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

November 12, 2010

EA 10-233

Brad Berryman, Acting Vice President, Operations
Entergy Operations, Inc.
Arkansas Nuclear One
1448 S.R. 333
Russellville, AR 72802

Subject: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT 05000313/2010004 AND 05000368/2010004

Dear Mr. Berryman:

On September 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on September 27, 2010, with you and members of your staff.

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

One violation is cited in the enclosed Notice of Violation and the circumstances surrounding it are described in detail in the subject inspection report. The violation involved the failure to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas as required by station procedure (EA-10-233). Although determined to be of very low safety significance (Green), this violation is being cited in the Notice because Arkansas Nuclear One failed to restore compliance within a reasonable time after the violations were identified in NRC Inspection Reports 05000313, 05000368/2008005, 2009004, and 2010003, as specified in Section 2.3.2.a of the NRC Enforcement Policy. You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

This report documents eight additional NRC-identified and self-revealing findings of very low safety significance (Green). Seven of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear

Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, TX 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Arkansas Nuclear One facility. In addition, if you disagree with the crosscutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at Arkansas Nuclear One.

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

Sincerely,

/RA/

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

Dockets: 05000313; 05000368
Licenses: DPR-51; NPF-6

Enclosures: Notice of Violation
NRC Inspection Report 05000313/2010004; 05000368/2010004
w/Attachment: Supplemental Information

cc w/Enclosures:

Senior Vice President
& Chief Operating Officer
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Thomas Palmisano
Vice President, Oversight
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Stephanie Pyle, Acting Manager, Licensing
Arkansas Nuclear One
1448 SR 333
Russellville, AR 72802

Joseph A. Aluise
Associate General Counsel – Nuclear
Entergy Services, Inc
639 Loyola Avenue
New Orleans, LA 70113

Senior Manager, Nuclear Safety & Licensing
Entergy Nuclear Operations
P.O. Box 31995
Jackson, MS 39286-1995

Chief, Radiation Control Section
Arkansas Department of Health
4815 West Markham Street, Slot 30
Little Rock, AR 72205-3867

Jim E. Gibson
County Judge of Pope County
100 West Main Street
Russellville, AR 72801

Arkansas Department of Health
Radiation Control Section
4815 West Markham Street, Slot 30
Little Rock, AR 72205-3867

David E. Maxwell, Director
Arkansas Department of Emergency
Management, Bldg. 9501
Camp Joseph T. Robinson
North Little Rock, AR 72199

Chief, Technological Hazards
Branch
FEMA Region VI
800 North Loop 288
Federal Regional Center
Denton, TX 76209

Electronic distribution by RIV:
Regional Administrator (Elmo.Collins@nrc.gov)
Deputy Regional Administrator (Chuck.Casto@nrc.gov)
DRP Director (Kriss.Kennedy@nrc.gov)
DRP Deputy Director (Anton.Vegel@nrc.gov)
DRS Director (Roy.Caniano@nrc.gov)
DRS Deputy Director (Troy.Pruett@nrc.gov)
Senior Resident Inspector (Alfred.Sanchez@nrc.gov)
Resident Inspector (Jeffrey.Josey@nrc.gov)
Resident Inspector (Jeff.Rotton@nrc.gov)
Branch Chief, DRP/E (Jeff.Clark@nrc.gov)
Senior Project Engineer, DRP/E (Ray.Azua@nrc.gov)
Project Engineer (William.Schaup@nrc.gov)
Project Engineer (Jim. Melfi@nrc.gov)
Public Affairs Officer (Victor.Dricks@nrc.gov)
Public Affairs Officer (Lara.Uselding@nrc.gov)
Project Manager (Kaly.Kalyanam@nrc.gov)
Branch Chief, DRS/TSB (Michael.Hay@nrc.gov)
RITS Coordinator (Marisa.Herrera@nrc.gov)
Regional Counsel (Karla.Fuller@nrc.gov)
Congressional Affairs Officer (Jenny.Weil@nrc.gov)
OEMail Resource
ROPreports
DRS/TSB STA (Dale.Powers@nrc.gov)
OEDO RIV Coordinator (Geoffrey.Miller@nrc.gov)
Executive Technical Assistant (John.Giessner@nrc.gov)

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ADAMS: □ No ☑Yes	☑ SUNSI Review Complete	Reviewer Initials: JC
	☑Publicly Available	☑ Non-Sensitive
	□ Non-publicly Available	□ Sensitive

RIV:SRI/DRP/B	RI/DRP/B	RI/DRP/B	SPE/DRP/PBE	C:DRS/PSB2	C:DRS/EB1
ASanchez	JJosey	JRotton	RAzua	GWerner	TFarnholtz
/RA/ T-Clark	***/RA/ T-Clark***	***/RA/ T-Clark***	***/RA/ T-Clark***	**/RA/**	**/RA/**
11/12/2010	11/12/2010	11/12/2010	11/12/2010	11/09/2010	11/08/2010
C:DRS/EB2	C:DRS/TSB	C:DRS/OB	C:DRS/PSB1	SEO:ORA/OE	C:DRP/PBE
NO'Keefe	MHay	MHaire	MShannon	RKellar	JClark
/RA/	**/RA/**	**/RA/KClayton for**	**/RA/**	***/RA/ T-Azua***	**/RA/**
11/08/2010	11/09/2010	11/09/2010	11/09/2010	11/11/2010	11/12/2010

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NOTICE OF VIOLATION

Entergy Operations, Inc.	Docket No: 50-313 Docket No: 50-368
Arkansas Nuclear One Station License	No: DPR-51 No: NPF-6 EA 10-233

During an NRC inspection conducted on July 1through September 30, 2010, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.
>
> Arkansas Nuclear One Procedure EN-MA-118, "Foreign Material Exclusion," Revision 6 requires the establishment of a Foreign Material Exclusion Zone 1 when loss of foreign material exclusion integrity could result in fuel failure, reduced system safety, station availability, or significant cost for recovery. Section 5.11, "FME Zone 1 Requirements," of the same procedure, states in part that for Foreign Material Exclusion Zone 1, the Foreign Material Exclusion Monitor shall control personnel and material access to the Foreign Material Exclusion zone.
>
> Contrary to the above, between October 31, 2008, and September 2, 2010, Arkansas Nuclear One failed to ensure Foreign Material was controlled in accordance with the requirements of Procedure EN-MA-118. Specifically, the inspectors identified multiple occasions where the licensee personnel failed to implement appropriate foreign material exclusion controls (e.g., failure to appropriately log material in to and out of the area) in Foreign Material Exclusion Zone 1 areas around safety-related equipment as required by station procedure. Additionally, these failures had the potential of having a negative impact on safety-related components.

This violation is associated with a Green Significance Determination Process finding.

Pursuant to the provisions of 10 CFR 2.201, Entergy Operations, Inc. is hereby required to submit a written statement or explanation 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 of Violation (Notice). This reply should be clearly marked as a "Reply to Notice of Violation EA-10-233," and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results

achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because 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 website at http://www.nrc.gov/reading-rm/pdr.html or http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the basis for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated this 12th day of November 2010.

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	05000313, 05000368
Licenses:	DPR-51, NPF-6
Report:	05000313/2010004 and 0500368/2010004
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Units 1 and 2
Location:	Junction of Hwy. 64 West and Hwy. 333 South Russellville, Arkansas
Dates:	July 1 through September 30, 2010
Inspectors:	A. Sanchez, Senior Resident Inspector J. Josey, Resident Inspector J. Rotton, Resident Inspector C. Osterholtz, Senior Operations Engineer K. Clayton, Senior Operations Engineer T. Pate, Operations Engineer D. Strickland, Operations Engineer L. Ricketson, P.E., Senior Health Physicist C. Graves, Health Physicist D. Stearns, Health Physicist
Approved By:	Jeff Clark, P.E., Chief, Project Branch E Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2010004; 05000368/2010004; 07/01-09/30/2010; Arkansas Nuclear One, Integrated Resident and Regional Report; Licensed Operator Requalification Program; Operability Evaluations; Plant Modifications; Post Maintenance Testing; Refuel and Other Outage Activities; Surveillance Testing; Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation; and Identification and Resolution of Problems.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green cited violation, one Green finding and seven Green noncited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, “Significance Determination Process.” Crosscutting aspects are determined using Inspection Manual Chapter 0310, "Components within the Cross Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors documented a self-revealing finding for station electrical maintenance personnel's failure to adequately implement station Procedure EN-WM-102, “Work Implementation and Closeout,” Revision 4. Specifically, station personnel performing Work Order 00182908-01, removal/reinstallation of the C-8A isophase fan motor, did not stop work and get a scope change for the work order when a condition that was not identified in the work order was discovered. This issue was entered into the licensee's corrective action program as Condition Report CR-ANO-1-2010-2260.

  The performance deficiency was determined to be more than minor because it affected the human performance attribute of the Initiating Events Cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability during power operations. Using Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” the inspectors determined that the finding was determined to have very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or function would not be available. The finding was determined to have a crosscutting aspect in the area of Human Performance, associated with work practices in that the licensee failed to communicate human error prevention techniques, such as holding pre-job briefs, self- and peer-checking, and proper documentation of activities [H.4(a)] (Section 1R19).

- Green. The inspectors documented a self-revealing noncited violation of Unit 1 Technical Specification 5.4.1.a for the failure to follow Procedure EN-OP-102, “Protective and Caution Tagging,” Revision 12. Specifically, a maintenance tagout holder signed off a tagout prior to all work being complete, which led to the removal of the clearance. This resulted in draining the pressurizer to the containment basement floor instead of to a drain tank. This issue was entered into the corrective action program as Condition Report CR-ANO-1-2010-1013.

  Failure of station personnel to follow Procedure EN-OP-102, “Protective and Caution Tagging,” Revision 12 was a performance deficiency. The performance deficiency was associated with the Initiating Events Cornerstone. The performance deficiency was determined to be more than minor because if left uncorrected it could lead to a more significant safety issue. Specifically, the continued failure to follow this procedure could lead to the inappropriate release of systems and equipment to other organizations when these systems or equipment are not capable of performing their function. This is therefore a finding. Using NRC Manual Chapter 0609, “Significance Determination Process, Appendix G, "Shutdown Operations Significance Determination," Attachment 1, the finding was determined to have very low safety significance because the finding did not affect core heat removal, inventory control, power availability, containment control or reactivity guidelines. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices in that the licensee did not ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, instead of supplying appropriate guidance and supervision for the workers in the field, the mechanical war room coordinators’ actions resulted in the failure to follow procedure by convincing the mechanical lead to sign off on the tagout before the work had been completed [H.4(c)] (Section 4OA2.5).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, at Unit 2. The violation was associated with the biennial written exam overlap for the weeks four, five, and six written examinations administered by the facility during the weeks of July 5-9, 2010, July 12-16, 2010, and July 19-23, 2010. The issues were documented in licensee-initiated Condition Report CR-ANO-2-2010-01460, which resulted in the licensee removing five questions from the week four exam and writing new exams for weeks five and six and administering them prior to the cycle end date of July 31, 2010.

  The excessive overlap of the written exam portion of the Unit 2 2010 biennial written exams was a performance deficiency in that the licensee failed to follow their established requalification procedures. Specifically, in 2010 some operators were tested using requalification written exams that repeated greater that 50 percent of the questions that had already been used in the earlier exam weeks. This finding was more than minor because if left uncorrected it could have led to a more significant safety concern, in that, licensed operations personnel could be returned to licensed duties without receiving a procedurally

valid examination. The performance deficiency was associated with the Initiating Events Cornerstone. The inspectors applied Manual Chapter 0609 “Significant Determination Process,” Appendix I, “Licensed Operator Requalification Significance Determination Process,” and determined that the finding should be dispositioned as a Green noncited violation. The finding was assessed as having very low safety significance because: (1) the overlap issues were found during the biennial examinations of the operators, (2) there were no actual consequences due to the inadequate examinations, (3) the applicable crews were re-evaluated once the issues were found, (4) this issue did not exist on the last biennial written exams in 2008 and did not occur on any of the Unit 1 biennial written examinations, and (5) the performance on these new exams was satisfactory. This finding has a crosscutting aspect in the area of work practices because the licensee did not ensure that supervisory and management oversight of work activities supported nuclear safety because the 2010 Unit 2 written exam overlap issues were not caught during the supervisory review and approval prior to administration of the examinations or prior to the start of this inspection [H.4(c)] (Section 1R11).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the failure of the licensee to promptly identify and correct a known condition adverse to quality associated with the susceptibility of the emergency diesel generators’ heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, such as tornados. Specifically, while performing a review in response to an NRC generic communication, the licensee determined that they could not demonstrate the ability of the station's emergency diesel generators' heating, ventilating and air conditioning ducting to withstand a tornado depressurization event. However no actions were taken to correct or mitigate this issue at the time of discovery. The licensee entered this issue in their corrective action program as Condition Report CR-ANO-C-2009-2296.

  Failure to promptly identify and correct a known condition adverse to quality associated with the susceptibility of the Unit 1 emergency diesel generators' heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, tornados, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk

significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making in that the licensee failed to use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to it is unsafe in order to disapprove the action [H.1(b)] (Section 1R15).

- Green. The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, during initial plant installation, the licensee failed to correctly identify the effect redundant protective equipment interlocks could have on maintaining operability of VCH-4B design requirements upon a loss of normal non-safety related room cooling. This resulted in VCH-4B, emergency switchgear chiller, not being able to start and perform its design function due to a combination of high room temperature due to loss of normal non-safety related cooling, and normally energized compressor oil heaters which led to a high compressor oil temperature switch actuation that caused a lockout of the chiller that would have prevented a chiller start. The licensee entered this issue in their corrective action program as Condition Report CR-ANO-1-2010-2815.

  Failure to ensure that design requirements were correctly translated into installed plant equipment was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss of functionality of chiller VCH-4B; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time; (4) it did not represent an actual loss of safety function of one or more non- technical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; (5) it did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that since the licensee had not recently re-evaluated the design of the emergency switchgear room chiller's high oil temperature lockout; this finding did not represent current plant performance, and therefore did not have a crosscutting aspect associated with it (Section 1R22).

- Green. The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure

to promptly identify and correct a known condition adverse to quality associated with the improper setup of the dead band of service water flow control valve CV-6034 for cold weather operation. This resulted in the pressure control valve not properly modulating in response to pressure control inputs, resulting in emergency switchgear chiller VCH-4A tripping on high discharge pressure. The licensee entered this issue in their corrective action program as Condition Report CR-ANO-1-2009-2212.

Failure to promptly identify and correct a known condition adverse to quality associated with the improper setup of the dead band of service water flow control valve CV-6034 for cold weather operation was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss of functionality of chiller VCH-4A; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time; (4) it did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; and (5) it did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making in that, although the licensee had identified the vulnerability of the VCH-4A chiller, decided not to pursue the corrective actions to adjust the dead band for valve CV-6034 and resulted in the subsequent improper operation of the valve [H.1(b)] (Section 1R18).

- Green. The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to adequately implement Procedure EN-MA-118, "Foreign Material Exclusion," Revision 5/6. Specifically, between October 31, 2008, and September 02, 2010, inspectors identified multiple occasions where licensee personnel failed to implement appropriate foreign material exclusion controls in Zone 1 areas around safety related equipment (e.g., failure to appropriately log material in to and out of the zone) as required by station procedure. Each identified instance was a repeat occurrence of previously identified issues that were documented as NRC identified violations in previous inspection reports in 2008, 2009, and early 2010. Measures established by Arkansas Nuclear One to address these previously identified noncited violations failed to restore compliance within a reasonable time after these violations were identified. Finally, these failures had the potential of having a negative impact on safety related components such as fuel failure, safety system reliability and safety

related equipment availability. This issue was entered into the licensee's corrective action program as Condition Reports CR-ANO-1-2010-3155, CR-ANO-2-2010-1839, and CR-ANO-C-2010-2192.

The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program, P.1(d), in that the licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (Section 1R20).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for station planning personnel's failure to adequately implement station Procedure EN-FAP-WM-011, "Work Planning Standard," Revision 0, and EN WM-105, "Planning," Revision 6. Specifically, from August 3-19, 2010, multiple examples were identified where work orders used to perform maintenance activities on safety related equipment were incorrectly classified as reference work orders, referenced technical material that did not contain guidance for the prescribed task, or did not contain sufficient detail or direction to accomplish the maintenance activity as written. This issue was entered into the licensee's corrective action program as Condition Reports CR-ANO-C-2010-1962, CR-ANO-C-2010-1964, CR-ANO-2-2010-1736, CR-ANO-C-2010-2114, CR-ANO-C-2010-2119, and CR-ANO-C-2010-2140.

  The performance deficiency was determined to be more than minor because if left uncorrected, the continued practice of generating inadequate work orders for maintenance activities on safety-related equipment would have the potential to leave risk significant equipment in a degraded condition without the knowledge and approval of site management and operations personnel, and is therefore a finding. The performance deficiency was associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result

in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices [H.4(b)] in that the licensee defines and effectively communicates expectations regarding procedural compliance and personnel follow procedures. (Section 4OA2).

Cornerstone: Public Radiation Safety

- Green. The inspectors identified a noncited violation of 10 CFR 20.2006(b) for failure to ship radioactive waste with an accurate manifest. On May 19, 2009, the licensee shipped 20 Unit 2 spent fuel pool filters to a waste processor for segregation. The licensee was notified on June 1, 2009, that dose rate on one filter was almost twice the licensee reported dose rate (38 rem/hr vice 20 rem/hr). The total activity of the shipment based on the higher dose rate was approximately three times more than reported on the shipping manifest. Based on the inspectors' finding, the licensee corrected the shipping manifest and documented this issue in the corrective action program as Condition Report CR-ANO-C-2010-1866.

  Failure to include the correct total radioactivity on a waste manifest is a performance deficiency. The finding is greater than minor because it was associated with the Public Radiation Safety Cornerstone attribute of program and process (transportation program), and affected the cornerstone objective, in that, it provided incorrect information as part of hazard communication which could increase public dose. Using the public radiation safety significance determination process, the inspectors determined the finding had very low safety significance because: (1) radiation limits were not exceeded, (2) there was no breach of a package during transit, (3) it did not involve a certificate of compliance issue, (4) it was not a low level burial ground nonconformance, and (5) it did not involve a failure to make notifications or provide emergency information. Additionally, this finding had a crosscutting aspect in the area of corrective action program because the licensee did not set a low threshold for identifying and correcting issues [P.1(a)] (Section 2RS08).

B. Other Findings

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at 100 percent power for the entire period.

Unit 2 began the inspection period operating at 100 percent power. On August 23, 2010, Unit 2 performed a technical specification required shutdown to affect repairs to emergency diesel generator 2. On September 4, 2010, Unit 2 returned to 100 percent power and remained at 100 percent for the rest of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- August 4-5, 2010, Unit 2, train B containment spray pump while train A was out of service for maintenance activities
- August 12, 2010, Unit 2, emergency diesel generator 1 and alternate AC generator when Unit 2 emergency diesel generator 2 was out of service for extended maintenance activity
- August 23, 2010, Unit 1, motor-driven emergency feedwater pump P-7B while turbine-driven emergency feedwater pump P-7A was out of service for planned maintenance
- September 13, 2010, Unit 1, train A low pressure safety injection pump while train B was out of service for planned maintenance activities
- September 23, 2010, Unit 2, motor-driven emergency feedwater pump 2P-7B while turbine-driven emergency feedwater pump 2P-7A was out of service for planned maintenance

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and

the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five (5) partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

During the month of April 2010 (during Refueling Outage 1R22) and week of September 26, 2010, the inspectors performed a complete system alignment inspection of the Unit 1 low pressure injection/decay heat removal systems to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders (WOs) was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the attachment.

On September 5, 2010, the inspectors performed a complete system alignment inspection of the Unit 1 reactor building spray system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors

reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two (2) complete system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

3 System Walkdown associated with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems."

a. Inspection Scope

During the month of April 2010 (during Refueling Outage 1R22) and week of September 26, 2010, the inspectors conducted a walkdown of the Unit 1 trains A and B low pressure injection/decay heat removal systems in sufficient detail to reasonably assure the acceptability of the licensee's walkdowns (TI 2515/177, Section 04.02.d).

In addition, the inspectors verified that the licensee had isometric drawings that describe the Unit 1, trains A and B, low pressure/decay heat removal system configurations and had acceptably confirmed the accuracy of the drawings (TI 2515/177, Section 04.02.a). The inspectors verified the following related to the isometric drawings:

High point vents were identified. High points that do not have vents were acceptably recognizable. Other areas where gas can accumulate and potentially impact subject system operability, such as at orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were acceptably described in the drawings or in referenced documentation. Horizontal pipe centerline elevation deviations and pipe slopes in nominally horizontal lines that exceed specified criteria were identified. All pipes and fittings were clearly shown. The drawings were up-to-date with respect to recent hardware changes and that any discrepancies between as-built configurations and the drawings were documented and entered into the corrective action program for resolution.

The inspectors verified that piping and instrumentation diagrams accurately described the subject systems, that they were up-to-date with respect to recent hardware changes, and any discrepancies between as-built configurations, the isometric drawings, and the piping and instrumentation diagrams were documented and entered into the corrective action program for resolution (TI 2515/177, Section 04.02.b).

Documents reviewed are listed in the attachment to this report.

This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later inspection report.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- September 9, 2010, Unit 2, Fire Zone 2137-I, Upper south electrical penetration room
- September 9, 2010, Unit 2, Fire Zone 2098-L, Cable spreading room
- September 30, 2010, Unit 1, Fire Zone 86-G, North emergency diesel generator room
- September 30, 2010, Unit 1, Fire Zone 87-H, South emergency diesel generator room

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four (4) quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the one area listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- September 30, 2010, Unit 1, Area 38-Y, Emergency feedwater pump room

These activities constitute completion of one (1) flood protection measures inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

On September 15, 2010, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction

- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Biennial Inspection (Units 1 and 2)

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination. Unit 1 was in the first part of the training cycle while Unit 2 was in the second part of the training cycle. The examiners observed the associated training cycles for both units during this period.

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors conducted personnel interviews, reviewed both the operating tests and written examinations, and observed ongoing operating test activities.

The inspectors interviewed 12 licensee personnel, consisting of 8 operators, 2 instructors, and 2 training supervisors, to determine their understanding of the policies and practices for administering requalification examinations. The inspectors also reviewed operator performance on the written exams and operating tests. These reviews included observations of portions of the operating tests by the inspectors. The operating tests observed included six job performance measures and five scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content. The inspectors also reviewed medical records of 10 licensed operators for conformance to license conditions and the

licensee's system for tracking qualifications and records of license reactivation for 8 operators.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department and reviewed minutes of training review group meetings to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

In addition to the above, the inspectors reviewed examination security measures, simulator fidelity and existing logs of simulator deficiencies.

On August 10, 2010, the licensee informed the lead inspector of the following Unit 1 results:

- Of the 59 total licensed operators, 2 operators have not been tested (1 RO and 1 SRO have yet to be tested due to illness)
- 9 of 10 crews passed the simulator portion of the operating test
- 56 of 57 licensed operators passed the simulator portion of the operating test
- 57 of 57 licensed operators passed the job performance measure portion of the examination

The individuals that failed the simulator scenario portions of the operating test were remediated, retested, and passed their retake operating tests.

On August 10, 2010, the licensee informed the lead inspector of the following Unit 2 results:

- 10 of 11 crews passed the simulator portion of the operating test
- 54 of 55 licensed operators passed the simulator portion of the operating test
- 55 of 55 licensed operators passed the job performance measure portion of the examination
- 54 of 55 licensed operators passed the biennial written exam

The individuals that failed the applicable portions of the operating test were remediated, retested, and passed their retake operating tests. The individual that failed the written exam has been remediated and passed the retake written exam.

The inspectors completed (1) one inspection sample of the biennial licensed operator requalification program as defined in Inspection Procedure 71111.11.

b. Findings

Introduction. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," at Unit 2 for failure to follow procedures required by the requalification program in order to develop written examinations for the biennial cycle. Specifically, the licensee exceeded the 50 percent maximum overlap for written questions on the biennial written exams defined in their requalification program procedures for weeks four, five, and six written examinations. These examinations were administered by the facility during the weeks of July 5-9, 2010, July 12-16, 2010, and July 19-23, 2010. This finding was documented in licensee-initiated Condition Report CR-ANO-2-2010-01460, which resulted in the licensee removing five questions from the week four exam, writing new exams for weeks five and six and administering them prior to the cycle end date of July 31, 2010.

Description. The inspectors identified that the written exams for weeks four, five, and six exceeded the 50 percent threshold for overlap between and among the biennial examinations. The issue was identified while conducting the Unit 2 biennial Licensed Operator Requalification Training Program inspection during the week of July 19, 2010. The week four exam contained 20 repeat questions out of 35 questions, or a 57 percent overlap. The week five and week six exams each contained 100 percent overlap. These practices did not comply with Entergy's procedural guidance, EN-TQ-114, Section 5.7[1](g) which states that, "Written examinations will contain at least 50 percent new material." This procedure is a quality procedure and, therefore, is required to meet 10 CFR Part 50, Appendix B, criteria.

The inspectors communicated these issues to the licensee staff on July 20, 2010, and representatives of the licensee's management agreed with the NRC inspection team's assessment of the issues. The licensee determined that the 2010 Unit 2 written exams already administered for weeks four and five were invalid due to the excessive written exam question overlap for weeks four, five, and six. Exam administration was suspended for Unit 2 pending development of new exams. The licensee initiated Condition Report CR-ANO-2-2010-01460, dated July 21, 2010, to document this issue.

The inspectors also found that many of the written exam questions which were considered new questions were almost identical to previous exam questions. The stem of several questions had very minor changes (i.e., a change in pressure) which changed the correct response. The same concept was being asked with a new correct answer. The inspectors also found that there appeared to be a goal of repeating 15 of the 35 questions on weeks three, four, five and six. The 50 percent repeat of questions is a limit, not a goal, and minimizing the amount of overlap could have prevented this violation.

Following the onsite visit, the NRC inspection team conducted an in-office review of the modified week four exam and the newly written and administered week five and six examinations and found no issues with them.

Analysis. The excessive overlap of the written exam portion of the Unit 2 2010 biennial written exams was a performance deficiency in that the licensee failed to follow their established requalification procedures. Specifically, in 2010 some operators were tested using requalification written exams that repeated greater that 50 percent of the questions that had already been used in the earlier exam weeks. This finding was more than minor because if left uncorrected it could lead to a more significant safety concern, in that, licensed operations personnel could be returned to licensed duties without receiving a procedurally valid examination. The inspectors applied Manual Chapter 0609 "Significant Determination Process," Appendix I, "Licensed Operator Requalification Significance Determination Process," and determined that the finding should be dispositioned as a Green noncited violation. The finding was assessed as having very low safety significance (Green) because: (1) the overlap issues were found during the biennial examinations of the operators, (2) there were no actual consequences due to the inadequate examinations, (3) the applicable crews were re-evaluated once the issues were found, (4) this issue did not exist on the last biennial written exams in 2008 and did not occur on any of the Unit 1 biennial written examinations, and (5) the performance on the newly written examinations was satisfactory.

This written exam overlap finding should have been discovered and corrected by the licensee prior to NRC identification. The licensee should have discovered the problem prior to the NRC's identification because: (1) similar issues were described in 2002 and 2007 industry operating experience involving exam compromises; (2) the licensee completed a "Pre-71111.11 Inspection" in May 2010 that failed to identify this issue; and (3) the practices clearly violated NRC guidance and requirements, as well as the fleet-wide Entergy procedural guidance aimed at preventing exam compromise. Following identification of this issue by the NRC, the licensee took immediate and substantive corrective actions to remedy the 2010 biennial written exam overlap issues by developing new exams and retesting the affected Unit 2 licensed operators within the required biennial exam cycle. This finding has a crosscutting aspect in the area of work practices because the licensee did not ensure that supervisory and management oversight of work activities supported nuclear safety because the 2010 Unit 2 written exam overlap issues were not caught during the supervisory review and approval prior to administration of the examinations or prior to the start of this inspection [H.4(c)].

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," requires, in part, that, "Activities affecting quality shall be described by procedures including appropriate acceptance criteria and those procedures shall be followed." Contrary to this requirement, Entergy fleet-wide Procedure EN-TQ-114, Revision 3, step 5.7[1](g) was not followed in that the Unit 2 written exams for 2010 had several exams that exceeded the 50 percent overlap requirement. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as Condition Report CR-ANO-2-2010-01460, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 050000368/2010004-01, "Excessive Overlap of Unit 2 Written Examinations."

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- August 3, 2010, Unit 2, Emergency feedwater
- September 15, 2010, Unit 1, High pressure injection system

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two (2) quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- July 6, 2010, Unit 2, Elevated risk for 2P-7B, motor driven emergency feedwater pump unavailable for maintenance
- July 26, 2010, Unit 2, Elevated risk for alternated AC diesel generator planned maintenance activity
- August 11, 2010, Unit 2, Emergency diesel generator 2K-4B planned 14-day extended maintenance outage
- August 12-13, 2010, Unit 1, Train B high pressure injection inoperable due to planned maintenance
- Week of August 23, 2010, Unit 2, Emergency diesel generator 2K-4B crankcase vacuum issues that resulted in a technical specification required shutdown
- September 17, 2010, Units 1 and 2, Evaluation of risk associated with crane activities in the switchyard for lightning arrestor mast foundation excavation
- September 23, 2010, Unit 1, Risk assessment evaluation for heavy load crane activities in the vicinity of Unit 1 reactor building and condensate storage tank

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of seven (7) maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- April 10 and May 26, 2010, Unit 1, Core flood tank T-2A for gas space leakage during the Unit 1 refueling outage
- May 28, 2010, Unit 1, Emergency diesel generator 1 failure to secure from the control room and required local operator action to secure
- June 21, 2010, Unit 1, P-36C high pressure injection suction relief valve PSV-1234 missed inservice test greater than technical specification surveillance requirement and entry into technical specification Surveillance Requirement 3.0.3
- July 2, 2010, Unit 1, P-7A turbine driven emergency feedwater pump speed increase
- July 22, 2010, Unit 2, Emergency feedwater pump 2P-7A during erratic operation of flow transmitter.
- July 31, 2010, Unit 1, Degrading trend in reactor building pressure, actually achieving a negative pressure
- August 3, 2010, Unit 2, Excore detector channel C operability
- August 9, 2010, Unit 1, Train B high pressure injection for leakage through borated water storage tank stop check valve BW-3
- August 19, 2010, Unit 1, VCH-4A emergency switchgear room chiller
- September 25, 2010, Unit 1, Diesel generator ventilation systems susceptibility to the depressurization effects of a tornado

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no

unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Safety Analysis Report to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of ten (10) operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of the licensee to promptly identify and correct a known condition adverse to quality associated with the susceptibility of the emergency diesel generators' heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, such as tornados. Specifically, while performing a review in response to an NRC generic communication, the licensee determined that they could not demonstrate the ability of the stations emergency diesel generators' heating, ventilating and air conditioning ducting to withstand a tornado depressurization event. However no actions were taken to correct or mitigate this issue at the time of discovery.

Description. On December 6, 2006, the NRC issued Regulatory Issue Summary 2006-23, "Post-Tornado Operability of Ventilating and Air-conditioning Systems Housed in Emergency Diesel Generator Rooms." The purpose of this Regulatory Information Summary was to notify licensees of the NRC's regulatory position regarding loading effects caused by natural phenomena on safety related systems and components housed inside a structure partially exposed to the outside environment. Specifically, ventilating and air conditioning systems housed in the emergency diesel generator rooms. The NRC expects licensees to consider natural hazards during the design of systems and components housed inside safety-related structures if these systems and components may be exposed to the outside environment and if their malfunction or loss may prevent or impact the operability of safety-related systems and components.

Of particular concern was that vented ventilating and air conditioning ducts, and other internal safety-related systems and components, may be subject to the effects of rapid room depressurization and re-pressurization and other effects associated with a tornado event. In some cases the loss of structural integrity of ventilating and air conditioning systems may pose a challenge to the safe operation of the facility. In such cases,

licensees should take necessary measures to ensure the operability of ventilating and air conditioning duct systems located in emergency diesel generator rooms.

On December 6, 2006, Entergy corporate initiated Condition Report LO-LAR-2006-0171 to have all sites perform a review of Regulatory Information Summary 2006-023. Specifically, each site was to determine if the site's design had adequately considered tornado wind and pressure drop effects on safety-related systems and components inside building structures open to the outside environment.

On April 12, 2007, the licensee completed their review and concluded that the plant's design criteria to comply with General Design Criteria GDC-2 requires that the structure remain fully functional before, during, and after a tornado event without exceeding ASME Code allowables. The original designers accomplished this by: (1) designing the external structure (walls, ceilings, floors) to resist tornado winds, missiles, and depressurization; and (2) providing missile barriers near openings into the building where a missile trajectory could potentially directly strike a safety-related system/component. The temporary effects associated with a rapid external depressurization of systems and components were not considered in the original analyses. The safety-related components of Arkansas Nuclear One's heating, ventilation, and air conditioning system are protected from tornados and other natural events by being located within the protection of reinforced concrete structures. Arkansas Nuclear One's reinforced concrete structures that house safety-related equipment are designed to resist the effects of tornado conditions. For these structures, the ventilation system intakes and exhausts are designed to resist tornado generated missiles. However, neither the design basis nor the licensing basis required ventilation systems to be designed for the differential pressures associated with a tornado. Units 1 and 2 were licensed before the issuance of Regulatory Guide 1.76 and are not committed to it.

Based on interactions with the Entergy fleet, the licensee subsequently determined that it would be prudent to further evaluate the tornado depressurization event and its potential impact on the diesel generator room's ventilation systems. The licensee initiated Condition Report CR-ANO-C-2007-1308 to facilitate this. The licensee performed subsequent calculations, based upon sound engineering principles using the reduced differential pressures noted in Regulatory Guide 1.76, Revision 1, to evaluate the emergency diesel generator ductwork and emergency diesel generator inlet dampers in both units for effects of a tornado depressurization event. These calculations concluded that; for Unit 2, initially closed emergency diesel generator inlet dampers would be rendered inoperable by the event and resulting deformations would prevent subsequent automatic opening; and for Unit 1, the emergency diesel generator inlet ductwork to the combustion air filters would collapse and cut off air flow to the engines. They also indicated that the suction ductwork to the exhaust fans in both units would collapse and cut off air flow to the exhaust fans. Based on these results, station design engineering could not ensure with a high level of confidence that the emergency diesel generator combustion air and ventilation systems would remain functional after a tornado event.

The inspectors reviewed this position and associated calculations and determined that this was contrary to the regulatory position taken by the NRC in Regulatory Issue Summary 2006-023. The inspectors also noted; that the licensee had evaluated piping systems not located in Class 1 structures for tornado induced pressure differentials in their Final Safety Analysis Report, and that the licensee had used differential pressures which were less than those specified in their licensing basis to perform their evaluations. As such, the inspectors questioned the diesel generator room's ventilation system capabilities to withstanding the rapid depressurization effects that can occur coincident with a tornado. Specifically, the inspectors concluded that the evaluations that had been performed to date did not provide a reasonable expectation of operability for the diesel generator room's ventilation systems in a tornado event, and the licensee had taken no actions to provide compensatory measures to ensure continued operability.

The inspectors presented their concerns to the licensee and the licensee determined that further review was necessary to determine the acceptability of the identified issues. The licensee initiated Condition Report CR-ANO-C-2009-2296 to address these concerns. Subsequent evaluations determined that the Unit 2 emergency diesel generator ventilating and air conditioning systems would be able to withstand a tornado event; but Unit 1 required compensatory measures to demonstrate operability for a design basis tornado event.

Analysis. The failure to promptly identify and correct a know condition adverse to quality associated with the susceptibility of the Unit 1 emergency diesel generators' heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, tornados, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making, H.1(b), in that the licensee failed to use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to determine it is unsafe in order to disapprove the action.

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance's are promptly identified and corrected." Contrary to the above, from December 2006 through

November 2009, the licensee failed to ensure that a known condition adverse to quality associated with the susceptibility of the Unit 1 emergency diesel generators' heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, tornados, was corrected in a timely manner. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-C-2009-2296, this violation is being treated as a noncited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000313/2010004-02, "Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Emergency Diesel Generator Heating, Ventilation and Air Conditioning Ducting Susceptibility to Tornado Loading."

1R18 Plant Modifications (71111.18)

Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the modification listed below.

- Unit 1, modifications performed to emergency switchgear chillers VCH-4A/B

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, systems, structures and components' performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) sample for permanent plant modifications as defined in Inspection Procedure 71111.18-05

a. Findings

Introduction. The inspectors documented a Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of the licensee to promptly identify and correct a known condition adverse to quality associated with the improper setup of the dead band of service water flow control valve CV-6034 for cold weather operation. This resulted in the pressure control valve not properly modulating in response to pressure control inputs and the chiller tripping on high discharge pressure.

Description. On December 1, 2009, the licensee was conducting a normal surveillance run of emergency switchgear chiller VCH-4A in accordance with station Procedure OP-1104.027, "Battery and Switchgear Emergency Cooling System," Revision 5. During this run, operators noted the discharge pressure for the chiller was cycling excessively, followed by the chiller tripping on high discharge pressure. This issue was entered into the stations corrective action program as Condition Report CR-ANO-1-2009-2212.

The licensee performed an apparent cause evaluation of this issue as documented in Condition Report CR-ANO-1-2009-2212. During their review, the licensee noted that a similar issue had occurred previously on chiller VCH-4B in January 2008, and was documented in Condition Report CR-ANO-1-2008-0098. The apparent cause of that issue had been determined to be degraded and/or inappropriate set-up of the dead band of the Modutronic circuit board for service water flow control valve CV-6036. This was corrected by adjusting the gain so that the dead band was more appropriate, resulting in less movement and no motor thermal overload concerns for cold weather operation. The licensee also noted that the extent of condition review had identified CV-6034, the service water flow control for VCH-4A, as being susceptible to this issue. However, because a degraded piece/part had been discovered on CV-6036 (gain potentiometer disengaged) and no previous issues had been identified with CV-6034, no corrective actions were pursued to troubleshoot and repair CV-6034. Instead, the model work order for these valves was revised to incorporate some lessons learned for future maintenance.

The licensee determined that the apparent cause of the improper operation of the valves was an increase in stroke times of the valves. Specifically, CV-6034 and CV-6036 valve bodies were replaced in December 2006 with stainless steel bodies, where they formerly utilized carbon steel bodies, and the subsequent testing performed indicated that the opening stroke times had increased by as much as 20 percent with no changes to the motor-operated valve dead band adjustment. The licensee determined that these motor operated valves had very little margin regarding current draw and overload relay settings, and this change introduced enough additional drag or load on the motor operated valve that the overload relay settings trip during certain modes of operation. This was corrected by adjusting the gain so that the dead band was more appropriate, resulting in less movement and no motor thermal overload concerns for cold weather operation.

Analysis. Failure to promptly identify and correct a known condition adverse to quality associated with the improper setup of the dead band of service water flow control valve CV-6034 for cold weather operation was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the

finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss functionality of chiller VCH-4A; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time; (4) it did not represent an actual loss of safety function of one or more nontechnical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; (5) it did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making in that, although the licensee had identified the vulnerability of the VCH-4A chiller, decided not to pursue the corrective actions to adjust the dead band for valve CV-6034 and resulted in the subsequent improper operation of the valve [H.1(b)].

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance's are promptly identified and corrected." Contrary to the above, from December 2006 through December 2009 the licensee failed to ensure that a known condition adverse to quality associated with the setup of the dead band for service water flow control valve CV-6034, which affected the operation of the valve during cold weather operations, was corrected in a timely manner. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-1-2009-2212, this violation is being treated as a noncited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000313/2010004-03, "Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Emergency Switchgear Chiller VCH-4A."

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- July 7, 2010, Unit 1, P-7A turbine driven emergency feedwater pump speed circuit calibration after electronic governor module replacement
- July 14, 2010, Unit 1, VCH-4B TS-6060 lockout on high temperature emergency temporary modification and corrective maintenance
- July 30, 2010, Unit 2, Alternate AC diesel generator after maintenance period
- August 4-5, 2010, Unit 2, Containment spray transmitter 2FT-5610 following replacement activities

- August 22, 2010, Unit 2, Emergency diesel generator 2K-4B following repair activities for a crank case vacuum issue

- Week of Sept 6, 2010, Unit 2, Emergency diesel generator 2 following extensive maintenance to resolve crankcase vacuum issue

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following:

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion six (6) postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

Introduction. The inspectors documented a self-revealing finding for station electrical maintenance personnel's failure to adequately implement station Procedure EN-WM-102, “Work Implementation and Closeout,” Revision 4. Specifically, station personnel performing Work Order 00182908-01, removal/reinstallation of isophase fan motor C-8A, did not stop work when a condition that was not identified in the work order was discovered.

Description. On March 24, 2010, during Refueling Outage 1R22, maintenance personnel performed work on the Unit 1 isophase blower fan motor C-8A using station Work Order 00182908-01. The purpose of the work order was to remove the fan motor for rewinding off site and reinstallation. During de-termination of the fan motor power leads, two additional leads were removed from two of the three phases and documented on the lifted lead log sheet. After the motor’s return to the site, on April 7-8, 2010, the original lifted lead log was used to re-terminate the motor heater leads, vibration probes, and grounds. A new lifted lead log was prepared to re-terminate the motor leads since they had been relabeled. Two wires that were not labeled or lugged were identified and the maintenance personnel assumed that they were spares and were left as found.

Motor rotation was checked and the work was completed. Following completion of the refueling outage, on April 27, 2010, while operators were attempting to swap isophase fans, it was discovered that the damper for isophase blower C-8A failed to open. This was documented in Condition Report CR-ANO-1-2010-2105. Subsequently, station Work Order 00235005 was generated to troubleshoot why the damper did not open. Work was completed on May 11, 2010. Subsequently, maintenance initiated Condition Report CR-ANO-1-2010-2260 which identified that, following the troubleshooting, the power supply leads for the damper motors were not terminated in the fan motor termination box.

The licensee performed an apparent cause evaluation of the issue, documented in Condition Report CR-ANO-1-2010-2260, and during the inspectors' review, they noted the maintenance personnel did not question the removal of two power leads from two of the motor phases and only one power lead for the other motor phase and continued the work and did not communicate the discrepancy for a potential scope change to the work order. The inspectors determined this to be contrary to Station Procedure EN-WM-102, "Work Implementation and Closeout," Revision 4, which states, in part, in Section 5.3 that a scope change has occurred if any of the following are identified during performance of the work: The activity is not covered by the postmaintenance test; the work instructions require a revision other than an editorial change, detail classification, enhancement, or remedy of omissions; or additional components or systems are affected. As such, the inspectors determined that maintenance personnel had failed to follow station procedure and generate a scope change to the work package.

Analysis. Failure of station maintenance personnel to follow the requirements of station Procedure EN-WM-102 and process a scope change due to unexpected conditions for this reference level work package was a performance deficiency. The finding was more than minor because it affected the human performance attribute of the Initiating Events Cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability during power operations. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding had a crosscutting aspect in the area of Human Performance associated with work practices [H.4(a)], in that the licensee failed to communicate human error prevention techniques, such as holding pre-job briefings, self- and peer-checking, and proper documentation of activities. Specifically, station maintenance personnel failed to follow Procedure EN-WM-102 when discovering a condition that was unexpected for this work package and did not stop work to resolve the issue prior to continuing with the work which resulted in inadequate completion and testing in the work package for the planned activities for the isophase blower motor and damper.

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified, since the affected isophase blower damper is not safety-related. Because this finding does not involve a violation, has very low safety significance, and has been entered into the corrective action program as

Condition Report CR-ANO-1-2010-2260, it is identified as FIN 05000313/2010004-04, "Failure to Follow Station Work Control Procedure Results in Unavailable Equipment."

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage plan and contingency plans for the Unit 2 Forced Outage 2FO1 conducted August 23 through September 4, 2010, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the forced outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error
- Status and configuration of electrical systems to ensure that technical specifications and outage safety plan requirements were met and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Controls over activities that could affect reactivity
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing
- Licensee identification and resolution of problems related to forced outage activities

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) forced outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

Introduction. The inspectors identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the

licensee's failure to adequately implement Procedure EN-MA-118, "Foreign Material Exclusion," Revision 5/6. Specifically, between October 31, 2008, and September 2, 2010, inspectors identified multiple occasions where licensee personnel failed to implement appropriate foreign material exclusion controls in Zone 1 areas around safety-related equipment (e.g. failure to appropriately log material in to and out of the zone) as required by station procedure. Each identified instance was a repeat occurrence of previously identified issues that were documented as NRC identified violations in previous inspection reports in 2008, 2009, and early 2010. Measures established by Arkansas Nuclear One to address these previously identified noncited violations failed to restore compliance within a reasonable time after these violations were identified. Finally, these failures had the potential of having a negative impact on safety related components such as fuel failure, safety system reliability and safety related equipment availability. This issue was entered into the licensee's corrective action program as Condition Reports CR-ANO-2-2010-1839, CR-ANO-C-2010-2192, and CR-ANO-X-2010-3155.

Description. Inspectors issued NCVs 05000313/2008005-03, 05000368/2009004-04, and 05000313/2010003-02 to the licensee for the failure of licensee personnel to appropriately implement the requirements of station procedure EN-MA-118, for foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas.

- 05000313/2008005-03: The resident staff identified multiple issues with the licensee's implementation of their foreign material control program during refueling outage 1R21. Specifically, the resident staff determined that the issue was associated with the failure of station personnel to follow the procedural requirements including failure to adequately log materials in to and out of a Zone 1 area. (Note: while there were multiple examples identified of station personnel's failure to follow procedure, there were no actual introductions of material into critical systems).

  The licensee performed an apparent cause evaluation and determined the apparent cause was poor worker and supervisory work practices. Specifically, supervision and management were lacking in oversight performance, which was due to the significant procedure changes not being recognized as a potential trap for those implementing the procedure from a worker / FME Monitor / supervisor standpoint. Change management was inadequate from an oversight perspective. The licensee also identified as a contributing cause inadequate training / procedure knowledge for supervisor and craft.

- 05000368/2009004-04: The resident staff identified multiple issues with the licensee's implementation of their foreign material control program during refueling outage 2R20. The resident staff determined that the issue was associated with the failure of station personnel to follow the procedural requirements including failure to adequately log material in to and out of a Zone 1 area. (Note: this was after the completion of all corrective actions for NCV 05000313/2008005-03). Additionally, some of these examples included actual

introductions of material into critical systems that had not been logged when taken into the Zone 1 area.

The licensee performed an apparent cause evaluation and determined there to be two apparent causes; proper worker practices have not been reinforced through supervisor feedback (AC1) and in training (AC2). (The residents noted that these were essentially the same causes that had been identified previously; apparent cause was poor worker and supervisory work practices, and the contributing cause inadequate training / procedure knowledge for supervisor and craft.)

- 05000313/2010003-02: The resident staff identified multiple issues with the licensee's implementation of their foreign material control program during refueling outage 1R22. The resident staff determined that the issue was associated with the failure of station personnel to follow the procedural requirements. (Note: this was after the completion of all corrective actions for the previous NCVs 05000313/2008005-03 and 05000368/2009004-04, and some of these examples were actual introductions of material into critical systems)

  The licensee did not perform an apparent cause evaluation for this issue. Instead, each issue was addressed in the condition report that identified it, and a rollup condition report was written to capture lessons learned for future refueling outages.

  The inspectors noted that the condition reports that captured the individual issues actually failed to appropriately call out the failure to follow procedure. Instead, most were closed to actions taken for material recovery, and/or coaching.

On August 24, 2010, while conducting a tour of the facility the inspectors noted work in progress in the area of the safety related emergency diesel generator 2K-4B, which had been designated a Zone 1 foreign material exclusion area, was not in accordance with station procedures. Specifically, the inspectors noted that individuals working in the area were not appropriately implementing the requirements of station Procedure EN-MA-118, "Foreign Material Exclusion," Revision 5. The inspectors identified that some personnel in the zone 1 foreign material exclusion area failed to have their hard hats, eye protection, pens or tools properly secured. The inspectors informed the licensee of this issue and it was entered into the corrective action program as Condition Report CR-ANO-2-2010-1839.

On August 25, 2010, while touring emergency diesel generator 2K-4B room again, the inspectors again identified issues with station personnel's implementation of the requirements of station procedure EN-MA-118 for a Zone 1 foreign material exclusion area. Specifically, the inspectors identified that a clear plastic bag had been introduced into the Zone 1 foreign material exclusion area (procedurally clear plastic is not allowed in foreign material exclusion zone 1 areas without distinguishing markings) and this bag had not been logged into the foreign material exclusion area log. The inspectors also observed station personnel placing a spiral wound notebook and pen in the Zone 1 foreign material exclusion area without logging them in and verifying they were failsafe

as required by procedure. The inspectors informed the licensee of this issue and it was entered into the corrective action program as Condition Report CR-ANO-C-2010-2192.

On September 2, 2010, while touring the spent fuel floor, the inspectors again identified issues with station personnel's implementation of the requirements of station procedure EN-MA-118 for a Zone 1 foreign material exclusion area. Specifically, the inspectors observed an individual enter the Zone 1 area around the spent fuel pool for Unit 1, without their hard hat being properly secured. The inspectors determined that this represented an instance where foreign material, the hard hat, could be introduced into a safety related system containing spent fuel assemblies. The inspectors informed the licensee of this issue and it was entered into the corrective action program as Condition Report CR-ANO-1-2010-3155.

Through their review the inspectors determined that the licensee had failed to ensure that Procedure EN-MA-118 requirements were followed. Specifically, the station personnel failed to appropriately secure material entering a Zone 1 foreign material exclusion area and failed to properly log material entering a Zone 1 foreign material exclusion area to ensure accountability was maintained. The inspectors also determined that there has been sufficient time for previous corrective actions identified by the licensee to take effect, and as such, the previous corrective actions that had been taken were inadequate.

The inspectors concluded that while the identified examples of station personnel's failure to follow Procedure EN-MA-118 was indicative of a continued programmatic issue associated with the station personnel's implementation of the foreign material exclusion program which could directly impact safety related equipment as well as critical systems. While there was no actual damage to station critical systems, there has been at least one example of introduction of foreign material into a critical system, which was discovered before damage occurred.

Analysis. The failure of station personnel to follow Procedure EN-MA-118, "Foreign Material Exclusion," when working in Zone 1 foreign material exclusion areas around safety related equipment/areas, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program, P.1(d), in that the licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Arkansas Nuclear One Procedure EN-MA-118, "Foreign Material Exclusion," Revision 6 requires the establishment of a Foreign Material Exclusion Zone 1 when loss of foreign material exclusion integrity could result in fuel failure, reduced system safety, station availability or significant cost for recovery. Section 5.11, "FME Zone 1 Requirements," of the same procedure, states in part that for Foreign Material Exclusion Zone 1, the Foreign Material Exclusion Monitor shall control personnel and material access to the Foreign Material Exclusion zone.

Contrary to the above, between October 31, 2008, and September 2, 2010, Arkansas Nuclear One failed to ensure Foreign Material was controlled in accordance with the requirements of Procedure EN-MA-118. Specifically, the inspectors identified multiple occasions where the licensee personnel failed to implement appropriate foreign material exclusion controls (e.g., failure to appropriately log material in to and out of the area) in Foreign Material Exclusion Zone 1 areas around safety-related equipment as required by station procedure. Additionally, these failures had the potential of having a negative impact on safety-related components.

This finding was of very low safety significance and was entered into the licensee's corrective action program as condition reports CR-ANO-2-2010-1839, CR-ANO-C-2010-2192, and CR-ANO-1-2010-3155. Due to the described programmatic nature, this violation is being cited in a Notice of Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: VIO 05000313; 05000368/2010004-05, "Failure to Adequately Implement Foreign Material Exclusion Controls."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria

- Test equipment
- Procedures
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- July 7, 2010, Unit 2, Emergency diesel generator 1 24 hour endurance run
- July 9, 2010, Unit 2, Emergency diesel generator 2 24 hour endurance run
- July 14, 2010, Unit 1 , VCH-4B, Emergency switchgear chiller quarterly surveillance test
- August 4-5, 2010, Unit 2, Containment spray pump train A
- August 22, 2010, Unit 2, Emergency feedwater pump 2P-7A
- August 23, 2010, Unit 1, P-7A, Turbine-driven emergency feedwater pump quarterly surveillance test
- September 2, 2010, Unit 2, Emergency diesel generator 2 after forced maintenance outage activities
- September 28-30, 2010, Unit 1 and Unit 2, Reactor coolant system leakage calculations
- September 30, 2010, Unit 1, Containment isolation valve SV-1818, pressurizer sampling and reactor coolant system sampling isolation valve

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of nine (9) surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

Introduction. The inspectors documented a Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," associated with the licensee's failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, during initial plant installation the licensee failed to correctly identify the effect redundant protective equipment interlocks could have on maintaining operability of VCH-4B design requirements upon a loss of normal non-safety cooling. This resulted in emergency switchgear chiller VCH 4B, not being able to start and perform its design function due to a combination of high room temperature due to loss of normal non-safety related cooling and normally energized compressor oil heaters which led to a high compressor oil temperature switch actuation that caused a lockout of the chiller that would have prevented a chiller start.

Description. At 2:10 p.m. on July 14, 2010, the Unit 1 control room received a VCH-4A/B trouble alarm. Local investigation found the high oil temperature/high discharge pressure alarm/lockout was active on south emergency switchgear chiller VCH-4B. Chiller VCH-4B was and had been idle prior to the receipt of the control room alarm. Subsequent investigation determined that high oil temperature switch TS-6060 for chiller VCH-4B, had actuated on a valid high oil temperature condition in compressor C-52, for chiller VCH-4B.

Normal nonsafety-related room cooler VUC-2A, for room 100 where chiller VCH-4B is located, had failed some time during the day and had caused the temperature in room 100 to rise. Chiller VCH-4B compressor C-52 is designed with a compressor sump oil heater element that is energized when the unit is offline to avoid refrigerant emulsion into the oil. The combined effect of the loss of normal room cooling, the energized oil heaters, and the high ambient temperature led to oil sump temperatures reaching the actuation set point of 157 degrees Fahrenheit for TS-6060, causing a lockout of chiller VCH-4B.

The licensee declared chiller VCH-4B inoperable at 2:38 p.m. and commenced performing contingency actions contained in Procedure OP-1104.027, "Battery and Switchgear Emergency Cooling System," to exit the 8 hour allowed outage time of Technical Specifications 3.8.4, 3.8.9, and the 12 shutdown action statements for Technical Specification 3.8.7, and to then enter a 30 day administrative time clock. However, one of the required nonsafety-related coolers, VUC-13B, north battery charger normal cooling, was out of service for maintenance. This prevented the completion of the contingency actions of Procedure OP-1104.027 and kept the station in a limiting 12 hour shutdown action statement of Technical Specification 3.8.7. At 9:58 p.m., Unit 1 exited all technical specification limiting condition for operations when VCH-4B was declared operable after implementation of an emergency temporary modification, an

engineering evaluation to permanently disable hi compressor oil temperature lockout TS-6060 and performing the monthly surveillance test to demonstrate equipment operability. The licensee initiated Condition Report CR-ANO-1-2010-2815 to document the issue in the station's corrective action program. The licensee documented the operability of north emergency switchgear chiller VCH-4A, in Condition Report CR-ANO-1-2010-3075. The licensee performed an apparent cause evaluation and developed a corrective action plan to permanently disable the compressor sump high oil temperature lockout feature for both chillers VCH-4B and VCH-4A.

Analysis. The inspectors determined that the licensee's failure to ensure that design requirements were correctly translated into installed plant equipment was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Specifically, the licensee failed to correctly analyze and identify that chiller VCH-4B could receive a high oil temperature lockout with a loss of normal room cooling prior to receiving a valid start signal due to the compressor sump oil heaters and a high ambient room temperature and prevent fulfillment of its required design function. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss of functionality of chiller VCH-4B; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time; (4) it did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; (5) it did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that since the licensee had not recently re-evaluated the design of the emergency switchgear room chiller's high oil temperature lockout; this finding did not represent current plant performance, and therefore did not have a crosscutting aspect associated with it

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," requires, in part, measures be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from initial installation through July 2010, the licensee failed to ensure that that design requirements for the Unit 1 emergency switchgear chillers were correctly translated into installed plant equipment. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-1-2010-2815, this violation is being treated as a noncited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000313/2010004-06, "Failure to Correctly Translate VCH-4B Design Requirements into Installed Plant Configuration."

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS06 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

This area was inspected to: (1) ensure the gaseous and liquid effluent processing systems are maintained so radiological discharges are properly mitigated, monitored, and evaluated with respect to public exposure; (2) ensure abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out of service, are controlled in accordance with the applicable regulatory requirements and licensee procedures; (3) verify the licensee's quality control program ensures the radioactive effluent sampling and analysis requirements are satisfied so discharges of radioactive materials are adequately quantified and evaluated; and (4) verify the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendices A and I; 40 CFR Part 190, the offsite dose calculation manual, and licensee procedures required by the technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed and/or observed the following items:

- Radiological effluent release reports since the previous inspection and reports related to the effluent program issued since the previous inspection, if any
- Effluent program implementing procedures, including sampling, monitor setpoint determinations and dose calculations
- Equipment configuration and flow paths of selected gaseous and liquid discharge system components, filtered ventilation system material condition, and significant changes to their effluent release points, if any, and associated 10 CFR 50.59 reviews
- Selected portions of the routine processing and discharge of radioactive gaseous and liquid effluents (including sample collection and analysis)
- Controls used to ensure representative sampling and appropriate compensatory sampling
- Results of the inter-laboratory comparison program
- Effluent stack flow rates
- Surveillance test results of technical specification-required ventilation effluent discharge systems since the previous inspection
- Significant changes in reported dose values, if any

- A selection of radioactive liquid and gaseous waste discharge permits
- Part 61 analyses and methods used to determine which isotopes are included in the source term
- Offsite dose calculation manual changes, if any
- Meteorological dispersion and deposition factors
- Latest land use census
- Records of abnormal gaseous or liquid tank discharges, if any
- Groundwater monitoring results
- Changes to the licensee's written program for indentifying and controlling contaminated spills/leaks to groundwater, if any
- Identified leakage or spill events and entries made into 10 CFR 50.75 (g) records, if any, and associated evaluations of the extent of the contamination and the radiological source term
- Offsite notifications and reports of events associated with spills, leaks, or groundwater monitoring results, if any
- Audits, self-assessments, reports, and corrective action documents related to radioactive gaseous and liquid effluent treatment since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample, as defined in Inspection Procedure 71124.06-05.

b. Findings

No findings were identified.

2RS07 Radiological Environmental Monitoring Program (71124.07)

a. Inspection Scope

This area was inspected to: (1) ensure that the radiological environmental monitoring program verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; (2) verify that the radiological environmental monitoring program is implemented consistent with the licensee's technical specifications and/or offsite dose calculation manual, and to validate that the radioactive effluent release program meets the design objective contained in Appendix I to 10 CFR Part 50; and (3) ensure that the radiological environmental monitoring program monitors non-effluent exposure

pathways, is based on sound principles and assumptions, and validates that doses to members of the public are within the dose limits of 10 CFR Part 20 and 40 CFR Part 190, as applicable. The inspectors reviewed and/or observed the following items:

- Annual environmental monitoring reports and offsite dose calculation manual
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Selected events documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Selected structures, systems, or components that may contain licensed material and has a credible mechanism for licensed material to reach groundwater
- Records required by 10 CFR 50.75(g)
- Significant changes made by the licensee to the offsite dose calculation manual as the result of changes to the land census or sampler station modifications since the last inspection
- Calibration and maintenance records for selected air samplers, composite water samplers, and environmental sample radiation measurement instrumentation
- Inter-laboratory comparison program results
- Audits, self-assessments, reports, and corrective action documents related to the radiological environmental monitoring program since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.07-05.

b. Findings

No findings were identified.

2RS08 Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)

a. Inspection Scope

This area was inspected to verify the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 10 CFR Parts 20, 61, and 71 and Department of

Transportation regulations contained in 49 CFR Parts 171-180 for determining compliance. The inspectors interviewed licensee personnel and reviewed the following items:

- The solid radioactive waste system description, process control program, and the scope of the licensee's audit program
- Control of radioactive waste storage areas including container labeling/marking and monitoring containers for deformation or signs of waste decomposition
- Changes to the liquid and solid waste processing system configuration including a review of waste processing equipment that is not operational or abandoned in place
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Processes for waste classification including use of scaling factors and 10 CFR Part 61 analysis
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifest
- Audits, self assessments, reports, and corrective action reports radioactive solid waste processing, and radioactive material handling, storage, and transportation performed since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.08-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 20.2006(b) for failure to ship radioactive waste with an accurate manifest.

Description. On May 19, 2009, the licensee shipped 20 Unit 2 spent fuel pool filters to a waste processor for segregation. The waste manifest (NRC Forms 540 and 541) accompanying the shipment indicated a total activity of 1650 millicuries based on dose rate measurements of the filters. The recipient of the shipment performed dose measurements of the filters to determine which filters could be kept for processing. The licensee was notified on June 1, 2009, that dose rate on one filter was almost twice the licensee reported dose rate (38 rem/hr vice 20 rem/hr) which equated to a total activity of 5000 millicuries. This event was documented in the corrective action program as Condition Report CR-ANO-C-2009-1008. The licensee determined that the waste classification of the shipment was unchanged by the higher curie content.

The total activity of the shipment based on the higher dose rate was approximately three times more than reported on the shipping manifest. Until questioned by the inspectors, the licensee failed to issue a corrected manifest or review how this event may have affected other areas of the radiation protection program, such as reports made detailing the amount of radioactive waste shipped annually. This was documented in the corrective action program as Condition Report CR-ANO-C-2010-1866.

Analysis. The failure to include the correct total radioactivity on a waste manifest is a performance deficiency. The finding is greater than minor because it was associated with the Public Radiation Safety Cornerstone attribute of program and process (transportation program), and affected the cornerstone objective, in that, it provided incorrect information as part of hazard communication which could increase public dose. Using the public radiation safety significance determination process, the inspectors determined the finding had very low safety significance because (1) radiation limits were not exceeded, (2) there was no breach of a package during transit, (3) it did not involve a certificate of compliance issue, (4) it was not a low level burial ground nonconformance, and (5) it did not involve a failure to make notifications or provide emergency information. This finding had a crosscutting aspect in the area of corrective action program, low threshold, because the licensee did not set a low threshold for identifying issues completely and accurately [P.1(a)].

Enforcement. Title 10 of the Code of Federal Regulations 20.2006(b) requires, "Any licensee shipping radioactive waste intended for ultimate disposal at a licensed land disposal facility must document the information required on NRC's uniform low-level radioactive waste manifest and transfer this recorded manifest information to the intended consignee in accordance with Appendix G to 10 CFR Part 20." Appendix G, Section I. B, requires, in part, that, "The shipper of the radioactive waste shall provide the following information regarding the waste shipment on the uniform manifest: The total radionuclide activity in the shipment." Contrary to the above, on May 19, 2009, the licensee failed to provide an accurate total radionuclide activity on the manifest with Radioactive Waste Shipment 09-051. Specifically, the manifest incorrectly listed the total amount of radioactivity in the shipment as 1650 millicuries instead of approximately 5000 millicuries. This violation was entered into the licensee's corrective action program as Condition Report CR-ANO-C-2010-1866. This issue is being treated as a noncited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy:
NCV 05000368/2010004-07, "Failure to Provide an Accurate Shipping Manifest."

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of January 2010 through August 2010, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one (1) single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-up Inspections

a. Inspection Scope

Based on previous observations and identified issues, the inspectors selected, for a more in-depth review, the stations work order generation process as it related to maintenance activities planned on safety-related equipment. The inspectors selected this issue for review because of the past history of inadequate work orders for planned maintenance activities associated with plant equipment. Furthermore, the inspectors determined that the failure to appropriately plan, provide appropriate guidance or conduct appropriate postmaintenance testing because of inadequate work orders could significantly impact on station equipment and result in these systems not being able to perform their design functions. The inspectors considered the following, as applicable, during the review of the licensee's actions: (1) complete and accurate identification of

the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

These activities constitute completion of one (1) in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for station planning personnel's failure to adequately implement station Procedures EN-FAP-WM-011, "Work Planning Standard," Revision 0, and EN-WM-102, "Planning," Revision 6.

Description. On August 3, 2010, while conducting a review of station work orders for scheduled maintenance activities on safety related equipment, the inspectors noted instances where these work orders were not written in accordance with the requirements of Procedure EN-FAP-WM-011. Specifically, the inspectors noted that, contrary to the requirements of Section 3.2.2 of this procedure, multiple reference level work orders generated by the fix-it-now team contained blanket references to other procedures without providing specific guidance to which sections were to be used, and specific starting and stopping points. The inspectors informed the licensee of this issue and it was entered into the corrective action program Condition Report CR-ANO-C-2010-1962.

Based on this observation, and the inspectors' knowledge of past programmatic issues with work order generation, the inspectors performed increased monitoring of station work orders being generated for activities on safety related equipment. From August 17 through August 19, 2010, the inspectors noted additional instances where planning personnel failed to appropriately implement procedural requirements associated with work order generation requirements for emergent work performed on emergency diesel generator 2K-4B.

Work Order 52026722, task 12, was generated to allow craft personnel to investigate and repair issues associated with the loss of crank case vacuum of emergency diesel generator 2K-4B, using the applicable steps of station procedures and system engineering direction. This work order task had been designated as a reference level task and provided the following work plan details:

> 4.2 INVESTIGATE/REPAIR using applicable steps of OP 2306.005 and System engineering direction to determine the cause of the loss of vacuum and over pressurization of the engine crankcase
>
> 4.3 ENSURE that any Temporary Services and Equipment used during the performance of this task were removed, along with their applicable tag(s)

On August 18, 2010, during their review, the inspectors determined that the licensee planned to install temporary equipment on the emergency diesel generator, for testing activities, using the above guidance. However, there were no references available in station procedures to provide direction for the proposed activities, and the work was being done at the direction of the vendor. The inspectors determined that this was contrary to the requirements of Procedure EN-WM-105, section 3[19], which defines a reference package as, "The level of detail is above skill of the craft but reference material is available to provide all of the necessary guidance. This includes procedures, work standards, vendor manuals and/or excerpts of these references," and section 5.2[4].e, which states, "For Reference packages the planner will identify what needs to be done, and refer to approved references for work instructions." The inspectors informed the licensee of this issue and it was entered into the corrective action program as Condition Report CR-ANO-2-2010-1736.

On August 19, 2010, the inspectors again reviewed this task because a scope addition had been performed to support installation of other temporary equipment on the emergency diesel generator and the changing of the air ejector orifice using the above guidance. The inspectors again questioned the lack of instructions for the temporary equipment installation and the referencing of the vendor technical manual for the orifice replacement without referencing the specific manual sections. The inspectors informed the licensee of this issue and it was entered into the corrective action program as Condition Report CR-ANO-C-2010-2114. In response to the inspector's questions, the licensee reviewed the procedural requirements and the vendor technical manual and determined that the vendor manual did not contain guidance on changing the orifice and specific work instructions had to be generated for this task.

Analysis. The inspectors determined that the failure of station planning personnel to follow Procedures EN-FAP-WM-011 and EN-WM-105 and to ensure that adequate procedures were generated for maintenance conducted on safety-related equipment was a performance deficiency. The performance deficiency was determined to be more than minor because if left uncorrected it would become a more significant safety concern. Specifically, the continued practice of generating inadequate work orders for maintenance activities on safety-related equipment would have the potential to leave risk significant equipment in a degraded condition without the knowledge and approval of site management and operations personnel, and is therefore a finding. The finding was associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices [H.4(b)] in that the licensee defines and effectively communicates expectations regarding procedural compliance and personnel follow procedures.

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, between August 3 through 19, 2010, multiple occasions were identified where station planning personnel failed to follow Procedures EN-FAP-WM-011 and EN WM 105 and to ensure that adequate procedures were generated for maintenance conducted on safety related equipment. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Reports CR-ANO-C-2010-1962, CR-ANO-C-2010-1964, CR-ANO-2-2010-1736, CR-ANO-C-2010-2114, CR-ANO-C-2010-2119, and CR-ANO-C-2010-2140, this violation is being treated as a noncited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000368/2010004-08, "Failure to Follow Procedures and Generate Adequate Work Orders for Maintenance on Safety Related Equipment."

.5 Annual Sample: Review of Level 1 Tagging Errors During Unit 1 Refueling Outage 1R22

.a Inspection Scope

The inspectors noticed an unusually high number of Level 1 tagging errors during the most recent Unit 1 refueling outage. There were four tagging errors in a two week period and one of the errors resulted in contaminated (reactor coolant system) water inadvertently being drained to the containment basement. The inspectors reviewed each issue and the roll up condition report and root cause associated with this issue.

.b Findings

Introduction. The inspectors documented a green, self-revealing noncited violation of Unit 1 Technical Specification 5.4.1.a for the failure to follow Procedure EN-OP-102, "Protective and Caution Tagging," Revision 12. Specifically, a maintenance tagout holder signed off a tagout prior to all work being complete, which led to the removal of the clearance. This resulted in draining the pressurizer to the containment basement floor instead of to a drain tank.

Description. On March 31, 2010, while Unit 1 was in Mode 6, operations' personnel removed tags associated with the replacement of valve RBD-25 and performed a valve lineup to drain the Unit 1 pressurizer during Refueling Outage 1R22. When operations' personnel began to drain the pressurizer through the pressurizer surge line drains, water was identified running out from beneath the temporary shielding. Operations' personnel were promptly notified and the drain was secured. An investigation into the leakage revealed that a spectacle flange had not been reassembled following completion of welding activities in support of valve RBD-25 replacement.

This issue was entered into the corrective action program as Condition Report CR-ANO-1-2010-1013. Mechanical maintenance personnel had removed the flange on March 25, 2010. In accordance with Procedure EN-OP-102, the mechanical maintenance lead should have remained on the tagout until the flange had been re-

installed. The mechanical maintenance war room coordinators (special team that oversees mechanical maintenance during outages) incorrectly believed that as long as another organization was on the tagout, as the tagout holder, all other work on the tagout would be covered. The mechanical maintenance war room was also of the mindset to minimize all personnel on the tagout to minimize the time it would take to remove a tagout. As a result the mechanical war room supervision convinced the mechanical maintenance lead to sign off on the tag-out before the flange had been reassembled.

On March 30, 2010, the outage control center identified the work associated with the RBD-25 valve replacement as being on critical path for draining the pressurizer. A senior reactor operator was tasked to follow this work and ensure prompt removal of the tagout as soon as possible. Welders, who were the only tagout holders on the tagout, completed their work and signed off the tagout. The senior reactor operator failed to recognize that all work had not been completed and removed the tagout. Operations' personnel were notified that the system was ready for use. Operations' personnel aligned the system for pressurizer drain and commenced draining. Soon after the draining evolution had begun the pressurizer water was discovered draining onto the containment building floor.

Analysis. The inspectors determined that the failure of station personnel to follow Procedure EN-OP-102, "Protective and Caution Tagging," Revision 12, was a performance deficiency. The performance deficiency was determined to be more than minor because if left uncorrected it could lead to a more significant safety issue. Specifically, the continued failure to follow this procedure could lead to the inappropriate release of systems and equipment to other organizations when these systems or equipment are not capable of performing their function. This is therefore a finding. Using NRC Manual Chapter 0609, Significance Determination Process, Appendix G, "Shutdown Operations Significance Determination," Attachment 1, the finding was determined to have very low safety significance because the finding did not affect core heat removal, inventory control, power availability, and containment control or reactivity guidelines. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices [H.4(c)], in that the licensee did not ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, instead of supplying appropriate guidance and supervision for the workers in the field, the mechanical war room coordinators' actions resulted in the failure to follow procedure by convincing the mechanical lead to sign off on the tagout before the work had been completed.

Enforcement. Technical Specification 5.4.1.a states, in part, that written procedures shall be implemented in accordance with Regulatory Guide 1.33, Appendix A. Tagging activities is one of the areas covered in Regulatory Guide 1.33, Appendix A. Contrary to the above, the licensee failed to follow Procedure EN-OP-102, "Protective and Caution Tagging," Revision 12, and released a tagout that resulted in operations draining the pressurizer to the Unit 1 reactor building basement floor. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-1-2010-1013, this violation is being treated as a noncited

violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000313/2010004-09, "Failure to Follow Procedure Results in Draining Unit 1 Pressurizer to Reactor Building Floor."

.6 In-depth Review of Operator Workarounds

a. Inspection Scope

The inspectors selected this issue for review to verify that licensee personnel were identifying operator workaround problems at an appropriate threshold and entering them in the corrective action program, and has proposed or implemented appropriate corrective actions. The inspectors reviewed and evaluated the licensee's operator workaround log, for both Units 1 and 2, operator logs and associated condition reports. The inspectors considered the following, as applicable, during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 (Closed) Temporary Instruction 2515/173, Review of the Implementation of the Industry Groundwater Protection Voluntary Initiative, Revision 1

a. Inspection Scope

An NRC assessment was performed of the licensee's groundwater protection program to determine whether the licensee implemented the voluntary Industry Groundwater Protection Initiative, dated August 2007 (Nuclear Energy Institute 07-07, "Industry Groundwater Protection Initiative – Final Guidance Document," ADAMS Accession Number ML072610036). The inspectors interviewed personnel, performed walkdowns of selected areas, and reviewed the following items:

- Records of the site characterization of geology and hydrology
- Evaluations of systems, structures, and or components that contain or could contain licensed material and evaluations of work practices that involve licensed material for which there is a credible mechanism for the licensed material to reach the groundwater
- Implementation of an onsite groundwater monitoring program to monitor for potential licensed radioactive leakage into groundwater

- Procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts

- Records of leaks and spills recorded, if any, in the licensee's decommissioning files in accordance with 10 CFR 50.75(g)

- Licensee briefings of local and state officials on the licensee's groundwater protection initiative

- Protocols for notification to the local and state officials, and to the NRC regarding detection of leaks and spills

- Protocols and/or procedures for 30-day reports if an onsite groundwater sample exceeds the criteria in the radiological environmental monitoring program

- Groundwater monitoring results as reported in the annual effluent and/or environmental monitoring report

- Licensee and industry assessments of implementation of the groundwater protection initiative

b. Findings

No findings of significance were identified. Implementation of the Industry Groundwater Protection Initiative is voluntary. Under the final initiative, each site was to have developed an effective, technically sound groundwater protection program by August 2008. At the time of the inspection, the inspectors determined that the licensee had still not fully implemented the following objectives of Nuclear Energy Institute 07-07.

- Additional monitoring wells are needed, according to the licensee's consultants, to adequately perform hydrogeologic and geologic studies to determine groundwater flow characteristics and gradients, in accordance with Objective 1.1a and to identify potential pathways for groundwater migration from onsite locations to offsite locations, in accordance with Objective 1.1c.

- No evaluation of work practices that involve or could reasonably be expected to involve licensed material and for which there was a credible mechanism for the licensed material to reach groundwater was conducted, in accordance with Objective 1.2a.

- Existing leak detection methods were not correlated to each system, structure, and component and identified for each work practice that involves or could involve licensed material for which there is a creditable potential for inadvertent release to groundwater, in accordance with Objective 1.2b.

- Potential enhancements were not identified to leak detection systems or programs, in accordance with Objective 1.2c.

- Potential enhancements to prevent spills or leaks from reaching the groundwater were not identified, in accordance with Objective 1.2d.

- Groundwater monitoring wells were not placed down gradient from the plant in accordance with Objective 1.3a. Three wells were installed south to southwest of the plant. However, data from these wells suggest the locations are not down gradient of critical systems, structures, and components.

- Sentinel wells were not placed near to systems, structures, and components that have the highest potential for inadvertent releases that could reach groundwater, in accordance with Objective 1.3b.

- The procedure used for communicating actual release information to the state/local officials, in accordance with Objective 2.2c, did not include all required information.

- The 2006 and 2007 groundwater sample results were not reported in the 2007 and 2008 annual radiological environmental operating report, respectively, in accordance with Objective 2.4a.

Condition Report CR-HQN-2010-00207 was initiated to ensure implementation of actions to address the items listed above.

.2 <u>(Closed) Unresolved Item 05000313/2009005-07, Diesel Generator Ventilation Systems Susceptibility to the Depressurization Effects of a Tornado</u>

In NRC Inspection Report 05000313/2009005 inspectors opened an unresolved item concerning the potential susceptibility of the Unit 1 emergency diesel generator heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, tornados. Inspectors reviewed this issue for closure and documented a noncited violation (05000313/2010004-02) in Section 1R15 of this report.

.3 <u>(Open) NRC Temporary Instruction 2515/177, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01)</u>

As documented in Section 1R04, the inspectors confirmed the acceptability of the described licensee's actions. This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later Inspection Report.

.4 IP 92723, Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period

.a Inspection Scope

The inspectors performed Inspection Procedure 92723 in accordance with the Arkansas Nuclear One 2009 end of cycle assessment letter. Arkansas Nuclear One received four traditional violations during the 2009 assessment period. The inspectors reviewed the licensee's condition reports for each violation and the roll up root cause analysis for the following items:

- Problem identification
- Cause, extent of condition and extent of cause
- Evaluation of corrective actions

.b Findings

No findings were identified.

4OA6 Meetings

Exit Meeting Summaries

On, July 22, 2010, inspectors briefed Mr. B. Berryman, Acting Site Vice President, and other members of the licensee's staff of the results of the licensed operator requalification program inspection. The lead inspector obtained the final biennial examination results and telephonically exited with Mr. R. Martin, Unit Operations Training Superintendent, on August 16, 2010. The licensee representatives acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On July 23, 2010, inspectors presented the results of the radiation safety inspections to Mr. M. Chisum, Acting General Manager, Plant Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 27, 2010, resident inspectors presented the inspection results to Mr. B. Berryman, Acting Site Vice President and other members of the licensee staff. The licensee acknowledged the issues presented. 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

J. Bacquet, ALARA Supervisor, Radiation Protection
R. Beard, EP&C
B. Berryman, Acting Site Vice President
D. Bice, Acting Manager, Licensing
D. Calloway, Effluent and Environmental Monitoring Specialist, Chemistry
M. Chisum, Acting General Manager, Plant Operations
A. Clinkingbeard, Operations Training, Assistant Operations Manager
S. Cotton, Training Manager
R. Crowe, Superintendent, Security
S. Cupp, Simulator Superintendent
R. Dodds, Manager, Maintenance
R. Gresham, Senior Emergency Planner
R. Henry, EP&C
D. Hicks, Support Supervisor, Radiation Protection
D. James, Director, Nuclear Safety Assurance
J. James, Laboratory Technician, Chemistry
K. Jones, Manager, Operations
R. Jones, EP&C
J. McCoy, Acting Director, Engineering
D. Meatheany, EP&C
R. Martin, U1 Operations Training Superintendent
D. Marvel, Supervisor, Radiation Protection Operations
T. Nickels, ALARA Coordinator, Radiation Protection
K. Panthen, EP&C
M. Paterak, EP&C
J. Priore, Ventilation Systems Engineer, Systems Engineering
J. Smith, Manager, Radiation Protection
R. Starkey, Radwaste Supervisor, Radiation Protection
G. Stephenson, Effluent and Environmental Monitoring Specialist, Chemistry
T. Rolniak, Specialist, Radiation Protection
B. Short, Licensing Specialist
C. Simpson, U2 Operations Training Superintendent
D. Stringer, EP&C
G. Thompson, Supervisor, Chemistry
F. VanBuskirk, Licensing Specialist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01) (Section 4OA5)
05000313;05000368/ 2010004-05	VIO	Failure to Adequately Implement Foreign Material Exclusion Controls (Section 1R20)

Opened and Closed

05000368/2010004-01	NCV	Excessive Overlap of Unit 2 Written Examinations (Section 1R11)
05000313/2010004-02	NCV	Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Emergency Diesel Generators Heating, Ventilation, and Air Conditioning Ducting Susceptibility to Tornado Loading (Section 1R15)
05000313/2010004-03	NCV	Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Emergency Switchgear Chiller VCH-4A (Section 1R18).
05000313/2010004-04	FIN	Failure to Follow Station Work Control Procedure Results in Unavailable Equipment (Section 1R19)
05000313/2010004-06	NCV	Failure to Correctly Translate VCH-4B Design Requirements into Installed Plant Equipment (Section 1R22)
05000368/2010004-07	NCV	Failure to Provide an Accurate Shipping Manifest (Section 2RS08)
05000368/2010004-08	NCV	Failure to Follow Procedures and Generate Adequate Work Orders for Maintenance on Safety Related Equipment (Section 4OA2.4)
05000318/2010004-09	NCV	Failure to Follow Procedure Results in Draining Unit 1 Pressurizer to Reactor Building Floor (Section 4OA2.5)

Closed

2515/173	TI	Review of the Implementation of the Industry Groundwater Protection Voluntary Initiative, Revision 1 (Section 4OA5)
05000313/2009005-07	URI	Diesel Generator Ventilation Systems Susceptibility to the Depressurization Effects of a Tornado (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
OP-2106.006	Emergency Feedwater System Operations	76
OP-1106.006	Emergency Feedwater Pump Operation	79 & 80
OP-1104.005	Reactor Building Spray System Operation	59
OP-2104.037	Alternate AC Diesel Generator Operations	19
OP-2104.036	Emergency Diesel Generator Operations	75
OP-1104.004	Decay Heat Removal Operating Procedure	90

DRAWINGS

NUMBER	TITLE	REVISION
M-2217 sheets 1-3	Unit 2 Emergency Diesel Generator Auxiliary Systems	
M-2236 sheet 4	Unit 2 Emergency Feedwater System	66
E-2005 sheet 2	Alternate AC Generator System and 4.16KV Generation and Switchgear	1
M-2204 sheet 1	Unit 2 Emergency Feedwater System	150
7-DH-1	Large Pipe Isometric Decay Heat Removal To Reactors	20
7-DH-3	Large Pipe Isometric Decay Heat Removal From Reactor	19
7-DH-4	Large Pipe Isometric Decay Heat Removal From Reactor	23
7-DH-5	Large Pipe Isometric Decay Heat Removal Pump Discharge	9
7-DH-11	Large Pipe Isometric Decay Heat Removal Pump Discharge	21

7-DH-12	Large Pipe Isometric Engineered Safeguards Pump Suction Header	20
M-232-1	Decay Heat Removal System	103

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
FHA	Arkansas Nuclear One Fire Hazard Analysis	13
PFP-U1	ANO Prefire Plan (Unit 1)	12
PFP-U2	ANO Prefire Plan (Unit 2)	10

DRAWINGS

NUMBER	TITLE	REVISION
FZ-1032	Unit 1 fire zone detail – north and south Emergency Diesel Generator rooms	2
FZ-2039	Unit 2 fire zone detail - upper south electrical penetration room	2
FZ-2051	Unit 2 fire zone detail – Hot Instrument shop, Tool Room and Auxiliary Building Corridor	2
FZ-2045	Unit 2 fire zone detail – Electrical Equipment and Cable Spreading room	2

Section 1R06: Flooding

PROCEDURES

NUMBER	TITLE	REVISION
ULD-0-TOP-17	ANO Topical Flooding	0

CALCULATION

NUMBER	TITLE	REVISION
CALC-89-E-0042-35	ANO-1 Internal Flooding Analysis	0

CALC-92-R-0024-01	Flooding Evaluation INPO SOER 85-5	0
CALC-92-R-0034-01	Flooding Evaluation INPO SOER 85-5-2nd Iteration	0

Section 1R11: Licensed Operator Requalification

PROCEDURES

NUMBER	TITLE	REVISION
EN-TQ-114	Licensed Operator Requalification Training Description	3
EN-TQ-210	Conduct of Simulator Training	3
EN-TQ-201	Systematic Approach to Training Process	13
EN-TQ-205	Training Exemptions	1

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
Written Exams	U1 and U2 Weeks 1 through 6 Biennial Exams (RO and SRO)	July 2010
JPM's	U1 and U2 Reviewed weeks 1 through 6 for overlap	July 2010
1063.008	License Reactivation Procedure	39
ANO LER's	All 16 LER's from 2008-2010 for both Units	N/A
QA-19-2010	QA Audit Report for Training	February 2010
Simulator Test	Steady State 100% Power	January 2010
Simulator Test	Transient Test LOCA with LOOP	January 2010
Simulator Test	Transient Test Load Reject from 100% Power	March 2010
DR-2007-0029	Simulator Closed Work Package	April 2007
DR-2010-0118	Simulator Open Work Package	February 2010

CONDITION REPORTS

ANO-2-2008-0924	ANO-2-2009-0254	ANO-2-2010-0327
ANO-2-2008-1318	ANO-2-2009-2002	ANO-2-2010-0764
ANO-2-2008-1761	ANO-2-2009-2207	ANO-2-2010-1460
ANO-2-2008-2056	ANO-2-2009-2321	ANO-2-2010-1830
ANO-2-2008-2609	ANO-2-2009-2352	ANO-2-2010-2056
ANO-2-2009-0145	ANO-2-2009-2391	

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
EN-DC-203	Maintenance Rule Program	1
EN-DC-204	Maintenance Rule Scope and Basis	1
EN-DC-205	Maintenance Rule Monitoring	2
EN-DC-206	Maintenance Rule (a)(1) Process	2

MISCELLANEOUS

TITLE

Unit 1 High Pressure Injection Maintenance Rule Database and Scoping Document

Unit 2 Emergency Feedwater Maintenance Rule Database and Scoping Document

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	31

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
EN-OP-104	Operability Determinations	4

CONDITON REPORTS

ANO-2-2010-1158	ANO-2-2010-1229	ANO-2-2010-1402
ANO-2-2010-1009	ANO-C-2007-1308	ANO-C-2007-1469

ANO-C-2009-2296	ANO-1-2010-2614	ANO-2-2010-1327
ANO-1-2010-2815	LO-LAR-2006-0171	

MISCELLANEOUS

NUMBER	TITLE	REVISION
EC-23352	Operability Input for CR-ANO-2-2010-1158 and CR-ANO-2-2010-1229	
EC-18589	Determine Effects of Tornado Induced DP Effects on EDG Room Ductwork and Dampers Using Reg Guide 1.76 Rev. 1 Non-Design Basis Study Calc	
ULD-1-STR-01	ANO-1 Auxiliary Building	1
	Evaluation of the Ultimate Pressure Capacity of Rectangular HVAC Ducts for Nuclear Power Plants (Volume 2 of ASCE “Structural Engineering in Nuclear Facilities.”)	
EC-23940	Tornado Differential Pressure Effects on ANO-1 EDG Room Duct Work and Damper	0

CALCULATION

NUMBER	TITLE	REVISION
CALC-09-E-0020-01	Maximum DP Across Ducts Serving the ANO-1 EDG Rooms During A Tornado	0
CALC-09-E-0020-02	Maximum DP Across Ducts Serving the ANO-2 EDG Rooms During A Tornado	0
CALC-09-E-0020-03	Tornado Induced DP Effects on EDG Room Ductwork and Dampers	0

Section 1R18: Plant Modifications

PROCEDURES

NUMBER	TITLE	REVISION
OP-1104.027	Battery and Switchgear Emergency Cooling System	35

CONDITION REPORTS

ANO-1-2009-2122	ANO-1-2008-0098

Section 1R19: Postmaintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OP-2104.036	Emergency Diesel Generator Operations	75
OP-2402.147	Unit 2, 2K-4 Diesel Engine Maintenance	5

CONDITION REPORTS

ANO-1-2010-2260	ANO-1-2010-2105	ANO-1-2010-1347
ANO-2-2010-1694	ANO-2-2010-1765	ANO-2-2010-1867
ANO-2-2010-1699	ANO-2-2010-1778	ANO-2-2010-1870
ANO-2-2010-1710	ANO-2-2010-1787	ANO-2-2010-1885
ANO-2-2010-1717	ANO-2-2010-1794	ANO-2-2010-1889
ANO-2-2010-1718	ANO-2-2010-1796	ANO-2-2010-1897
ANO-2-2010-1719	ANO-2-2010-1826	ANO-2-2010-1911
ANO-2-2010-1725	ANO-2-2010-1844	ANO-2-2010-1914
ANO-2-2010-1729	ANO-2-2010-1857	ANO-2-2010-1920
ANO-2-2010-1741	ANO-2-2010-1858	ANO-2-2010-1939
ANO-2-2010-1744	ANO-2-2010-1861	ANO-2-2010-1958
ANO-2-2010-1965	ANO-2-2010-1349	ANO-2-2010-1350
ANO-2-2010-1981	ANO-2-2010-1343	ANO-C-2010-2084

MISCELLANEOUS

NUMBER	TITLE
EC-23515	Evaluate VCH-4B Operability for temporary modification to remove lockout feature for TS-6060

EC-8569	Replace Containment Spray Flow Transmitter 2FT-5610
ULD-2-SYS-01	Emergency Diesel Generator System

WORK ORDERS

241315	52207054	242042
52026722	51667640	

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

NUMBER	TITLE	REVISION
OP-2102.001	Plant Pre-Heatup and Pre-Critical Checklist	68
EN-MA-118	Foreign Material Exclusion	5

WORK ORDERS

216672	162137	52236360	225146
224527	205511	158163	52032679
51670771	165587	214644	51695579
52024097	52218289	52195142	51683823
51697557	219285	51694251	51694250
51696279	52031347	247292	51697564
52242656	52215030	51696280	52215029
52201736	52224471	156861	52027898
51662172	241691	216670	51699369
201963	214536	52024097	162884
51699371	51699370	160017	216672

216667	52026721	162884	225146

MISCELLANEOUS

NUMBER	TITLE
EC-24293	Evaluate Seismic Scaffold Erected in Unit 2 Containment for all Plant Conditions

CONDITION REPORTS

ANO-1-2008-2491	ANO-2-2009-2843	ANO-2-2010-1839
ANO-2-2010-1868	ANO-C-2009-0720	ANO-C-2010-0688
ANO-C-2010-1570	ANO-C-2010-2192	ANO-C-2010-2684
LO-ALO-2009-0153	LO-ALO-2010-0040	LO-ALO-2009-0018

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OP-1106.006	Unit 1 Emergency Feedwater Pump Operation	80
OP-1104.027	Unit 1 Battery and Switchgear Cooling System	35
OP-2304.236	Unit 2 Emergency Feedwater Flow and Pressure Green Channel Calibration	12
OP-1104.029	Service Water and Auxiliary Cooling System	77
OP-1305.018	Local Leak Rate Testing-Type C	20
OP-2104.005	Containment Spray	59
OP-2104.036	Emergency Diesel Generator Operations	68
OP-1103.013	RCS Leak Detection	34
OP-2305.002	Reactor Coolant System Leak Detection	21

WORK ORDER

243163	52205155

MISCELLANEOUS

TITLE

Equipment Qualification Data Record Sheets 2B010, 2B007, and 2A247

CONDITION REPORTS

ANO-1-2010-0653 ANO-1-2010-0754

Section 2RS06: Radioactive Gaseous and Liquid Effluent Treatment

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
QA-216-2009-ANO-1	Combined Chemistry, Effluents, and Environmental Monitoring	August 7, 2009

COMPENSATORY SAMPLING

UNIT	MONITOR	DATE
2	SPING 7	October 13, 2009
2	SPING 7	October 31, 2009

CORRECTIVE ACTION DOCUMENTS

C-2008-01583	2-2009-00360	C-2008-01778	1-2010-01657	1-2010-02067
2-2009-01917	2-2009-00386	1-2009-01300	1-2009-02288	1-2010-00089
C-2010-01373	1-2010-00101	2-2009-00350	C-2008-01612	

IN-PLACE FILTER TESTING RECORDS

SYSTEM	WORK ORDER	DATE
Penetration Room Ventilation (VEF-38A)	51561623	May 7, 2009
Penetration Room Ventilation (VEF-38B)	51547088	February 3, 2009
VSF-9 Emergency Air Recirculation	51547584	February 3, 2009
2VSF-9	51557857	May 6, 2009

MISCELLANEOUS DOCUMENTS

TITLE

Annual Radioactive Effluent Release Report for 2008

Annual Radioactive Effluent Release Report for 2009

PROCEDURES

NUMBER	TITLE	REVISION
1052.003	Nuclear Chemistry Quality Control Program	26
1604.015	Analysis of Unit Vent	17
2607.010	Sampling the Unit 2 Vents	16

RELEASE PERMITS

2GR 2009-0136	2 GR 2009-0150	2GR 2009-0153	1LR 2009-0059

Section 2RS07: Radiological Environmental Monitoring Program

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
QA-2/6-2009-ANO-1	Quality Assurance Audit Report; Combined Chemistry, Effluents and Environmental Monitoring	August 7,2009

CONDITION REPORTS

C-2008-01067	C-2008-02584	C-2009-00016	C-2009-00714	C-2009-00605
C-2009-00621	C-2009-00926	1-2009-01046	2-2009-01635	C-2010-00077
C-2010-00323	C-2010-00551	C-2010-01074		

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
W/O 52037947	Perform the Semi-Annual Meterological Monitoring Calibration	April 2, 2010

PROCEDURES

NUMBER	TITLE	REVISION/DATE
1608.005	Radiological Environmental Monitoring Program	35
1042.003	RadioChemistry Routine Surveillance Schedule and Tech. Spec. Reporting	27
1012.018	Administration of Radiological Surveys	12
	Annual Radiological Environment Operating Report for 2009	May 11, 2010
	Annual Radiological Environment Operating Report for 2008	May 13, 2009

Section 2RS08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

CONDITION REPORTS

ANO-C-2009-1008 ANO-C-2009-1039 ANO-C-2009-2051

MISCELLANEOUS

NUMBER	TITLE	DATE
199825001	10 CFR Part 61 Analysis for DAW Smears	April 11, 2008
199825007-1	10 CFR Part 61 Analysis for Oil	October 2, 2008
199825003	10 CFR Part 61 Analysis for Unit 1 RCS	October 2, 2008
224919001	10 CFR Part 61 Analysis for DAW Smears	March 31, 2009
218075001	10 CFR Part 61 Analysis for Unit 2 RCS	October 7, 2009
	Annual Radioactive Effluent Release Report for 2008	

PROCEDURES

NUMBER	TITLE	REVISION
EN-RW-101	Radioactive Waste Management	2
EN-RW-102	Radioactive Shipping Procedure	7
EN-RW-104	Scaling Factors	6
EN-RW-105	Process Control Program	1
1601.506	Radioactive Waste Management Program Surveillances	2

RADIOACTIVE MATERIAL SHIPMENTS

NUMBER	TITLE	DATE
RSR-09-051	20 Unit 2 SFP Filters	May 19, 2009
RSR-09-110	5 Gallon Drum with Alpha Smears	October 12, 2009
RSR-10-053	Unit 1 Primary Resin Samples	April 28, 2010
RSR-10-059	P-32C RCP Motor Impeller	May 3, 2010

Section 40A2: Identification and Resolution of Problems

PROCEDURES

NUMBER	TITLE	REVISION
OP-2304.134	Unit 2 EDG 2K-4A Instrument Calibration	19

EN-WM-105	Planning	7
OP-2304.126	Unit 2 Containment Temperature and Dewpoint Instrument Calibration	15
EN-FAP-WM-11	Work Planning Standard	0

CONDITION REPORTS

ANO-2-2010-1736	ANO-2-2010-1350	ANO-2-2010-1865	ANO-C-2010-1575
ANO-C-2010-1962	ANO-C-2010-1964	ANO-C-2010-2114	ANO-C-2010-2119
ANO-C-2010-2140	ANO-2-2010-1751	ANO-C-2010-2132	

WORK ORDERS

83251	205016	51801189	209815
243722	244246	52026722	

Section 4OA5: Other Activities

MISCELLANEOUS

TITLE	REVISION/DATE
Annual Radiological Environment Operating Report for 2009	May 11, 2010
Annual Radiological Environment Operating Report for 2008	May 13, 2009
NEI Groundwater Protection Initiative, NEI Peer Assessment Report	December 10, 2009
Tritium in Groundwater Evaluation Arkansas Nuclear One	July 26, 2006
GPI Data Review Arkansas Nuclear One	April 2009
Groundwater Monitoring Plan	2

PROCEDURES

NUMBER	TITLE	REVISION
EN-CY-108	Monitoring of Nonradioactive Systems	3
EN-CY-111	Radiological Groundwater Monitoring Program	0
EN-DC-343	Buried Piping and Tanks Inspection and Monitoring Program	2
EN-RP-113	Response to Contaminated Spills/Leaks	4

CONDITION REPORTS

ANO-C-2010-01373 ANO-C-2010-0493 ANO-C-2009-2590 ANO-C-2009-0445

ANO-1-2009-0281 ANO-C-2009-1415