



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4125

May 13, 2011

Mr. Christopher J. Schwarz
Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 SR 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE – NRC TEMPORARY INSTRUCTION 2515/183
INSPECTION REPORT 05000313/2011008; 05000368/2011008

Dear Mr. Schwarz:

On April 29, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One, Units 1 and 2, facility, using Temporary Instruction 2515/183, "Follow-up 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 you and other members of your staff.

The objective of this inspection was to assess the adequacy of actions taken at Arkansas Nuclear One in response to the Fukushima Daiichi Nuclear Station fuel damage event. The results from this inspection, along with the results from similar inspections at other operating commercial nuclear plants in the United States, will be used to evaluate the United States nuclear industry's readiness to respond to a similar event. 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.

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 Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Jeffery A. Clark, Chief
Project Branch E
Division of Reactor Projects

Docket: 50-313
50-368
License: DPR-51
NPF-6

Enclosure:
NRC Inspection Report 05000313/2011008 and 05000368/2011008
w/Attachment: Supplemental Information

cc: w/Enclosure:

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| ADAMS: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | | <input checked="" type="checkbox"/> SUNSI Review Complete | Reviewer Initials: RVA |
| | | <input checked="" type="checkbox"/> Publicly Available | <input checked="" type="checkbox"/> Non-Sensitive RVA |
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| RI:DRP/E | RI:DRP/E | SRI:DRP/E | DRS/TSB |
| JRotton | WTSchaup | AASanchez | EARuesch |
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket Nos: 05000313; 05000368

License Nos: DPR-51; NPF-6

Report No: 05000313/2011008 and 05000368/2011008

Licensee: Entergy Operations Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

Location: Junction of Hwy 64 West and Hwy 333 South, Russellville, AR

Dates: March 23, 2011 through April 29, 2011

Inspectors: A. Sanchez, Senior Resident Inspector
J. Rotton, Resident Inspector
W. Schaup, Resident Inspector

Approved by: Jeffrey A. Clark, P.E., Chief, Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2011008 and 05000368/2011008, 03/23/2011 – 04/29/2011; Arkansas Nuclear One, Units 1 and 2, Temporary Instruction 2515/183 - Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event

This report covers an announced temporary instruction inspection. The inspection was conducted by Resident and Region IV 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 temporary instruction is to be a high-level look at the industry's preparedness for events that may exceed the design basis for a plant. The focus of the temporary instruction was on (1) assessing the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, (2) assessing the licensee's capability to mitigate station blackout conditions, (3) assessing the licensee's capability to mitigate internal and external flooding events required by station 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

The following table documents the NRC inspection at Arkansas Nuclear One, Units 1 and 2 performed in accordance with Temporary Instruction 2515/183. The numbering system in the table corresponds to the inspection items in the temporary instruction.

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 71111.05T, “Fire Protection (Triennial),” Section 02.03 and 03.03 as a guideline. If Inspection Procedure 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. |
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| <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>This review should be done for a reasonable sample of mitigating strategies/equipment.</p> | <p><u>Security Order Section B.5.b Strategy</u></p> <p>The licensee reviewed the procedure that implements the B.5.b strategy and identified the active components used. These active components were tested to verify satisfactory operation. Specifically, the B.5.b diesel driven pump was tested satisfactorily per the full annual surveillance on March 19, 2011. Additionally, the Flood Control Locker portable pumps were individually tested and the required number of pumps were demonstrated to be operable.</p> <p>The licensee completed and documented walk downs on the passive components required for their B.5.b strategy.</p> <p><u>Severe Accident Management Guidelines</u></p> <p>The licensee verified through document review that the equipment needed to implement the strategy was available and functional. All equipment identified for both units was permanently installed equipment that was within the licensee’s current testing program.</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 inspectors performed an inspection to verify that equipment required to mitigate conditioning that result from beyond design basis events are available and functional. The inspectors reviewed the licensee’s procedure that implements the licensee’s B.5.b strategy</p> |

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| | <p>for active components to verify that all active components were identified. The inspectors performed an independent walk down of portions of the passive equipment used for B.5.b strategies.</p> <p>Inspectors reviewed portions of the licensee's severe accident management guidelines for each unit to verify equipment was permanently installed and was currently in the licensee's testing program.</p> <p>Inspectors performed an independent walkdown and reviewed the surveillance and test data for the B.5.b diesel driven pump to verify the operability of the pump. Additionally, portable pumps were verified operable through document reviews.</p> |
| | <p>Discuss general results including corrective actions by licensee.</p> |
| | <p>The licensee identified and documented the following issues during the performance reviews and walkdowns and did not identify any issues that would impact the mitigating capability of the strategies per the severe accident management guidelines or B.5.b. procedures.</p> <p>Several of the portable flood control pumps were not functional. The licensee has sufficient numbers of portable pumps on hand to meet the B.5.b strategy. The licensee is verifying the adequacy of the process to ensure portable pumps are maintained in a functional status.</p> <p>The licensee identified that there was no specific guidance for obtaining additional fuel for the B.5.b pump once deployed. The procedure will be enhanced by giving direction on obtaining supplemental fuel.</p> <p>The Unit 2 severe accident management guidelines recommend the use of a diesel driven pump to supply an alternate coolant as makeup to the reactor coolant system. The means to implement the strategy is not identified in the severe accident management guidelines guidance document and no equipment details are identified. The licensee determined the strategy viable and can enhance the strategy by providing improved implementing instructions.</p> |

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| | <p>The licensee is capturing all items associated with the Fukushima Event in the corrective action program. Condition Report CR-ANO-C-2011-0727 was generated as a roll up condition report for all issues and improvement items.</p> |
| <p>Licensee Action</p> | <p>Describe the licensee's actions to verify that procedures are in place and can be executed (e.g. walkdowns, demonstrations, tests, etc.).</p> |
| <p>b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with Security Order Section 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><u>Security Order Section B.5.b Strategy</u></p> <p>The licensee operators walked down all portions of their B.5.b procedure. The walk downs verified:</p> <ul style="list-style-type: none"> • The strategies were technically correct and executable. • Temporary equipment and transition components were inventoried and verified to be the required equipment. • Temporary equipment was verified to be in good condition. • Equipment was accessible. <p><u>Severe Accident Management Guidelines</u></p> <p>Both units' severe accident management guidelines were reviewed to verify flow path and to verify that actions to complete the activities were plausible as described. All strategies were determined plausible from review of piping and instrumentation diagrams along with the use of normal, emergency, and abnormal operating procedures.</p> <hr/> <p>Describe inspector actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.</p> |

Security Order Section B.5.b Strategy

Inspectors verified that B.5.b procedures were in place and could be used as intended to use fire water to provide spent fuel pool makeup for both Units, and to use a portable diesel pump to fill Unit 2 steam generators. Inspectors also reviewed actions and strategies and performed walkdowns for these strategies.

Severe Accident Management Guidelines

Inspectors reviewed the following strategies for Unit 1:

- Core Highly Oxidized/Core Badly Damaged
- Core Material Relocated External to the RV
- Containment System Bypassed/Impaired
- Containment System Challenged

Inspectors reviewed the following strategies for Unit 2:

Core Badly Damaged/Containment Closed and Cooled

- Core Debris accumulated outside reactor vessel/Containment Closed and Cooled
- Core Badly Damaged/Containment Impaired
- Core Debris accumulated outside reactor vessel/Containment Bypassed

Discuss general results including corrective actions by licensee.

The inspectors determined that the licensee's procedures were effective in ensuring that the desired actions and strategies could be accomplished.

During walk downs for the B.5.b strategy, neither unit's reactor building escape hatch was entered. Actions to be walked down in the escape hatches included disconnecting the door interlock linkage and disconnecting the equalization valve linkage. The licensee determined that these actions were not complex and determined them to be executable.

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| | <p>During walk downs, it was discovered that pre-marked locations for cutting access holes in the unit 1 spent fuel pool roof had been obscured during roof upgrade activities. These marks have been reapplied.</p> <p>During walk downs, two pieces of passive equipment necessary to flood the Unit 1 or Unit 2 containment building via the escape hatches were not identified or staged with B.5.b equipment. The equipment has been obtained and staged. The procedure was changed to reflect the connections and equipment.</p> |
| <p>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>The licensee reviewed the Emergency Preparedness Training Program procedure to determine the training requirements for the severe accident management guidelines and Security Order Section B.5.b strategies.</p> <p>The licensee reviewed training records and determined that adequate levels of operations and site support staffing were available to implement severe accident management guidelines and B.5.b strategies for both units.</p> |
| | <p>Describe inspector actions and the sample strategies reviewed to assess training and qualifications of operators and support staff</p> <p>Inspectors reviewed licensee procedure ENS-TQ-110, Rev. 15, "Emergency Preparedness Training Program," to verify the licensee's review of required training requirements for severe accident management guidelines and B.5.b assigned personnel.</p> <p>The inspectors sampled the training records for the following important Emergency Response Organization positions: Emergency Offsite Facility Director, Technical Support Center Director, Technical Support Center Support Engineer, and Operations. The inspectors determined that training was complete.</p> |

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| | <p>Inspectors walked down and discussed strategies with plant and licensed operators to ensure familiarity with strategies and procedures.</p> |
| | <p>Discuss general results including corrective actions by licensee.</p> |
| | <p>The licensee identified that not all mechanical maintenance personnel had completed Hostile Action Response training; however, adequate numbers of personnel were trained to support implementation of the B.5.b procedure. The licensee has entered this into their corrective action program.</p> <p>The inspectors did not identify any issues that would impact the mitigating capability of the strategies per the severe accident management guidelines or B.5.b procedures.</p> |
| <p>Licensee Action</p> | <p>Describe the licensee's actions and conclusions regarding applicable agreements and contracts are in place.</p> |

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| <p>d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p> | <p>The licensee verified all current agreements and contracts required to execute severe accident management guidelines or B.5.b strategies were in place, up to date and capable of providing equipment or supplies.</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>Inspectors sampled 11 out of 27 of the licensee's contracts or agreements with offsite entities to confirm contracts and agreements are in place and current. All agreements are reviewed and renewed on a biennial basis.</p> <p>The inspectors verified Arkansas Department of Emergency Management Hotline was accurate and functional.</p> |
| | <p>Discuss general results including corrective actions by licensee.</p> |
| | <p>The licensee did not identify any issues with applicable agreements and contracts needed to mitigate the consequences of events.</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> |

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| <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 licensee is capturing all items associated with the Fukushima Event in the corrective action program. Condition Report CR-ANO-C-2011-0727 was generated as a roll up condition report for all issues and improvement items.</p> <p>The licensee identified and documented issues found during the performance of reviews and walkdowns and did not identify any issues that would impact the mitigating capability of the strategies per the severe accident management guidelines or B.5.b procedures.</p> |
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03.02 Assess the licensee’s capability to mitigate station blackout conditions, as required by 10 CFR 50.63, “Loss of All Alternating Current Power,” and station design, is functional and valid. Refer to Temporary Instruction 2515/120, “Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22” as a guideline. It is not intended that Temporary Instruction 2515/120 be completely re-inspected. 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 station blackout event. |
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| <p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p> | <p>The licensee performed detailed reviews of the implementing procedures and verified that they are executable and adequate to mitigate a Station Blackout. The licensee also demonstrated the adequacy of the actions to maintain the units in a stable configuration by simulator demonstrations and walk downs of all actions outside the control room. Simulator demonstrations included scenarios where the alternate ac diesel was not immediately available. The licensee does not need special equipment or tools to mitigate a Station Blackout.</p> <p>The licensee’s design considers a Station Blackout of only one unit and not concurrent with any other design basis accident, such as an earthquake.</p> |

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| | <p>Describe inspector actions to verify equipment is available and useable.</p> <p>The inspectors reviewed licensee’s Safety Analysis Report for Units 1 and 2, along with design documents and procedures, to understand implementation and required equipment for a Station Blackout event and the use of the alternate ac diesel generator. The inspectors performed walk downs of the emergency diesel generator and reviewed a recent surveillance test of the alternate ac diesel generator.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>The licensee verified that all required materials were adequate, properly staged, and in good condition.</p> |
| <p>Licensee Action</p> | <p>Describe the licensee’s actions to verify the capability to mitigate a station blackout event.</p> |
| <p>b. Demonstrate through walkdowns that procedures for response to a station blackout are executable.</p> | <p>The licensee verified that the procedures were both adequate and executable through plant walk downs of all actions outside the control room and through simulator demonstrations. Of particular note were the simulator scenarios where the alternate ac diesel generator was not immediately available. The licensee verified that there were no specific contracts or agreements with outside agencies required to combat a Station Blackout. The licensee also reviewed training records to ensure all training was current.</p> |

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| | Describe inspector actions to assess whether procedures were in place and could be used as intended. |
| | The inspectors reviewed various procedures, as well as the Safety Analysis Report, and performed walk downs of procedures and equipment. The inspectors also asked operators to demonstrate various procedural operations such as: alternate ac diesel generator powering Unit 1 safety related buses and operation of the Unit 1 and Unit 2 emergency feedwater pumps locally. The inspectors also ensured that Station Blackout was part of recurring operator requalification training. |
| | Discuss general results including corrective actions by licensee. |
| | Inspectors and the licensee identified several small procedural issues, but none that would result in a failure to execute mitigation strategies. The licensee also identified a vulnerability with Unit 2, associated with an extended Station Blackout. Specifically, the Reactor Coolant Pump Seal Bleed-off Valve is a manually operated valve located inside containment. A 4 gallon per minute reactor coolant system inventory loss will occur via the Reactor Coolant Pump Seal Bleed-off Valve until it is closed via a containment entry. Unit 1 has dc-powered valves which eliminate this vulnerability. The licensee entered the issue into the corrective action program as CR-ANO-2-2011-1606. |

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| 03.03 Assess the licensee’s capability to mitigate internal and external flooding events required by station design. Refer to Inspection Procedure 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. | |
| Licensee Action | Describe the licensee’s actions to verify the capability to mitigate existing design basis flooding events. |

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| <p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p> | <p>The licensee reviewed the Safety Analysis Report for Units 1 and 2, procedures for natural emergencies, and architectural drawings. The design-basis flooding event is a flood caused by an extreme rain event (11 inches per hour) coincident with the Ozark Dam breaking. These events would produce a maximum flood height on site of 361 feet above sea level. This is the maximum probable flood height. The site grade elevation is at 353 feet above sea level.</p> <p>The licensee performed walk downs of flood protection measures to ensure that equipment and material were adequate and properly staged. The licensee visually inspected flood barriers, doors, and penetrations to determine functionality. The licensee also reviewed equipment databases and verified local flood alarms were operating properly.</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 performed walk downs to verify necessary equipment was staged and properly maintained to ensure availability. The inspectors also reviewed site flooding event procedures. The inspectors conducted an extensive annual external flood inspection in December 2010 and reviewed the results of these walkdowns as part of this Temporary Instruction. The inspectors sampled work orders for preventative maintenance on seals, penetrations, and doors.</p> |
| | <p>Discuss general results including corrective actions by licensee.</p> |
| | <p>The inspectors identified several issues that turned out to be minor in nature, but required licensee investigation. The inspectors have noted, as the licensee, that numerous manholes have been inspected in the past year and have had water accumulations that have submerged safety related cables. The licensee has placed these issues into the corrective action program for resolution.</p> <p>The licensee, as well as the inspectors, identified several small issues with seals, door and hatches during these walk downs. The licensee also identified minor issues with cracks in penetrations, evidence of water infiltration, and groundwater intrusion. The licensee has captured these issues in the corrective action program. Although the inspectors do not</p> |

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| | <p>currently have a concern, the resident inspectors will continue to evaluate the licensee's corrective actions.</p> <p>The inspectors did not identify any issues that would impact the mitigating capability of the strategies per the severe accident management guidelines or B.5.b procedures.</p> |
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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 in to the corrective action program 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 Inspection Procedure 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.

| Licensee Action | 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. |
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| <p>a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.</p> | <p><u>Flood Mitigation Equipment</u></p> <p>The licensee reviewed the seismic capability of flood mitigation equipment to determine if the equipment would remain functional. The licensee conducted walk downs and inspections of both permanent and temporary equipment used for flood mitigation. Seismic vulnerabilities were identified, along with mitigating strategies for equipment that was not seismically qualified.</p> <p><u>Fire Mitigation Equipment</u></p> <p>The licensee reviewed the seismic capability of fire mitigating equipment to determine if the equipment would remain functional. The licensee conducted walk downs and inspections of both permanent and temporary equipment used for fire mitigation. Seismic vulnerabilities were identified, along with mitigating strategies for equipment that was not seismically qualified.</p> |

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| | <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 walk downs independently and with licensee personnel of the important equipment needed to mitigate fire and flood events to identify potential equipment that could lose function during a seismic event.</p> <p>This equipment included, but was not limited to:</p> <ul style="list-style-type: none"> • All major Security Order Section B.5.b contingency response equipment staged throughout the site; • Various installed fire protection and suppression equipment throughout the site; • The installed diesel and electric fire pumps and their controls; and • Various watertight doors, roof hatches and floor plugs throughout the site. <p>Licensee flood and fire mitigation procedures were reviewed to verify the procedures could be used as intended.</p> |

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| | <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>The results of the inspectors' reviews aligned with the licensee's conclusions that there were a number of seismic vulnerabilities that potentially need to be addressed.</p> <p>In general, most of equipment used by the licensee for flood and fire mitigation is non-safety-related and not seismically qualified. The licensee's reviews determined that the site fire water pumps, distribution mains, and branch lines for the fire protection water system are not seismically designed and would be considered unavailable after a seismic event due to damage to the supply systems.</p> <p>Onsite fixed gaseous suppression systems are assumed not to be able to survive a seismic event and would be unavailable. Manual fire fighting per station procedures would be used to fight the fires.</p> <p>The B.5.b pump is stowed in non-seismically qualified building and may be unavailable.</p> <p>The majority of room flood mitigation sump pumps and flooding detectors were not designed as seismically qualified.</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.</p> <p>Further reviews by the licensee identified that in the event of a postulated earthquake equipment may not function properly due to loss of essential power or physical displacement.</p> <p>The licensee is developing a mitigation strategy for loss of fire mitigation equipment that would seismically harden the diesel driven fire pump and discharge piping to allow the pump to provide water for fighting a post-seismic fire. Alternatively, a second B.5.b pump may be procured and stored in a secure seismic location to provide water for fighting a post seismic fire.</p> <p>The existing strategies for flood and fire mitigation were considered presently sufficient by the licensee. The licensee entered the issues identified into the corrective action program as CR-ANO-C-2011-0727.</p> |
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EXIT MEETING SUMMARY

The inspectors presented the inspection results to Mr. J. C. Schwarz, Site Vice President and other members of licensee management at the conclusion of the inspection on April 29, 2011. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Chisum, General Manager Plant Operations
R. Fowler, Emergency Plan Specialist
M. Gohman, Shift Manager
R. Gresham, Emergency Plan Specialist
D. James, Director Nuclear Safety Assurance
K. Kennamore, Shift Manager
A. Meyer, System Engineer
M. Moser, Senior System Engineer
T. Pugh, Senior Technical Instructor
C. Schwarz, Site Vice President
D. Young, Reactor Operator

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 inspectors 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.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events

PROCEDURES

| <u>NUMBER</u> | <u>TITLE</u> | <u>REVISION</u> |
|-----------------|--|-----------------|
| | Arkansas Nuclear One Emergency Plan | 35 |
| ANO Unit 1 SAMG | ANO Unit 1 Severe Accident Management Guidelines | 4 |
| ANO Unit 2 SAMG | ANO Unit 2 Severe Accident Management Guidelines | 4 |
| ENS-TQ-125 | Emergency Preparedness Training Program | 15 |
| OP-1203.048 | Security Events | 13 |

CONDITION REPORTS (ANO-)

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 1-2011-0382 | 1-2011-0385 | 2-2011-1465 | C-2011-0727 | C-2011-0758 |
| C-2011-0784 | C-2011-0792 | C-2011-0797 | C-2011-0798 | C-2011-0865 |

WORK ORDERS

270183

03.02 Assess the licensee's capability to mitigate station blackout conditions

PROCEDURES

| <u>NUMBER</u> | <u>TITLE</u> | <u>REVISION</u> |
|---------------|--|-----------------|
| OP-1106.006 | Emergency Feedwater Pump Operations | 80 |
| OP-1202.008 | Blackout | 10 |
| OP-1203.048 | Security Event | 13 |
| OP-2104.036 | Emergency Diesel Generator Operations | 78 |
| OP-2104.037 | Alternate ac Diesel Generator Operations | 20 |
| OP-2106.006 | Emergency Feedwater System Operations | 78 |
| OP-2202.008 | Station Blackout | 9 |
| ULD-0-SYS-19 | Alternate ac Generator System (ACC) | 1 |
| ULD-0-TOP-19 | Station Blackout | 0 |

CONDITION REPORTS (ANO-)

2-2011-1606 C-2011-863 C-2011-864 C-2011-865

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design

PROCEDURES

| <u>NUMBER</u> | <u>TITLE</u> | <u>REVISION</u> |
|---------------|------------------------------------|-----------------|
| SAQC-AO-BOQ | Basic Operator Qualification Guide | 3 |
| OP-2203.008 | Natural Emergencies | 21 |
| OP-1203.025 | Natural Emergencies | 33 |

CONDITION REPORTS (ANO-)

1-2010-3065 1-2011-0403 1-2011-0405 1-2011-0425 2-2001-1705
 2-2010-2872 2-2011-1465 2-2011-1613 2-2011-1616 2-2011-1620
 2-2011-1636 2-2011-1665 2-2011-1694 2-2011-1695 2-2011-1696
 2-2011-1703 2-2011-1706 2-2011-1707 2-2011-1708 2-2011-1716
 2-2011-1719 2-2011-1733 2-2011-1807 2-2011-2873 C-2010-3279
 C-2011-1084

WORK ORDERS (MWO)

00193800 50232775 50233733 50236124 50241657
 50664520 51801583 52034836 52224935

MISCELLANEOUS

EC-23753
 WT-ANO-2011-0142

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

Documents reviewed in 03.03 as well as the following:

CONDITION REPORTS (ANO-)

C-2011-0082