

## Arkansas Nuclear 2

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### Initiating Events

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### Mitigating Systems



**Significance:** Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **INOPERABILITY OF UNIT 2 FIRE DOOR 269**

On June 26, 2000, the inspectors identified that Fire Door 269, which separates the North and South Unit 2 vital switchgear rooms, was not operable. Fire Door 269 was a 3-hour rated fire barrier that separated redundant trains of equipment necessary for safe shutdown of the reactor following a fire. It consisted of a double door with one side normally latched at the top and bottom in a stationary position. This stationary door was found not latched and both doors could be pushed open with slight pressure. This condition existed for approximately 3.5 days. The failure to maintain Fire Door 269 operable was identified as an apparent violation of ANO Unit 2 License Condition 2.C.(3)(b), "Fire Protection." This apparent violation was preliminarily determined to be white using the significance determination process. It was postulated that fire in the south switchgear room could damage one train of safe shutdown equipment and could propagate through the inoperable fire door into the north switchgear room and damage the redundant train of safe shutdown equipment. The simultaneous unavailability of both trains of safe shutdown equipment could result in the loss of a mitigation function necessary to prevent core damage in the event of a fire-induced transient. The licensee provided a letter dated October 24, 2000, which identified that qualified roving firewatches traversed the ANO-2 north and south vital switchgear rooms on an hourly basis during the time that Fire Door 269 was unlatched. An hourly roving firewatch was an acceptable compensatory measure for this inoperable fire barrier. However, the firewatch had not been properly established and documented on a firewatch posting record as required by fire protection program implementing procedures. This was a violation of Technical Specification 6.8.1.f, which required that written procedures shall be established, implemented, and maintained covering the fire protection program. This is being treated as a noncited violation in accordance with Section VI.A of the NRC Enforcement Policy. It is in the licensee's corrective action program as Condition Report 2-2000-225. This noncited violation was characterized as a green finding using the fire protection significance determination process. It was determined to have very low safety significance because credit for compensatory measures resulted in a degradation rating of "moderate" versus "high" in determining the fire barrier degradation term. This resulted in a final significance determination of green. The NRC sent a letter to the licensee transmitting this final significance determination on December 7, 2000, (EA-00-202).

Inspection Report# : [2000016\(pdf\)](#)



**Significance:** Jul 22, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **CHECK VALVE MAINTENANCE PROCEDURE WAS NOT OF A TYPE APPROPRIATE TO THE CIRCUMSTANCES**

Green. On July 22, 2000, the licensee conducted a reverse flow test of Unit 2 high pressure injection system hot leg injection Valve 2SI-26A and found that the valve was inoperable. This Borg-Warner pressure seal bonnet check valve was determined to have been reassembled incorrectly during maintenance on November 11, 1999. Postmaintenance reverse flow testing did not identify this condition because the valve had not been exercised in the open direction first. The valve maintenance procedure was not of a type appropriate to the circumstances of its use because it did not ensure correct vertical orientation of the valve bonnet during reassembly. This was determined to be a violation of 10 CFR Part 50, Appendix B, Criterion V and is being treated as a noncited violation in accordance with Section VI.A of the NRC Enforcement Policy. It is in the licensee's corrective action program as Condition Report ANO-2-2000-270. This noncited violation was characterized as a green finding using the significance determination process. It was determined to have very low safety significance because other non-leaking valves precluded reverse flow through Valve 2SI-26A and high pressure safety injection system overpressurization. Therefore, the safety function of the associated systems was not affected.

Inspection Report# : [2000009\(pdf\)](#)



**Significance:** Jun 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO PERFORM A 10 CFR 50.59 EVALUATION FOR A CHANGE TO THE UNIT 2 SAR THAT CAUSED BOTH TRAINS OF EMERGENCY FEEDWATER TO BE INOPERABLE DURING SURVEILLANCE TESTING**

The inspectors determined that a violation of 10 CFR 50.59 occurred in that the licensee failed to adequately evaluate whether a change to the

Updated Final Safety Analysis Report was an unreviewed safety question (EA-01-201). Specifically, on September 2, 1998, the licensee completed a 10 CFR 50.59 screening determination which concluded that adding a statement to the Unit 2 UFSAR allowing Valve 2EFW-706 (emergency feedwater suction from the startup/blowdown demineralizer system) to be opened during surveillance testing did not require a safety evaluation per 10 CFR 50.59, because the change was inconsequential. However, the evaluation was inadequate because it did not recognize that the practice of opening Valve 2EFW-706 at greater than 10 percent power introduced a common mode failure potential not previously evaluated as acceptable by the NRC. Pump cavitation would occur after a loss of condensate pumps, making both pumps inoperable each time Valve 2EFW-706 was opened. This violation is being treated as a noncited violation and is in the licensee's corrective action program as Condition Reports ANO-2-2001-349 and ANO-2-2001-440. Having both trains of emergency feedwater inoperable during surveillance testing was evaluated using the significance determination process. The condition was determined to be of very low safety significance (Green) because: the cumulative time that Valve 2EFW-706 was open was only about 1 day per year; core damage required a concurrent loss of condensate pumps, failure to recover the emergency feedwater pumps, and failure to initiate once-through core cooling; and credit was given for operator recovery actions to close Valve 2EFW-706 on a loss of condensate pumps and for operator recovery actions to vent the emergency feedwater pumps.

Inspection Report# : [2001002\(pdf\)](#)



**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **INDIVIDUAL WITHOUT REQUIRED TRAINING PERFORMED FIRE WATCH PATROLS**

During an audit of fire watch post log sheets, the inspectors determined that a person who did not have required fire watch training had performed hourly fire watch patrols in the Unit 2 intake structure on approximately 12 occasions between April 18-20, 2000, and in the Unit 2 emergency diesel generator (EDG) corridor on approximately 33 occasions between April 11 and May 4, 2000. Unit 2 Technical Specification 6.8.1.f required that written procedures shall be established, implemented, and maintained covering Fire Protection Program implementation. Procedure 1000.152 was a procedure that implemented the Fire Protection Program and required that fire watch personnel be trained in their duties. Not having a trained individual perform fire watch duties is a violation of Procedure 1000.152 and Technical Specification 6.8.1.f. This noncited violation was determined to have very low safety significance because for each location, the fire mitigation frequency and initiating event frequency were estimated to be low (approximately 1 per 104-105 year) using the fire protection significance determination process. The exposure time of inadequate hourly fire watch patrols during the period of concern was less than 3 days, which produced a Green result in the risk significance determination matrix.

Inspection Report# : [2000013\(pdf\)](#)



**Significance:** Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

#### **OPERATOR ERROR RESULTED IN UNPLANNED TECHNICAL SPECIFICATION ACTION STATEMENT ENTRY FOR TRAIN B LOW PRESSURE INJECTION AND REACTOR BUILDING SPRAY PUMPS**

Unit 1 Technical Specification 6.8.1.a required that written procedures shall be established, implemented, and followed as identified in Appendix A of Regulatory Guide 1.33, November 1972. Procedure 1015.001, Revision 52, "Conduct of Operations," a procedure required by Technical Specification 6.8.1.a, required that limiting conditions for operations entries for removal from service for surveillance testing, preventive maintenance, adjustment, or repair be recorded in the station log and plant/safety system status board. On March 13, 2001, an operator removed an access cover from Unit Cooler VUC-1C, which provided essential room cooling capability for the Train B low pressure injection Pump P-34B and reactor building spray Pump P-35B without authorization. This resulted in these pumps being inoperable for 28 hours and 15 minutes until the condition was discovered. The allowed outage time for these components was 36 hours. The status of VUC-1C and the required limiting conditions for operations entries for Pumps P-34B and P-35B were not made in the station log or plant/safety system status board as required by Procedure 1015.001. The finding was of very low significance because the allowed outage time for these components was not exceeded and the redundant train components were operable. This condition was identified by the licensee and corrective actions were specified in CR ANO-1-2001-170.

Inspection Report# : [2000013\(pdf\)](#)



**Significance:** Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

#### **TECHNICAL SPECIFICATION VIOLATION DUE TO CHANNEL B CPC TEST SWITCH MALFUNCTION WHILE CHANNEL D EXCORE NUCLEAR INSTRUMENT WAS INOPERABLE**

Technical Specification 3.3.1.1 requires that the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be operable. Contrary to the above, between August 25 and 31, 1999, the number of operable channels did not meet the requirements of Table 3.3-1 and the required actions were not taken. The finding was of very low significance because of the limited duration of this condition and its effect on Channel B CPC. This condition was identified by the licensee and corrective actions were specified in Condition Report ANO-2-1999-0581. This condition was reported in LER 50-368/1999-005-00.

Inspection Report# : [2000013\(pdf\)](#)

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**Significance:** Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**TECHNICAL SPECIFICATION VIOLATION DUE TO INOPERABILITY OF CHANNEL D EXCORE NUCLEAR INSTRUMENT**

Technical Specification 3.3.1.1 requires that the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be operable. Contrary to the above, on several occasions between March 7 and April 14, 1999, the minimum required channels operable required by Table 3.3-1 were not met and the required actions were not taken. The finding was of very low significance because the licensee performed an evaluation which determined that at the period of core life that this condition existed, the departure from nucleate boiling ratio and local power density values calculated by Channel D CPC would actually have been conservative and that no specified acceptable fuel design limit would have been approached during a design basis event. This condition was identified by the licensee and corrective actions were specified in Condition Report ANO-2-1999-0378. This condition was reported in LER 50-368/1999-004-00. Inspection Report# : [2000013\(pdf\)](#)

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**Barrier Integrity**

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**Significance:** Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**MAIN STEAM SAFETY VALVE SETTINGS DID NOT MEET TECHNICAL SPECIFICATION REQUIREMENTS (OUT OF TOLERANCE HIGH)**

Technical Specification 3.7.1.1 requires that all main steam line code safety valves shall be operable with lift settings as specified in Table 3.7-5. If one or more main steam line code safety valves are inoperable, actions must be taken in accordance with Action a. of Technical Specification 3.7.1.1. Contrary to the above, on January 7 and 8, 1999, two main steam line code safety valves did not have lift settings in accordance with Table 3.7-5, and the requirements of Action a. of Technical Specification 3.7.1.1 were not met. The finding was of very low safety significance because the licensee performed an evaluation of the appropriate events in the Updated Final Safety Analysis Report and determined that with the as-found setpoint values, sufficient relief capacity was available to ensure that the primary and secondary design limits as well as the emergency core cooling system performance criteria were not violated. This condition was identified by the licensee and corrective actions were specified in Condition Reports ANO-2-1999-0275 and ANO-2-1999-0011. This condition was reported in LERs 50-368/1999-001-01 and 50-368/1999-001-00. Inspection Report# : [2000013\(pdf\)](#)

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**Emergency Preparedness****Occupational Radiation Safety**

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**Significance:** Sep 18, 2000

Identified By: NRC

Item Type: FIN Finding

**THE PROBLEM IDENTIFICATION AND RESOLUTION PROCESS DID NOT CORRECT THE SELF CONTAINED BREATHING APPARATUS TRAINING INADEQUACY**

Green. The problem identification and resolution process did not correct the self contained breathing apparatus training inadequacy. Despite discussions of similar problems in NRC Information Notice 98-20 and a quality assurance surveillance that alerted the licensee to a missing element in its training program, the licensee failed to correct the problem. This issue was characterized as a green finding because the significance of the related technical issue.

Inspection Report# : [2000009\(pdf\)](#)

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**Significance:** Sep 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**TRAINING PROCEDURE FOR THE USE OF SELF CONTAINED BREATHING APPARATUSES WAS INADEQUATE**

Green. The inspectors determined that the licensee's training procedure for the use of self contained breathing apparatuses was inadequate. The training did not address air bottle changeout. This could be risk significant if events caused emergency response workers, such as operations personnel, to be in an atmosphere that is immediately dangerous to life or health for an extended time. The failure to establish an adequate training procedure is a violation of 10 CFR 20.1703(c)(4)(ii), which requires the licensee to implement and maintain a respiratory protection program that includes written procedures regarding training of respirator users. This violation is being treated as a noncited violation in accordance with Section VI.A of the NRC Enforcement Policy and is in the licensee's corrective action program as Condition Report CR-ANO-C-2000-0207. This noncited violation was characterized as a green finding based on the use of the emergency preparedness significance determination process. It was determined to have a very low safety significance because it did not involve the failure to implement or meet an emergency preparedness planning standard and there had been no actual event.

Inspection Report# : [2000009\(pdf\)](#)

**Significance: N/A** May 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO DOCUMENT AND EVALUATE THE REASONS FOR INCREASING DOSE ESTIMATES**

On May 31, 2001, the inspectors identified three examples in which the licensee increased the person-rem exposure estimates on two radiation work permits without documenting the reasons why the additional exposure was necessary. The failure to document the reasons for the additional exposure is a violation of Technical Specification 6.8.1.(a). This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Condition Report ANO-C-2001-0297. The safety significance of this finding was determined to be more than minor because documenting the reasons for changing dose estimates was used, in part, to evaluate whether the task was being performed ALARA and to determine if additional ALARA controls were necessary. As a result, the failure to document the reasons for changing the person-rem estimates could cause additional unnecessary worker dose, resulting in a credible impact on safety. However, this issue did not affect the Occupational Radiation Safety cornerstone since there were no unplanned or unintended doses that resulted from actions contrary to Technical Specifications requirements.

Inspection Report# : [2001002\(pdf\)](#)

**Significance: SL-IV** Mar 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**THE LICENSEE HAD NO PROCESS TO TRACK THE TOTAL EXPOSURE OF ANO RADIATION WORKERS WHO WERE ALSO LICENSED AS RADIOGRAPHERS.**

The licensee had no process to track the total exposure of ANO radiation workers who were also licensed as radiographers as required by 10 CFR 20.2104(a). This violation of 10 CFR 20.2104(a) is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation was entered into the licensee's corrective action program as Condition Report CR-ANO-C-2001-0102. The significance of this noncited violation was determined to be more than minor because the failure to track the total exposure of radiation workers could lead to an overexposure credible impact on safety. However, this issue did not affect the cornerstone since there were no over exposures or substantial potential for an over exposures to occur and the ability to assess dose was not comprised.

Inspection Report# : [2001005\(pdf\)](#)

## Public Radiation Safety



**Significance:** Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**FAILURE TO CONTROL RADIOACTIVE MATERIAL**

Technical Specification 6.8.1 requires written procedures be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A, Section 7 references procedures for control of radioactivity. Procedure 1012.020, Radioactive Material Control, Change 006-01-0, Section 6.10, states that any item or material, other than liquids or granular solids and not otherwise excepted, may be unconditionally released from radiological restrictions when it has been evaluated to have no accessible areas that may have become contaminated and has no detectable contamination greater than the minimum sensitivity of the combined survey method and instrument. Items with detectable radioactive contamination greater than the minimum sensitivity of the licensee's instruments were released from the controlled access area on February 12, March 18, and May 4, 1999, as described in the licensee corrective action program in Condition Reports 2-1999-0307, 2-1999-0344, and C-1999-0128. There were no more than 5 occurrences and a member of the public did not receive more than 5 millirems; therefore, this finding had very low significance.

Inspection Report# : [2000013\(pdf\)](#)

## Physical Protection

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## Miscellaneous

**Significance:** N/A Mar 22, 2001

Identified By: NRC

Item Type: FIN Finding

### **LICENSEE'S PROBLEM IDENTIFICATION AND RESOLUTION PROGRAM**

The licensee adequately identified problems and put them into the corrective action program. However, there was one instance in which the licensee did not recognize that the total exposure of ANO radiation workers who were also licensed as radiographers was not being recorded in accordance with regulatory requirements. The licensee adequately used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementation of corrective actions. Licensee audits and assessments critically assessed the licensee's problem identification and resolution activity and identified needs for improvement in a number of areas including root cause evaluation, timely condition report initiation, and condition report backlogs. During inspection interviews, workers at the site expressed no reservations to input safety issues into the problem identification and resolution program. The licensee generally implemented corrective actions in a timely manner. The licensee implemented effective corrective actions to prevent recurrence of significant conditions adverse to quality.

Inspection Report# : [2001005\(pdf\)](#)

Last modified : March 29, 2002