by conducting a review of training and qualification materials and records related to B.5.b and SAMG event response.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>The training requirements, qualifications, and associated records needed for operators for the implementation of SAMGs and B.5.b event response were reviewed by the licensee. Training was identified for shift managers, shift engineers, and unit supervisors, and verified that the training requirements were embedded within the position qualifications for the operators. The licensee confirmed that all shift operators verify their qualifications prior to assuming a shift position. The training requirements, qualifications, and associated records needed for ERO command and support staff for the implementation of actions needed to mitigate a B.5.b event or implement the SAMGs were also reviewed. All ERO command and support staff training requirements were verified as current by the licensee.</p>
<p align="center">Licensee Action</p>	<p>Describe the licensee’s actions and conclusions regarding applicable agreements and contracts are in place.</p>
<p>d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed</p>	<p>Licensee actions included the identification of all applicable contracts and agreements committed to be in place for the mitigation of a B.5.b related event. The licensee verified that the contracts and agreements were current, and documented whether or not the contracts/agreements were capable of meeting the mitigation strategy.</p>

<p>to mitigate the consequences of these events.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>For a sample of mitigating strategies involving contracts or agreements with offsite entities, describe inspector actions to confirm agreements and contracts are in place and current (e.g., confirm that offsite fire assistance agreement is in place and current).</p> <p>The licensee's actions as discussed above were completed prior to the issuance of NRC TI 2515/183. The inspectors assessed the licensee's capabilities by conducting an independent review of the licensee's emergency response agreement with the Carroll Township Emergency Medical & Fire Service, Inc. This is the only emergency response agreement the licensee has in place. The inspectors' review of the agreement verified that it was current and assessed whether or not it was adequate for meeting the licensee's mitigation strategy.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>The licensee reviewed their letter of agreement with the Carroll Township Fire Department (CTFD). The letter of agreement with CTFD was last revised in November 2008. The CTFD Chief was contacted by the licensee as part of their review efforts to ensure that the letter of agreement was still in effect and that no changes were necessary. The CTFD Chief confirmed the status of the letter of agreement. In addition, the licensee also verified the status of a contingent purchase order developed for the delivery of electrical generation and distribution equipment. During the course of their review, the licensee identified that the original purchase order developed as part of their response for a B.5.b event had expired. The licensee entered this issue into their CAP as CR 11-91468, and reviewed the purchase order with the vendor to ensure that the desired equipment was still available within the time frames specified.</p>
<p>Licensee Action</p>	<p>Document the corrective action report number and briefly summarize problems noted by the licensee that have significant potential to prevent the success of any existing mitigating strategy.</p>
<p>e. Review any open corrective action documents to assess problems with mitigating strategy implementation identified by the licensee. Assess the impact of the problem on the mitigating capability and the remaining capability that is not impacted.</p>	<p>The inspectors reviewed each CR for potential impact to the licensee's mitigation strategies. No significant impacts were identified. Three minor issues, one which constituted a minor violation of NRC requirements, were identified during the inspectors' reviews; these issues were discussed in sections 03.01(a) [CRs 11-91560 and 11-92756] and 03.01(d) [CR 11-91468] above. A complete list of the specific CRs reviewed is provided in the Attachment.</p>

03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to TI 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22" as a guideline. It is not intended that TI 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:	
Licensee Action	Describe the licensee's actions to verify the adequacy of equipment needed to mitigate a SBO event.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.	Licensee actions included the identification of equipment utilized/required for mitigation of a SBO. The licensee then conducted walkdowns of this equipment to ensure they were adequate and properly staged. Additionally, the licensee also conducted a review of open CAP items for potential SBO equipment impact.
	Describe inspector actions to verify equipment is available and useable.
	The inspectors assessed the licensee's capability to mitigate SBO conditions by conducting a review of the licensee's walkdown activities. In addition, the inspectors selected a sample of equipment utilized/required for mitigation of a SBO and conducted independent walkdowns of that equipment to verify that the equipment was properly aligned and staged. The sample of equipment selected by the inspectors included, but was not limited to, the SBO diesel generator and its auxiliaries.
	Discuss general results including corrective actions by licensee.
	In general, the licensee's reviews verified that SBO equipment was ready to respond to a SBO condition. During their CAP review, however, the licensee noted that a previously identified condition documented in CR 10-79719 had not yet been fully corrected. That condition, a reduction in the SBO diesel generator's cooling capacity, presently limits SBO diesel generator availability such that the SBO diesel generator must be declared unavailable whenever outside ambient air temperature exceeds 95 degrees F. Corrective actions planned by the licensee include cleaning and inspection of the SBO diesel generator radiator tubes. The licensee initiated CR 11-91648 to capture this issue in their CAP.
Licensee Action	Describe the licensee's actions to verify the capability to mitigate a SBO event.
b. Demonstrate through walkdowns that procedures for response to a SBO are executable.	Licensee actions included the identification of procedures required for response to a SBO, along with verification that the identified procedures were current and that no critical revision requests were in place. The licensee then verified that the mitigating procedures had been properly validated. Additionally, the licensee also conducted a review of open CAP items for potential impact to SBO procedures.

	<p>Describe inspector actions to assess whether procedures were in place and could be used as intended.</p> <p>The inspectors assessed the licensee’s capabilities by conducting a review of the licensee’s walkdown activities. In addition, the inspectors selected several sections of a sample of the procedures walked down by the licensee and walked those down to independently verify the licensee’s conclusions.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>The licensee procedure utilized to respond to a SBO is within the site’s emergency operating procedures (EOPs). Actions to start the SBO diesel generator and supply power to site essential buses are performed from the control room with permanently installed plant equipment. For the purposes of this requirement, the licensee credited their original validation of the specific EOP by a crew of licensed operators on the simulator prior to the implementation of the current revision. No current issues were identified by the licensee.</p>
<p>03.03 Assess the licensee’s capability to mitigate internal and external flooding events required by station design. Refer to IP 71111.01, “Adverse Weather Protection,” Section 02.04, “Evaluate Readiness to Cope with External Flooding” as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.</p>	
<p>Licensee Action</p>	<p>Describe the licensee’s actions to verify the capability to mitigate existing design basis flooding events.</p>
<p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Licensee actions included the identification of equipment and penetration seals utilized/required for mitigation of internal and external flooding. The licensee then conducted walkdowns of this equipment to ensure it was adequate and properly staged. Doors, barriers, and penetration seals that were utilized for mitigation of flooding were identified, and checked to see if they were routinely inspected to ensure functionality. Where routine inspections were not performed or could not be relied upon to ensure functionality, the licensee performed walkdowns and inspections to ensure that the components were functional.</p>

	<p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p> <p>The inspectors assessed the licensee’s capabilities to mitigate flooding by conducting a review of the licensee’s walkdown activities. In several instances, these reviews involved the inspectors accompanying licensee engineering personnel during their in-field walkdowns. In addition, the inspectors conducted independent walkdowns of selected flood mitigation equipment to contribute to the overall assessment of the licensee’s flood mitigating capabilities. Licensee flood mitigation procedures were reviewed to verify usability. The inspectors’ conclusions were consistent with the results obtained by the licensee.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>The licensee’s verification of flood mitigation capability consisted of walkdowns and verification that the systems, structures, and components (SSCs) were present, periodically tested, and in acceptable condition. All design features, such as curbs, were present and in good condition with one exception. The licensee initiated CR 11-91555 to document a missing curb seal in a mechanical penetration room (No. 4, Room 314). The licensee’s assessment of operability, which was reviewed by the inspectors, determined that the missing seal did not have any significant adverse impact on flood mitigation capability. Of the more than 40 pieces of equipment evaluated, the licensee found six items that did not have periodic testing requirements. In two cases, the need to establish full verification testing was documented in CRs 11-92101 and 11-92105. The licensee noted four cases in CR 11-92402 where sump pump preventive maintenance activities were not in place.</p> <p>Doors, barriers, and seal penetrations credited with flood propagation control were determined from the site’s flooding analyses, barrier function list, and door function list. Those lists identify the doors and barriers assumed to maintain integrity to limit the spread of flooding throughout the site’s buildings. The licensee’s reviews confirmed that all flood doors were inspected as part of a routine maintenance program. Flood barriers and penetrations that also serve as fire barriers were determined by the licensee to have been inspected on a routine basis as part of the site’s fire protection program. However, the barriers and penetrations that were not part of the fire protection program were identified as not being routinely inspected. The licensee entered this issue into their CAP as noted above. Where accessible, the licensee walked down these flood barriers and penetrations as part of their review for this item. Four of the 117 barriers inspected were found to have minor deficiencies that did not affect the operability of any of the protected equipment. All of</p>
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	the flood doors were inspected and found to have no noted deficiencies. A complete list of the specific CRs reviewed is provided in the Attachment.
<p>03.04 Assess the thoroughness of the licensee’s walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment’s function could be lost during seismic events possible for the site. Assess the licensee’s development of any new mitigating strategies for identified vulnerabilities (e.g., entered it into the CAP and any immediate actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use IP 71111.21, “Component Design Basis Inspection,” Appendix 3, “Component Walkdown Considerations,” as a guideline to assess the thoroughness of the licensee’s walkdowns and inspections.</p>	
Licensee Action	<p>Describe the licensee’s actions to assess the potential impact of seismic events on the availability of equipment used in fire and flooding mitigation strategies.</p>
<p>a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Licensee actions included the identification of equipment utilized/required for mitigation of fire and flood events. An engineering inspection plan (No. IP-A-010) was established by the licensee to govern the conduct of walkdowns and inspections of the equipment, both permanent and temporary. Licensee engineering personnel determined if the equipment was seismically qualified or assessed whether it would be possible to evaluate the equipment as being seismically rugged. Seismic vulnerabilities, including storage locations, were identified, along with mitigating strategies for equipment that was not seismically qualified.</p> <p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p> <p>The inspectors conducted multiple walkdowns, both independently and in conjunction with licensee personnel, of important equipment needed to mitigate fire and flood events to identify the potential that the equipment’s function could be lost during a seismic event. This equipment included, but was not limited to:</p> <ul style="list-style-type: none"> • all major B.5.b contingency response equipment staged throughout the site; • all installed fire protection and suppression equipment in the turbine building on the 565 ft, 623 ft, 643 ft, and 658 ft elevations; • the installed diesel and electric fire pumps and their controls; and • watertight doors, roof hatches and floor plugs at the plant’s intake structure. <p>Licensee flood and fire mitigation procedures were reviewed to verify usability. The results of the inspectors’ reviews were consistent with the licensee’s conclusions that there were a number of seismic vulnerabilities that potentially need to be addressed, as described below.</p>

	<p>Discuss general results including corrective actions by licensee. Briefly summarize any new mitigating strategies identified by the licensee as a result of their reviews.</p> <p>“Seismically qualified” is defined as the safety-related SSCs that have been formally qualified to function during and after a design basis earthquake, as applicable. The licensee’s reviews for this issue determined that non-safety related SSCs, in general, were not considered to be either seismically qualified or seismically rugged due to a wide variety of issues. The majority of room flood mitigation sump pumps and flooding detectors were not designed as seismically qualified and have not been evaluated as being seismically rugged. Similarly, the vast majority of the fire protection system, including both installed fire pumps, was not designed as seismically qualified and cannot be considered seismically rugged. Firefighting equipment staged to respond to B.5.b events was not stowed in seismically qualified buildings and locations, as a seismic event and B.5.b event have never been assumed to occur coincidentally.</p> <p>The licensee’s reviews identified instances where response capability could be enhanced. These included improving procedural guidance, reviewing the locations of portable equipment, and reviewing the need for supplemental portable equipment to compensate for the possible loss of the fire water storage tank, the fire pumps, and much of the fire suppression system piping.</p> <p>Further, reviews by the licensee identified that in the event of a postulated earthquake, various equipment may not function properly due to loss of essential power or being subjected to physical displacement. The existing mitigation strategy, to conduct station surveys per emergency plan off normal occurrence procedure RA-EP-02820, “Earthquake,” was considered presently sufficient by the licensee. Further mitigation strategies, the licensee determined, will entail following industry recommendations from other plants that have identified similar beyond-design-bases vulnerabilities. The licensee entered the issues identified into their CAP as CR 11-92571. Specific documents reviewed during this inspection are listed in the Attachment.</p>
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Exit Meeting

On April 29, 2011, the inspectors presented the inspection results to Mr. Vito Kaminskas, Director, Site Engineering, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that proprietary information reviewed during the course of the inspection had either been returned to the licensee or was being controlled in accordance with NRC policies regarding the handling of sensitive unclassified information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Allen, Site Vice President
J. Barron, Manager, Site Projects
P. Boissoneault, Manager, Chemistry
B. Boles, Director, Site Operations
K. Byrd, Director, Site Performance Improvement
J. Cuff, Manager, Site Maintenance (Acting)
J. Dominy, Director, Site Maintenance
G. Hayes, Supervisor, Reactor Engineering
J. Hook, Manager, Design Engineering
R. Hovland, Manager, Training
V. Kaminskas, Director, Site Engineering
G. Kendrick, Manager, Site Outage Management
P. McCloskey, Manager, Site Regulatory Compliance
D. Noble, Manager, Radiation Protection
M. Parker, Manager, Site Protection
R. Patrick, Manager, Site Work Management
S. Plymale, Manager, Site Operations
C. Price, Director, Special Projects
J. Rogers, Manager, Steam Generator Replacement Project
D. Saltz, Superintendent, Nuclear Operations
C. Steenbergen, Superintendent, Operations Training
J. Sturdavant, Regulatory Compliance
T. Summers, Manager, Plant Engineering
L. Thomas, Manager, Nuclear Supply Chain
S. Trickett, Superintendent, Radiation Protection
J. Vetter, Manager, Emergency Response
A. Wise, Manager, Technical Services
G. Wolf, Supervisor, Regulatory Compliance

LIST OF DOCUMENTS REVIEWED

The following is a partial 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 or 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.

03.01 Assess the Licensee's Capability to Mitigate Conditions that Result from Beyond Design Basis Events

Condition Reports:

- 11-91468; IER 11-1: Contingency Purchase Order for Electrical Equipment Has Expired
- 11-91556; IER 11-1: Noun Descriptor for Valve CV5037 Is In Error
- 11-91560; IER 11-1: Track Flow Test of Fire Pump
- 11-91562; IER 11-1: DB-OP-02600, Job Performance Measures
- 11-91568; IER 11-1: Enhancements to DB-OP-02600
- 11-91572; IER 11-1: Evaluation of Enhancements to DB-OP-02600
- 11-91582; IER 11-1: DB-OP-02600 Cabinet Verification
- 11-92020; IER 11-C: Vulko-Wrap Tape Lifespan in Operations Contingency Trailer Questioned
- 11-92023; IER 11-1: Determine Periodicity of Equipment Verifications
- 11-92756; DB-OP-02600 Operational Contingency Response Action Plan Procedure Discrepancy [NRC Identified]

Procedures:

- NOP-OP-1003; Grid Reliability Protocol; Revision 03
- RA-EP-02810; Tornado; Revision 08
- RA-EP-02820; Earthquake; Revision 07
- RA-EP-02870; Station Isolation; Revision 04
- DB-OP-02521; Loss of AC Bus Power Sources; Revision 16
- DB-OP-02529; Fire Procedure; Revision 05
- DB-OP-02544; Security Events or Threats; Revision 14
- DB-OP-02600; Operational Contingency Emergency Response Action Plan; Revision 09

Severe Accident Management Documents:

- NG-EN-00550; Severe Accident Management; Revision 01
- DBSAMG; Davis-Besse Severe Accident Management Guidelines Manual; Revision 0
- DBSAMG-TBD; Davis-Besse Severe Accident Management Guidelines – Technical Bases Document Manual; Revision 0
- BWGSAG; Babcock & Wilcox Generic Severe Accident Guidelines Manual; Revision 0
- BWGSAGTBD; Babcock & Wilcox Generic Severe Accident Management Guidelines Technical Basis Document Manual; Revision 0

Other:

- Davis-Besse Nuclear Power Station Emergency Plan – Revision 27; Carroll Township Emergency Medical and Fire Service, Inc. Emergency Response Agreement; 11/21/2008

03.02 Assess the Licensee's Capability to Mitigate Station Blackout (SBO) Conditions

Condition Reports:

- 11-91648; IER 11-1: Recommendation 2 Station Blackout Review Results

Procedures:

- DB-OP-06334; Station Blackout Diesel Generator Operating Procedure; Revision 18
- DB-OP-02544; Security Events or Threats; Revision 14
- DB-OP-02600; Operational Contingency Emergency Response Action Plan; Revision 09
- DB-OP-02521; Loss of AC Bus Power Sources; Revision 16

Severe Accident Management Documents:

- NG-EN-00550; Severe Accident Management; Revision 01
- DBSAMG; Davis-Besse Severe Accident Management Guidelines Manual; Revision 0
- DBSAMG-TBD; Davis-Besse Severe Accident Management Guidelines – Technical Bases Document Manual; Revision 0
- BWGSAG; Babcock & Wilcox Generic Severe Accident Guidelines Manual; Revision 0
- BWGSAGTBD; Babcock & Wilcox Generic Severe Accident Management Guidelines Technical Basis Document Manual; Revision 0

03.03 Assess the Licensee's Capability to Mitigate Internal and External Flooding Events Required by Station Design

Condition Reports:

- 11-91555; INPO ER L1 11-1: Silicone Foam Seal Missing in Plate Curb in Room 314
- 11-91570; INPO ER L1 11-1: USAR 3.6.2.7.1.13 Has Incorrect Value For P91-1, 2 Runout Flow
- 11-91726; Found Float Stuck on LSHH4620 During Calibration Check (INPO Event Report 11-1)
- 11-91868; IER 11-1: Groundwater Evidence Found While Inspecting Barrier 105-F
- 11-91956; INPO ER L-1 11-1: Crack Identified in West Wall of Room 113
- 11-92027; INPO ER L-1 11-1: Potential Deficiencies Noted in ECCS Pump Room #2
- 11-92029; INPO ER L1 11-1: Potential Leakage Residue in Room 114 Miscellaneous Waste Monitor Tank
- 11-92101; IER L1 11-1: Flood Mitigation Equipment Function Not Verified
- 11-92105; IER L1 11-1: Flood Mitigation Equipment Function Not Verified Through Testing
- 11-92192; IER L1 11-1: Maintenance Rule Barrier Inspection Does Not Include Floods
- 11-92402; INPO ER L1 11-1: PMs Needed for Sump Pumps
- 11-92568; INPO ER L1 11-1: Recommendation 3 Vulnerabilities

Procedures:

- DB-EP-02830; Flooding; Revision 02
- RA-EP-02880; Internal Flooding; Revision 03
- DB-OP-02600; Operational Contingency Emergency Response Action Plan; Revision 09

Severe Accident Management Documents:

- NG-EN-00550; Severe Accident Management; Revision 01
- DBSAMG; Davis-Besse Severe Accident Management Guidelines Manual; Revision 0
- DBSAMG-TBD; Davis-Besse Severe Accident Management Guidelines – Technical Bases Document Manual; Revision 0
- BWGSAG; Babcock & Wilcox Generic Severe Accident Guidelines Manual; Revision 0
- BWGSAGTBD; Babcock & Wilcox Generic Severe Accident Management Guidelines Technical Basis Document Manual; Revision 0

Calculations:

- C-ECS-099.16-134; Circulating Water Expansion Joint Rupture at Condenser Inlet; Revision 1
- 48.13; Condenser Pit Flood Pump Flow Rates; Revision 0
- 48.17; Condenser Pit Flood Pump; Revision 0
- 58.8; Flood Level In AFP Rooms Due to Various Line Breaks; Revision 0

Other:

- SAROS 96-5; Probabilistic Safety Assessment of Turbine Building Flooding at Davis-Besse; dated May 1996
- USAR Section 3.4; Water Level (Flood) Design Criteria
- USAR Section 3.6.2.7.2.13; Circulating Water System

03.04 Assess the Thoroughness of the Licensee's Walkdowns and Inspections of Important Equipment Needed to Mitigate Fire and Flood Events to Identify the Potential that the Equipment's Function Could Be Lost During Seismic Events

Condition Reports:

- 11-92571; INPO ER L1 11-1: Recommendation 4 Vulnerabilities

Procedures:

- RA-EP-02820; Earthquake; Revision 07
- RA-EP-02830; Flooding; Revision 02
- RA-EP-02880; Internal Flooding; Revision 03
- DB-OP-02521; Loss of AC Bus Power Sources; Revision 16
- DB-OP-02529; Fire Procedure; Revision 05
- DB-OP-02600; Operational Contingency Emergency Response Action Plan; Revision 09

Severe Accident Management Documents:

- NG-EN-00550; Severe Accident Management; Revision 01
- DBSAMG; Davis-Besse Severe Accident Management Guidelines Manual; Revision 0
- DBSAMG-TBD; Davis-Besse Severe Accident Management Guidelines – Technical Bases Document Manual; Revision 0
- BWGSAG; Babcock & Wilcox Generic Severe Accident Guidelines Manual; Revision 0
- BWGSAGTBD; Babcock & Wilcox Generic Severe Accident Management Guidelines Technical Basis Document Manual; Revision 0

Other:

- Fire Hazard Analysis Report; Revision 24
- IP-A-010; Engineering Department Inspection Plan – INPO IER 11-1, Walkdowns and Inspections; Revision 0

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CTFD	Carroll Township Fire Department
dc	Direct Current
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedures
ERO	Emergency Response Organization
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
SAMG	Severe Accident Management Guidelines
SBO	Station Blackout
SSC	Systems, Structures, and Components
TI	Temporary Inspection
TS	Technical Specification(s)
USAR	Updated Safety Analysis Report
Vdc	Volts Direct Current

B. Allen

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Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 6
Division of Reactor Projects

Docket No. 50-346
License No. NPF-3

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Letter to B. Allen from J. Cameron dated May 13, 2011.

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION – NRC TEMPORARY
INSTRUCTION 2515/183 INSPECTION REPORT 05000346/2011011

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