

Fort Calhoun

Initiating Events

Mitigating Systems



Significance: Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE PROCEDURE FOR CONTROL ROOM VENTILATION OPERATIONS

The licensee did not have adequate documented instructions for operation of the control room air conditioner. As a result, on two separate occasions operators attempted to start a train of control room air conditioning and the unit started under full load conditions and tripped. This was a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" and was determined to be a finding of very low safety significance because the control room equipment remained operable.

Inspection Report# : [2002004\(pdf\)](#)



Significance: Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE PROCEDURE FOR SAFETY-RELATED 4kV BUS GROUND DETECTION OPERATIONS

The licensee did not have documented instructions for ensuring the safety-related 4 kV Bus ground detection circuitry was in service. As a result, the licensee transferred power supplies for the bus and the indication of a ground cleared when the actual ground condition was still present. The licensee ultimately identified the problem and removed the ground from the bus. This was a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" and was determined to be a finding of very low safety significance because the bus remained operable and capable of performing its design function.

Inspection Report# : [2002004\(pdf\)](#)



Significance: May 29, 2002

Identified By: NRC

Item Type: FIN Finding

Nonconservative controls of containment cleanliness

The licensee exercised a nonconservative decision making process when controlling foreign materials in containment and eliminating the potential for blocking the Emergency Core Cooling System Suction Strainers. As a result, approximately 20 55-gallon drums with paper taped onto the lid on the same elevation as the sumps and several hundred other pieces of tape remained in containment during initial plant heatup following a refueling outage. This finding was of very low safety significance because the containment emergency sumps remained available.

Inspection Report# : [2002002\(pdf\)](#)



Significance: Mar 08, 2002

Identified By: NRC

Item Type: FIN Finding

Failure to implement immediate corrective actions

The licensee failed to implement immediate corrective action to prevent recurrence of opening the containment tendon stressing gallery door without obtaining the required fire impairment. Operations personnel unlocked and opened the containment tendon stressing gallery door three weeks after the fire without obtaining a fire impairment. This finding was of very low safety significance because no safety equipment was declared inoperable as a result of the open door.

Inspection Report# : [2002006\(pdf\)](#)



Significance: Mar 08, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

Unauthorized modification of drum heater plugs

Licensee personnel performed unauthorized modifications to the plugs of two drum heaters, allowing them to be inserted into underrated outlets and extension cords. These modifications ultimately caused the containment tendon stressing gallery fire. This was a noncited violation of Technical Specification 5.8.1. This finding was of very low safety significance because no safety equipment was rendered inoperable as a result of the fire in the containment tendon stressing gallery.

Inspection Report# : [2002006\(pdf\)](#)

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Significance: Mar 08, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate corrective actions for nonload shedding electrical outlets

The license failed to implement adequate corrective actions for the control of non-load shedding electrical outlets. As a result, on three separate occasions since December 1999 the licensee placed unapproved and unanalyzed loads on nonload shedding busses. This was a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." This finding was of very low safety significance because the diesel generator load limit margins were not exceeded and the diesel generators remained operable.

Inspection Report# : [2002006\(pdf\)](#)

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Significance: Mar 08, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

Failure to follow work order

The licensee failed to implement the requirements of a work order during the performance of the containment tendon stressing gallery work. As a result, work order steps were not performed and a fire impairment permit was not obtained. As a result, a fire watch was not established to compensate for an open fire barrier. This was a noncited violation of Technical Specification 5.8.1. This finding was of very low safety significance because no safety equipment was ultimately rendered inoperable as a result of the fire in the containment tendon stressing gallery.

Inspection Report# : [2002006\(pdf\)](#)

G

Significance: Mar 08, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

Failure to update a fire protection program procedure

The licensee failed to perform the required updates of a fire protection program implementing procedure. As a result, a fire impairment was not initiated when the containment tendon stressing gallery door was opened. Therefore, a fire watch was not established to compensate for an open fire barrier. This was a noncited violation of Technical Specification 5.8.5. This finding was of very low safety significance because no safety equipment was ultimately rendered inoperable as a result of the fire containment tendon stressing gallery.

Inspection Report# : [2002006\(pdf\)](#)

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Significance: Mar 01, 2002

Identified By: NRC

Item Type: FIN Finding

Fire Protection of Diesel-Driven Auxiliary Feedwater Pump

The six fire protection sprinklers in the diesel-driven auxiliary feedwater pump room were located approximately 5 feet below the ceiling and would most likely not actuate until a fire in the room reached a considerable strength. The delay in actuation would result from the need for the hot gas layer to descend to the elevation of the sprinklers, which are normally positioned very close to the ceiling. Because the issue did not involve NRC regulations, a violation was not identified. This finding was of very low safety significance because the diesel-driven pump is not credited in the accident analysis (it is not safety-related, but has high risk significance), sensors in the room would cause a control room alarm, and manual suppression would be available. The licensee entered this issue into its corrective action program as Condition Report 200200498.

Inspection Report# : [2002003\(pdf\)](#)

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Significance: Mar 01, 2002

Identified By: NRC

Item Type: FIN Finding

Inventory of Diesel-Driven Auxiliary Feedwater Pump Fuel Oil Day Tank

The fuel oil inventory in the day tank supplying the diesel-driven auxiliary feedwater pump was not being directly verified by the licensee's surveillance program. Instrument drift could result in failure to meet the design intent of maintaining the tank half full to provide a 4-hour run

of the pump (which is not safety-related, but has a high risk significance). Because the issue did not involve NRC regulations, a violation was not identified. This finding was of very low safety significance because there was no actual loss of safety function and the diesel engine has an integral generator that can power a transfer pump to replenish the day tank. The licensee entered this issue into its corrective action program as Condition Report 200200496.

Inspection Report# : [2002003\(pdf\)](#)

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Significance: Mar 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Defective Emergency Diesel Generator Air Starting System Air Relay Valves

The licensee failed to take adequate corrective actions following discovery of a degraded emergency diesel generator air start system air relay valve in October 2001 and also failed to take adequate corrective actions following the operational failure of this valve in December 2001. This was identified as a violation of Criterion XVI to Appendix B of 10 CFR Part 50, "Corrective Action." This finding was of very low safety significance since there was no actual loss of safety function (the emergency diesel generator started successfully on its backup air starting system). Because of the low safety significance and the licensee's action to place the issue in their corrective action program (Condition Reports 2001-03772 and 2002-00475), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-01).

Inspection Report# : [2002003\(pdf\)](#)

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Significance: Mar 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control of Emergency Diesel Generator Fuel Oil Inventory

The licensee staff had not accounted for several factors determining the diesel fuel oil on hand to meet the Technical Specification 2.7(1)m. requirement of 16,000 gallons of fuel oil in FO-1, the diesel generator fuel oil storage tank, and an additional 8,000 gallons of diesel fuel oil in FO-10, the auxiliary boiler fuel oil storage tank. The basis for the limit was to maintain a 7-day supply of fuel oil. The factors not accounted in the analysis were the effect of specific gravity on the loop uncertainties, the effect of specific gravity on the fuel consumption formula, the effect of the operation of the diesel driven auxiliary feedwater pump, the effect of errors in estimating volumes, and other minor errors. This was identified as a violation of Criterion III of Appendix B to 10 CFR Part 50, "Design Control," which requires that the design basis be correctly translated into the technical specifications. This finding was of very low safety significance as the licensee always maintained additional inventory that would have provided a full 7-day supply of fuel oil, and the safety evaluation report credited the sufficiency of a 6-day supply. Because of the very low safety significance and that the licensee entered this finding into their corrective action program in Condition Reports 200200464, 200200373, and 200200304, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-02).

Inspection Report# : [2002003\(pdf\)](#)

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Significance: Mar 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure to Testing Auxiliary Feedwater Pumps

Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve and Check Valve Tests," Revision 5, was inadequate. The procedure failed to identify that the motor-driven auxiliary feedwater pump was rendered inoperable during a portion of the test. This was identified as violation of Criterion V to Appendix B of 10 CFR Part 50, "Instruction, Procedures, and Drawings." The finding was of very low safety significance because there was no actual loss of safety function as the turbine-driven pump remained operable and the dedicated operators could be considered to be highly reliable. Because of the very low safety significance, and because the licensee included the item in their corrective action program as Condition Report 200200483, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy (50-285/0203-03).

Inspection Report# : [2002003\(pdf\)](#)

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Significance: Mar 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate 10 CFR 50.59 Safety Evaluation Associated with Change to Auxiliary Feedwater Pump Test Procedure

The licensee failed to assess Procedure Change Request 42290 to Procedure SE-ST-AFW-3006, "Auxiliary Feedwater Pump FW-10, Steam Isolation Valve and Check Valve Tests," under the provisions of 10 CFR 50.59, resulting in a failure to comply with Technical Specification 2.5. The use of operator actions to maintain operability was not adequately evaluated. This procedure change should not have been made without prior NRC approval. This was identified as a violation of 10 CFR 50.59(a)(1)(iii). This finding was of very low safety significance because the reliability of the operator actions needed to restore system operability was very high. Because of the very low safety significance,

and because the licensee included the item in their corrective action program as Condition Report 200200632, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Manual (50-285/0203-04) (EA 02-059).

Inspection Report# : [2002003\(pdf\)](#)

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Significance: Jan 14, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW PROCEDURES AND OBTAIN SHIFT MANAGER APPROVAL PRIOR TO USING AN OPERATOR AID FOR NONEMERGENCY PURPOSES

Technical Specification 5.8.1 requires, in part, that written procedures shall be established, implemented, and maintained. The licensee failed to properly implement Standing Order SO-O-41, "Control of Operator Aids and Emergency Equipment," Revision 85, Step 4.2, which states plant personnel must be given permission from the Shift Manager prior to using any Operator Aids for nonemergency purposes. Specifically, on January 13, 2002, maintenance personnel removed a pry bar necessary for local starting of the turbine-driven auxiliary feedwater pump without obtaining the Shift Manager's permission. Specifically, on January 13, 2002, maintenance personnel removed a pry bar necessary for local starting of the turbine-driven auxiliary feedwater pump without obtaining the shift manager's permission. This issue is more than minor because it had the potential to impact the licensee's ability to locally start the turbine-driven auxiliary pump. This event is described in the licensee's corrective action program as Condition Report 200200111. This finding is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy (50-285/0106-02). The safety significance of this finding was determined to be very low in that a local start of the turbine-driven auxiliary feedwater pump is a proceduralized action that is only necessary with a loss of offsite power combined with a near-term loss of dc power and a failure of the diesel-driven auxiliary feedwater pump.

Inspection Report# : [2001006\(pdf\)](#)

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Significance: Mar 10, 2000

Identified By: NRC

Item Type: AV Apparent Violation

APPARENT VIOLATION OF 10 CFR PART 50, APPENDIX R, SECTION III.G.1.a FOR FAILURE TO ENSURE THAT ONE TRAIN OF SYSTEMS IN FIRE AREAS 34B AND 36B REQUIRED FOR SAFE SHUTDOWN IS FREE OF FIRE DAMAGE.

The team identified a condition where the licensee failed to ensure that one train of redundant systems, necessary for achieving and maintaining hot shutdown, located within the same fire area would remain free of fire damage. In particular, the team identified that a fire in Fire Area 34B (upper electrical penetration room) or Fire Area 36B (west switchgear room) could cause the spurious opening of the reactor coolant system head vent valves due to hot shorts. These spurious actuations could open a vent path from the reactor coolant system that exceeds the capacity to makeup to the reactor coolant system, as analyzed in the licensee's safe shutdown analysis. The licensee subsequently identified alternative means of makeup that would mitigate the effects of the event. The licensee disagrees that postulating multiple fire-induced circuit failures is required by NRC regulations or its operating license. This is an apparent violation of 10 CFR Part 50, Appendix R, Section III.G.1.a. This issue was evaluated using the significance determination process, and was determined to be within the licensee response band.

Inspection Report# : [2000001\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

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Significance: May 17, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN A RADIOLOGICAL BRIEFING PRIOR TO ENTERING AN UNSURVEYED AREA

The inspector identified a violation of very low safety significance because workers failed to obtain a radiological briefing prior to working in an unsurveyed area. On May 15, 2002, the inspector observed two workers installing scaffolding on top of Safety Injection Tank 6B, an area 10 feet above the designated work location that had not been surveyed. The workers had not contacted radiation protection personnel prior to

entering the area. Technical Specification 5.8.1 requires procedures to be established and implemented as referenced in Regulatory Guide 1.33, Appendix A. Procedure SO-G-101 "Radiation Worker Practices," Step 5.6.1, states, areas in the radiologically controlled area that are greater than 8 feet off the floor are not routinely surveyed and requires workers to contact radiation protection prior to entering these areas to obtain a briefing on radiological conditions. The failure to obtain a radiological briefing prior to working in an unsurveyed area was a performance deficiency. The finding was more than minor because it was associated with one of the Occupational Radiation Safety cornerstone attributes (training proficiency) and affected the associated cornerstone objective. The finding involved an occurrence of workers unplanned, unintended dose or potential of such a dose that could have been significantly greater, as a result of a single minor, reasonable alteration of the circumstances. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined the finding had very low safety significance because no overexposure resulted or no substantial potential for an overexposure occurred. The licensee documented this violation in the corrective action program as Condition Report 2002-01512. The finding is considered a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2002008\(pdf\)](#)



Significance: Feb 15, 2002

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

FAILURE TO HAVE AN ADEQUATE PROCEDURE FOR CLEANUP OF THE SAFETY INJECTION REFUELING WATER TANK

A noncited violation of Technical Specification 5.8.1 occurred when the licensee failed to establish written procedures appropriate to the circumstances. The licensee's inadequate safety injection refueling water tank procedure did not contain precautions indicating that alignment in accordance with the cleanup procedure was not compatible with the resin transfer or dewatering of the spent resin storage tank. Specifically, on February 15, 2002, operations personnel were lining up to dewater the spent resin storage tank when they cross-connected the system cleaning up the safety water injection refueling water tank. This caused water from the safety water injection refueling water tank to be pumped into the spent resin storage tank, overfilling the tank and pushing resin into attached systems. The issue was more than minor, because not having an adequate procedure for cleanup of the safety injection refueling water tank is viewed as a precursor to a significant event if the resin intrusion had been allowed to continue for a longer period of time. Also, this occurrence had the potential to involve a worker's unplanned dose if radiological conditions had been significantly greater. This finding is being treated as a noncited violation consistent with Section VI.A of the Enforcement Policy (50-285/0106-01). This finding was entered into the licensee's corrective action program as Condition Report 200200379. The safety significance of this finding was determined to be very low by the Occupational Radiation Safety Significance Determination Process because there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

Inspection Report# : [2001006\(pdf\)](#)

Public Radiation Safety



Significance: May 17, 2002

Identified By: NRC

Item Type: VIO Violation

FAILURE TO PREVENT RADIATION LEVELS FROM EXCEEDING REGULATORY REQUIREMENTS ON THE EXTERNAL SURFACE OF A SHIPMENT PACKAGE

A violation of low-to-moderate risk significance was identified for failure to comply with Department of Transportation (DOT) regulations. On April 24, 2002, the licensee shipped dry active waste in a sea-land container to a radioactive waste processing vendor. When the sea-land container arrived, dose rates on the exterior surface exceeded the 200 millirem per hour limit as specified in the DOT regulations. The vendor found that dose rates were approximately 600 millirem per hour. 10 CFR 71.5 requires each licensee who transports licensed materials offsite or on public highways to comply with the requirements in 49 CFR Parts 170 through 189. 49 CFR 173.441(a) requires that each package of Class 7 (radioactive) material offered for transportation be designed and prepared for shipment so that, under conditions normally incident to transportation, the radiation level does not exceed 200 millirem per hour at any point on the external surface of the package. The failure to prevent radiation levels from exceeding 200 millirem per hour at any point on the external surface of a sea-land container was a performance deficiency. The finding was more than minor because it was associated with one of the Public Radiation Safety cornerstone attributes (DOT package radiation limits) and affected the associated cornerstone objective. Using the Public Radiation Safety Significance Determination Process, the inspector determined the violation had low-to-moderate risk significance because the radiation levels on the external surface of the sea-land container exceeded the DOT radiation limit; however, the radiation levels did not exceed five times the limit. The licensee documented this event in the corrective action program as Condition Report 2002-01009.

Inspection Report# : [2002008\(pdf\)](#)

Inspection Report# : [2002010\(pdf\)](#)

Physical Protection

Significance: N/A Nov 15, 2002

Identified By: NRC

Item Type: FIN Finding

Verification of Compliance With Interim Compensatory Measures Order

On February 25, 2002, NRC imposed by Order Interim Compensatory Measures that addressed waterborne threats, vehicle bombs, insider threats, land-based assaults, and mitigative measures. The inspectors determined that, overall, the licensee appropriately: evaluated the impact of the interim design basis explosive on the site; incorporated the Interim Compensatory Measures into the site protective strategy and access authorization program; developed and implemented relevant procedures; evaluated the impact of losses of large areas of the site and vulnerabilities of their computer systems; ensured that the emergency plan could be implemented; and established and effectively coordinated interface agreements with offsite organizations.

Inspection Report# : [2002011\(pdf\)](#)

Miscellaneous



Significance: Mar 08, 2002

Identified By: NRC

Item Type: FIN Finding

Human performance deficiencies

Several human performance issues were identified during the inspection: 1) personnel performed inappropriate modifications to the heater plugs directly contributed to the cause of the fire; 2) personnel failed twice to implement adequate corrective actions for the control of nonload shedding outlets; 3) personnel failed to implement the requirements of a work order, as a result, a fire impairment was not obtained and an hourly fire watch was not established; 4) personnel failed to update a fire protection program implementing procedure; and, 5) personnel failed to implement immediate corrective actions to prevent recurrence of opening the containment tendon stressing gallery door and not obtaining the required fire impairment. Each of these findings had a potential impact on safety by increasing the frequency of initiating events or affecting the reliability of safety-related equipment. This performance trend is considered a substantive crosscutting issue not captured in the individual issues.

Inspection Report# : [2002006\(pdf\)](#)

Last modified : March 25, 2003