APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION REGION IV

NRC Inspection Report: 50-313/89-22 50-368/89-22 Operating Licenses: DPR-51 NPF-6

Dockets: 50-313 50-368

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Licensee: Arkansas Power & Light Company P.O. Bcx 551 Little Rock, Arkansas 72203

Facility Name: Arkansas Nuclear (ANO), Units 1 and 2

Inspection At: ANO Site, Russellville, Arkansas

Inspection Conducted: May 15-19 and June 13-16, 1989

Inspectors:

8-23-89 Date

A. T. Howell, Project Engineer, Project Section A, Division of Reactor Projects

R. C. Haag, Resident Inspector, Project Section A, Division of Reactor Projects (First Week)

8-24-89 Date

8-24-89

C. C. Harbuck, Licensing Project Manager for ANO-1, Project Directorate IV, Office of Nuclear Reactor Regulation (First Week)

Swight & Chankerlan

Approved:

D. D. Chamberlain, Chief, Reactor Project

8-24-89

Section A, Division of Reactor Projects

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Inspection Summary

Inspection Conducted May 15-19, and June 13-16, 1989 (Report 50-313/89-22; 50-368/89-22)

Areas Inspected: Special, announced team inspection including followup on licensee event reports, previous inspection findings, and the review of the licensee's program for conducting safety evaluations in accordance with 10 CFR Part 50.59.

Results: Paragraph 3.b documents 14 LERs that are indicative of weaknesses in the licensee's Technical Specification surveillance and testing programs. Further inspection in this area will be required in order to determine the root cause(s) of these surveillance and testing weaknesses. Paragraph 3.c documents 15 LERs that are indicative of past weaknesses in the licensee's programs for the design, installation, maintenance, inspection, and modification of safety-related system piping and pipe supports. The team noted that AP&L has ongoing programs that are intended to find and correct problems such as those noted in these LERs, and that this area was inspected in July 1989 by the Office of Nuclear Reactor Regulation and Region IV inspectors who were conducting a followup of the licensee's actions relative to IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts," and IE Bulletin 79-14, "Seismic Analysis For As-Built Safety-Related Piping Systems," for ANO, Unit 1. These 15 LERs will remain open pending a future inspection of this area to determine the appropriate regulatory actions. Paragraph 3.d documents five other LERs that require additional followup inspection. While the safety issues in these LERs have been addressed, additional inspection followup will be required to determine the appropriate regulatory actions associated with these LERs.

A large number of overdue LERs was identified. The number of overdue LERs appears to be a further manifestation of reporting problems that were identified in 1988, and was the subject of a violation that was documented in NRC Inspection Report 50-313/89-02; 50-368/89-02. This backlog of LERs, as well as those previously identified reporting problems, are indicative of a programmatic breakdown of the licensee's reporting system and was the subject of a management meeting between AP&L and NRC Region IV on June 12, 1989. It is not clear that the corrective actions that the licensee has taken, or plans to take, as discussed in its response to Violation 313; 368/8902-02 are sufficient to prevent recurrence of late reporting of LERs. As a result, the licensee should evaluate its response to the previous violation and supplement it as necessary.

During this inspection, the team determined that the licensee's program for performing safety evaluations required by 10 CFR Part 50.59 appeared adequate.

DETAILS

1. Persons Contacted

*G. Campbell, Vice President, Nuclear Operations
*N. Carns, Director, Nuclear Operations
*S. Quennoz, Acting General Manager, Plant Support
*L. Humphrey, General Manager Nuclear Quality
*D. Lomax, Licensing Supervisor (ANO)
*P. Michaulk, Nuclear Safety and Licensing Specialist
*L. Taylor, Nuclear Safety and Licensing Specialist
*J. Vandergrift, Operations Manager
C. Anderson, In-House Events Analysis Supervisor
W. Converse, Operations Assessment Superintendent
R. Jackson, Administrative Training Supervisor
D. James, Licensing Supervisor (LRGO)

*Present at exit interview.

The team also contacted other plant personnel, including design engineers, operators, technicians, and administrative personnel.

2. In-Office Review of Licensee Reports (90712)

The following licensee event reports (LERs) and licensee special reports (LSRs) were reviewed and closed. The team verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, reactive NRC inspection is not warranted, generic applicability had been considered, and that the LER forms were complete. The team confirmed that unreviewed safety questions and violations of Technical Specifications (TS), license conditions, or other regulatory requirements had been adequately described.

- a. (Closed) LER 313/85-001 (Supplement 1), "Steam Driven Emergency Feedwater Pump Inoperable Following Refueling Outage, Due to Errors Made During Modification and Maintenance Activities, Results in a Technical Specification Violation."
- b. (Closed) LER 313/86-001 (Supplement 1), "Emergency Diesel Generator Failure Due to Failure of Wrist Pin Bearings Results in Plant Shutdown Required by Technical Specifications."
- c. (Closed) LER 313/88-002, "Plant Instrumentation Found Not Seismically Qualified Due to Improperly Sized Anchor Bolts for Mounting Rack."
- d. (Closed) LER 313/88-004, "Reactor Building Hydrogen Concentration Instrument Inoperable Due to Inadequate Post-Modification Testing."

- e. (Closed) LER 313/88-018, "Subcritical Reactor Trip on Shutdown Bypass High Pressure Trip Due to Personnel Error and Malfunction of Reactor Coolant System Pressure Indication."
- f. (Closed) LER 313/89-001, "Procedure Inadequacy Caused an Improperly Calibrated Temperature Channel Resulting in Less Than the Required Number of Operable Reactor Protection System High Temperature Trip Channels."
- g. (Closed) LER 313/89-003, "Improper E aluation of Inadequate Fire Barrier Penetration Seals Results in Operation Prohibited by Technical Specifications."
- h. (Closed) LER 313/89-012, "Covering of a High Energy Line Break Door Caused by Personnel Error Results in a Condition Outside the Design Basis of a Main Feedwater Line Break in a Piping Penetration Room."
- i. (Closed) LER 368/86-016, "Pressurizer Low Pressure Trip Remained Bypassed at Pressure Greater Than Allowed by Technical Specifications Due to an Inadequate Procedure Caused by Personnel Error."
- j. (Closed) LER 368/87-011, "Personnel Error Results in Issuance of Original Technical Specifications Which Did Not Reflect Actual Plant Design for the Remote Shutdown Panel."
- k. (Closed) LSR 368/88-006, "Cable Spreading Room Fire Water System Removed Fro Service to Prevent Inadvertent Actuation Due to Constructio. Activities Being Performed in Area."
- (Closed) LER 368/88-012, "Setpoint Discrepancies for Pressurizer Code Safety Valves Discovered During In-Situ Testing Following Heatup After Refueling Outage."
- m. (Closed) LSR 368/88-015, "Special Report Concerning High Pressure Safety Injection System Manual Actuation and Injection into the Reactor Coolant System."
- n. (Closed) LER 368/88-018 (Supplement 1), "Discovery of Unsealed Fire Barrier Opening, Previously Evaluated as Acceptable, Results in Operation Prohibited by Technical Specifications."

Onsite Followup of Licensee Reports and Previous Inspection Findings (92700) (92702)

a. The following LERs were selected for onsite followup to determine whether the corrective actions described in the LERs were taken as stated and whether the responses to the events were adequate and met regulatory requirements, license conditions, and commitments. (1) (Closed) LER 313/86-008, "High Pressure Reactor Trip While Troubleshooting the Integrated Control System."

During troubleshooting of the reactor demand control station of the integrated control system (ICS), a feedwater transient occurred which resulted in a reactor trip due to high reactor coolant system (RCS) pressure. The failed ICS module was replaced. Other corrective action included operator training to reemphasize precautions for manual ICS operation and the newly-installed main feedwater circuitry as well as review of the applicable operating procedures. This LER is considered closed.

(2) (Closed) LER 313/87-002, "Emergency Feedwater Actuation Following a Turbine Trip While Performing Main Turbine Electro-Hydraulic Control System Maintenance."

During an electrical storm, and while troubleshooting the main turbine electro-hydraulic control (EHC) circuitry, an emergency feedwater system actuation occurred following a turbine trip. The most probable root cause of the EHC card failure was a lightning induced electrical transient, and the root cause of the turbine trip was a voltage transient in the EHC which was induced when a new EHC card was inserted. The root cause of the emergency feedwater initiation actuation and control (EFIC) was a mismatch between the level instrumentation controlling main feedwater (MFW) to the B once-through steam generator (OTSG) and the EFIC instrumentation. In addition to inspecting the replacement EHC card, OTSG Level Instrument LT-2613 was recalibrated. This LER is considered closed.

(3) (Closed) LER 313/87-003, "Emergency Feedwater System Actuation During Power Reduction Due to Main Feedwater Pumps Control System Problems."

During a power reduction with the unit at approximately 20 percent power, an emergency feedwater system actuation occurred due to low level in the B Steam Generator. The low level resulted from inadequate MFW supply from the A MFW pump. The cause of the inadequate supply from the A MFW pump was the result of a MFW pump turbine governor valve fulcrum pin that had come out of position restricting valve movement. Additionally, during this event, the B MFW pump did not operate satisfactorily in the manual mode and had to be removed from service. The A MFW pump high pressure governor valve fulcrum pin was tapered slightly to prevent binding and was reinstalled. The ICS feedwater demand circuitry was checked to determine the cause of the high demand signal to the B MFW pump; no abnormalities were found. This LER is considered closed. (4) (Open) LER 313/87-005, "Reactor Trip Due to Main Turbine Generator Trip Caused by Personnel Error During Switchyard Breaker Testing."

While performing maintenance on one of two 500Kv air operated parallel generator output switchyard breakers (5118), the other 500KV generator output breaker (5114) opened on a phase discordant signal thereby resulting in a load rejection, a main turbine generator trip, and a reactor trip. This event occurred as a result of personnel error when relay personnel failed to pull a breaker failure module. This would have prevented the inadvertent opening of other switchyard breakers in the event of a malfunction during postmaintenance testing. As part of the corrective action, the licensee determined that procedures needed to be developed to improve control of relay personnel switchyard activities. At the time of the inspection, licensee personnel could not determine if these procedures had been developed. This LER is considered open pending the completion of the switchyard activities procedures.

(5) (Closed) LER 313/87-008, "Inadequate Design Modification Created a Pathway for Unfiltered Air Inleakage in Excess of the Design Basis for Control Room Habitability Following a Loss of Coolant Accident."

During a review of the common control room emergency ventilation system, a leakage pathway for unfiltered air was identified at the location of Emergency Ventilation System Supply Fan VSF-9. A modification was made to seal the motor to the shaft opening for VSF-9. This LER is considered closed.

(6) (Closed) LER 313/88-003, "Reactor Trip on Low Reactor Coolant System Pressure Caused by Unplanned Regulating Rod Group Insertion Due to Control Rod Drive Circuitry Malfunction."

During reactor protection system (RPS) monthly surveillance testing, Group 7 control rods dropped into the core. An automatic RPS reactor trip subsequently occurred on low reactor coolant system pressure. The regulatory control rod Group 7 CRD programmer was replaced and proper operation of the programmer and the Group 7 CRD circuitry was verified after repairs. The RPS monthly surveillance test procedures were revised to require placing the CRD system in manual to prevent automatic movement of control rods by the ICS during RPS surveillance testing. This LER is considered closed. (7) (Closed) LER 313/88-005, "Failure to Maintain Manually Operated Reactor Building Isolation Valve in Proper Position Due to Inadequate Administrative Controls."

While performing a review of reactor building penetration design evaluations, it was discovered that the outside reactor building isolation valve (SS-146) for the OTSG secondary sampling system piping penetration was being maintained in an open prsition instead of closed as described in the Safety Analysis Report. The cause of this event was inadequate administrative controls for maintaining proper position of SS-146. The chemistry procedure used for OTSG sampling was revised to include steps to request that operations personnel close the reactor building isolation valves for the OTSG after sampling is completed. The "Shift Turnover Checklist" was revised to include verification that SS-146 is in its proper position. This LER is considered closed.

(8) (Closed) LER 313/88-006, "Degraded Environmental Qualified (EQ) Seal on Rosemount Instrumentation Transmitters Due to Rotation of the Electronics "ousing After Assembly."

During replacement of a Rosemount transmitter, the licensee identified that an environmental boundary seal could be degraded if the electronics housing was rotated after assembly of the transmitter. The initial review of the licensee's corrective action to resolve this concern was contained in NRC Inspection Report 50-313/88-10; 50-368/88-10. A review of subsequent corrective action for remaining transmitters was completed by NRC Inspection Report 50-313/88-32; 50-368/88-32. All safety-related EQ Rosemount transmitters in Units 1 and 2 have been tested to verify the integrity of the housing seal. This LER is considered closed.

(9) (Open) LER 313/88-019, "Inadvertent Emergency Feedwater System Actuation Due to Personnel Error While Draining a Steam Generator for Secondary Side Chemistry Cleanup."

An inadvertent EFIC actuation occurred while draining the B OTSG for secondary side chemistry cleanup due to personnel error. The inadvertent EFIC actuation was caused when the orifice bypass valve was opened with the B OTSG pressurized to 900 psig. The use of the orifice bypass is the normal method for achieving proper drain flow, but is not needed when the plant is in hot shutdown. Although a memorandum was issued to the shift supervisors describing the event and emphasizing that the orifice drain bypass valves are not to be used at hot shutdown, the team did not consider this corrective action to be adequate. A review of the Steam Generator Operating Procedure 1106.08, Revision 11, "OTSG Secondary Fill and Layup," and Plant Startup Procedure 1102.02, Revision 42, revealed that there were no limits or precautions for keeping the steam generator line orifice bypass valves closed during secondary side chemistry cleanup with the plant in hot shutdown. This LER is considered open pending a review by the licensee for the need to revise the governing procedures for secondary side chemistry cleanup.

(10) (Open) LER 313/88-024, "Inadvertent Jarring of Relay Sensitive to Mechanical Shock Results in Closure of Decay Heat Removal Suction Valve and Loss of Decay Heat Removal System Flow."

While performing equipment inspections in the room which contains a panel housing the control relays for the decay heat removal (DHR) system Suction Valve CV-1050, a contract electrician inadvertently jarred the panel housing which resulted in the closure of CV-1050 and loss of DHR flow for approximately 12 minutes. The licensee plans to replace Relay 69X2/52SS with a model less sensitive to mechanical shock. The team considered this corrective action only partially adequate because there was no apparent plan by the licensee to identify and label all mechanical shock sensitive relay cabinets. This LER is considered open pending a determination by the licensee to implement a systematic program for identifying and labeling cabinets which have relays that are sensitive to mechanical shock.

(11) (Closed) LER 368/84-022 (Supplement 1), "Loss of Three Reactor Coolant System Leakage Detection Systems."

The licensee reviewed the effectiveness of the new insulation that was installed on the main feedwater piping during the fifth refueling outage. On the basis of this review and a review of past failures of the containment atmosphere monitoring system (CAMS), the additional temperature related corrective action that was under review has been determined to be not required. A review to include a CAMS status alarm on the control room annunciator panel was completed by the licensee. This upgrade has been included in an annunciator modification package that is scheduled for the ninth refueling outage. This LER is considered closed.

(12) (Closed) LER 368/87-007, "Reactor Trip on High Reactor Coolant System Pressure Caused by a Loss of Power to the Main Turbine Controls Due to Failure of Cable Terminal Lug on Instrumentation Transformer."

A failed aluminum lug in Transformer 2X11 resulted in the loss of power and the subsequent reactor trip. The licensee replaced the aluminum screw type terminal lugs with copper crimped type lugs in Transformer 2X11 and 2X12 during the last refueling outage. A preventive maintenance procedure for this style of transformer was recently issued by the licensee. The frequency of the inspections to verify the integrity of the terminal lugs is 3 years. Following the reactor trip, two of the steam dump valves failed to respond properly. The valve positioner for the seven air operated steam dump valves were replaced. This LER is considered closed.

(13) (Closed) LER 368/87-008, "Reactor Trip on High Reactor Coolant System Pressure Due to Main Turbine Trip Caused by Inaccurate Bearing Vibration Indication and Incorrect Turbine Trip Setpoint."

The team reviewed Procedure 2404.005, Revision 0, "Turbine Supervisory Instrumentation Calibration," which includes instructions for a calibration check of the bearing vibration detectors. This procedure was completed during the last refueling outage and was designated with a completion frequency for each refueling outage. The inspector also reviewed the job order that verified proper installation of the vibration detectors. This addressed a potential concern related to the renting of the vibration detectors that was reported in the L'.. This LER is considered closed.

(14) (Closed) LER 368/87-009, "Subcritical Reactor Trip While Performing a Reactor Shut Down Due to a Procedural Deficiency."

The team reviewed the changes to Plant Startup Procedure 2101.02 and verified that the root causes identified in the report were corrected. The Plant Shutdown and Cooldown Procedure 2103.10 that had been revised earlier to add a caution statement concerning bypassing the CPCs to prevent a CPC auxiliary trip was also reviewed by the team. This LER is considered closed.

(15) (Closed) LER 368/88-003, "Unplanned Automatic Actuation of Engineered Safety Features Actuation System Due to Deenergizing an Electrical Distribution System Vital Power Panel for Maintenance."

The licensee concluded that the most likely cause of the ESF actuation was a low pressure pressurizer trip signal not being bypassed as required during shutdown conditions concurrent with deenergizing a 120 volt AC vital power panel for maintenance. The automatic shutdown of the EDG was caused by a drift in the setpoint for a time delay relay. Subsequent ESF testing verified no additional problems. A step was added to the monthly EDG surveillance procedures to require the measurement of the time delay setpoint to allow early detection of any drift in the setpoint. This LER is considered closed. (16) (Closed) LER 368/88-004, "Vibration Induced Closure of Air Volume Distribution Damper in the Control Room Emergency Air Conditioning System Results in Degraded System Cooling and Air Mixing Capability."

The licensee identified all safety-related fans and coolers, then reviewed each application to determine the location of any volume control damper that may have been mispositioned. An inspection of selected dampers indicated a potential generic problem with the damper position locking device, i.e., wingnut. Job orders were issued to install double nuts and a locking compound on all safety-related control dampers to provide a positive locking mechanism. The licensee also informed the team that the correct damper position was verified while performing this work. The team reviewed a sample of these job orders. This LER is considered closed.

(17) (Closed) LER 368/88-007, "Unplanned Automatic Actuation of Plant Protection System Due to Loss of Power Caused by Personnel Error During Maintenance Activities."

The licensee determined the root cause of the ESF actuation was a personnel error while troubleshooting an excore detector. On the basis of the investigation of this error and the wide variation of troubleshooting activities, the corrective action only involved counseling the I&C technician. On the basis of the review of the event and the LER, the team determined that the licensee's actions were appropriate. This LER is considered closed.

(18) (Closed) LER 368/88-009, "Control Element Assembly Drop Time Exceeded That Allowed by Technical Specifications and Assumed by Safety Analyses Due to Incorrect Testing Method."

This event was reviewed earlier by NRC and was discussed in NRC Inspection Report 50-313/88-15; 50-368/88-15. Appropriate corrective action, including a Technical Specification (TS) change, subsequent retesting, and a Unit 1 applicability review was performed by the licensee. This LER is considered closed.

(19) (Closed) LER 368/88-010, "Low Water Level in Safety Injection Tank Due to Leak in Reference Leg for Level Transmitter."

The team reviewed Procedure 6030.115, Revision O, "Installation of Instrument Tube Fittings." This procedure was recently issued to provide additional guidance for fitting installation and in-service testing because of recent instrumentation fitting leaks associated with a safety injection tank and the volume control tank. This LER is considered closed. (20) (Closed) LER 368/88-019 (Supplement 1), "Corrosion and Failure of Service Water Pumps Impeller Snap Rings Results in a Condition That Could Have Prevented the Fulfillment of the Safety Function of the Service Water Pumps."

The licensee has completed rebuilding and inspecting the three service water pumps. A plant change has been issued to replace the carbon steel snap rings with copper snap rings. This will be performed during the 14-month scheduled preventive maintenance inspection of the pumps. This LER is considered closed.

(21) (Closed) LER 368/89-003, "Personnel Error Causes the Environmental Qualification Parts Replacement Interval for a Valve to be Exceeded Which Resulted in the Inoperability of the "A" Channel Hydrogen Analyzer."

This event was reviewed earlier by NRC and was discussed in NRC Inspection Report 50-313/89-05; 50-368/89-05. During that review the inspector determined the completed corrective action appropriately addressed the event. This LER is considered closed.

b. A number of LERs reviewed appeared to be indicative of past and current weaknesses in the licensee's program for conducting Technical Specification surveillances and tests. These LERs document instances of surveillances and tests that were not performed in the specified time interval or under certain plant conditions, as well as inadequately performed surveillances and tests due to personnel error and inadequate procedures. These LERs will remain open pending a future inspection to determine the appropriate regulatory actions:

LER	313/87-006	LER	368/88-020
LER	313/89-017	LER	368/88-021
LER	313/89-023	LER	368/89-001
LER	313/89-026	LER	368/89-002
LER	368/86-015	LER	368/89-008
LER	368/86-017	LER	368/89-009
LER	368/88-017	LER	368/89-010

c. A number of LERs (listed below) appear to be indicative of past weaknesses in the licensee's programs for assuring that safety-related piping systems and pipe supports are adequately designed, installed, maintained, inspected, and modified. In each of these LERs, all the design-, installation-, maintenance-, inspection-, and modification-related deficiencies have been corrected. The team noted that the licensee has ongoing programs (Isometoric Drawing Update and Design Basis Reconstitution) that are intended to find and correct problems such as those noted in the subject LERs. Additionally, a special NRC team inspection was conducted during July 1989 at ANO, Unit 1 (79-02 and 79-14 Bulletin followup inspection), to review the licensee's actions relative to IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts," and IE Bulletin 79-14, "Seismic Analyses for As-Built Safety-Related Piping Systems" (NRC Inspection Report 50-313/89-200). These LERs will remain open pending a future inspection to determine the appropriate regulatory actions:

LER	313/87-001			LER	313/89-013
LER	313/88-008			LER	368/86-019
LER	313/88-009	(Supplement	1)	LER	368/87-005
LER	313/88-011	(Supplement	1)	LER	368/87-012
LER	313/88-015	(Supplement	1)	LER	368/88-013
LER	313/88-027			LER	368/88-023
LER	313/88-029			LER	368/89-007
LER	313/88-030				

- d. The following LERs also require additional inspection followup. While the safety issues have been addressed, these LERs will remain open pending a future inspection to determine the appropriate regulatory actions:
 - LER 313/88-013 (Supplement 1), "Potential Failure of a High Pressure Injection Pump to Start on Engineered Safeguards Signal Due to Breaker Wiring Error."
 - (2) 'ER 313/89-005, "Personnel Error Results in an Inadequate Procedure Which Causes Calculated Reactor Shutdown Margin Less Conservative than Assumed in the Plant's Design Basis."
 - (3) LER 368/85-028, "Personnel Error Results in the Potential Inoperability of the Safety Injection Tanks Due to Cross-Connection of the Tanks Through the Nitrogen Addition System Piping."
 - (4) LER 368/87-010, "Plant Protection System Panels Seismic Qualifications Compromised Due to Loose Fasteners Caused by Personnel Error."
 - (5) LER 368/89-004, "Inadequate Procedure Results in the Inability to Automatically Transfer High Pressure Safety Injection Sump from the Refueling Water Tank to the Containment Sump with the Plant in Mode 4 (Hot Shutdown) During Startup."
- e. The following deviation and violation were reviewed to ensure that the licensee had completed the corrective actions and the corrective measures taken were adequate to prevent recurrence:

(Closed) Deviation (313; 368/8739-01): Submittal of supplemental LERs.

This deviation was cited in NRC Inspection Report 50-313/87-39; 50-368/87-39 and involved a failure by the licensee to submit several 1985 and 1986 supplemental LERs (Units 1 and 2) by the date listed on the original LERs, or otherwise provide revised target/planning submission dates for these supplemental LERs. In response to this deviation, the licensee committed to submitting the supplemental LERs by December 30, 1988. Additional corrective action to reduce the supplemental LER backlog included the assignment of an additional staff specialist within the Plant Licensing Section; the utilization of the AP&L Commitment Tracking System and Licensing Information Request System to provide improved tracking of necessary supplemental LERs; and, the temporary use of increased staff overtime and contractor support.

The team found that three of the supplemental LERs required to be submitted by December 30, 1988, had not been submitted by that date. The team noted, however, that all of these overdue supplemental LERs had been submitted prior to the end of the inspection period. The team concluded that the licensee's corrective actions had not been effective in facilitating the submission of supplemental LERs in a timely manner, nor had it been effective in preventing further deviations from commitments made to the NRC in this area. This conclusion was made on the basis of the overdue supplemental reports, the several initial reports that had not been submitted within 30 days as cited in Violation 313; 368/8902-02 of NRC Inspection Report 50-313/89-02; 50-368/89-02, and the backlog of overdue LERs that were identified during this inspection (discussed in further detail in paragraph 3.e.(2)). Because the licensee had already been cited for failure to submit initial LERs within 30 days (Violation 313; 368/8902-02) and the licensee submitted all the outstanding supplemental LERs that were cited in Deviation 313; 368/8739-01, this deviation is considered closed. Further monitoring of the licensee's corrective action to prevent future instances of the submission of overdue reports to the NRC will be tracked under Violation 313; 368/8902-02.

(2) (Open) Violation (313; 368/8902-02): Failure to comply with reporting requirements.

This violation was cited in NRC Inspection Report 50-313/89-02; 50-368/89-02. Example 1 of this violation identified ten Unit 1 and six Unit 2 LERs issued in 1988 that failed to comply with the 30 day reporting requirement. Example 2 identified six automatic actuations of the control room emergency ventilation system (an ESF system) in 1988 that had not been reported in accordance with 10 CFR Parts 50.72 and 50.73. Example 3 identified three failures of the Unit 2 Emergency Diesel Generator (EDG) 2K4B in 1988 that had not been reported to the NRC.

As noted in the licensee's response to Example 1 of this violation, Arkansas Power & Light Company (AP&L) had submitted letters to NRC Region IV in December 1988 (OCAN128802) and in March 1989 (OCAN038912) with a status and schedule for submittal of overdue LERs. The March 1989 schedule provided for the submission of all overdue LERs by May 11, 1989.

On April 3, 1989, a management meeting was held in the NRC Region IV office with representatives of AP&L. One item of the management meeting was a discussion of ANO's problems in complying with NRC reporting requirements. At the meeting, the licensee noted that the March 20, 1989, letter to NRC Region IV provided the schedule for the submission of overdue LERs. The licensee had not indicated, however, that they had already missed submitting some LERs by the expected submission date as noted in this letter. Additionally, this fact was not noted in their subsequent April 7, 1989, response to Violation 313; 368/8902-02.

During the first week of May 1989, the licensee was informed that a team inspection of LERs and previously identified items would be performed by NRC Region IV and NRR inspectors May 15-19, 1989. At the time of the notification of this inspection, ANO licensing personnel informed NRC Region IV that several of the overdue LERs cited in the March 20, 1989, AP&L letter would not be submitted by May 11, 1989, and that numerous other reportable events that had occurred, as far back as 1985, had also not been reported in accordance with 10 CFR Parts 50.72 and 50.73. The licensee was informed that the details of this apparent deviation and violation would be examined during the May 15-19, 1989, inspection.

During this inspection, the team found that 3 of the 11 LERs noted in the March 1989 letter were still overdue as of May 15, 1989. Three of 13 supplemental LERs that were due by December 30, 1988, as committed to in response to Deviation 313; 368/8739-01, had not been submitted by May 15, 1989. Additionally, as documented in a May 16, 1989, ANO internal document, 16 other LERs had not yet been submitted for reportable events that had occurred more than 30 days in the past. Of these 16 events, 13 of them had been previously documented in Reports of Abnormal Condition (RACs) which was one of the licensee's corrective action systems that existed prior to May 1988. The 13 events documented on these RACs were part of a population of approximately 100 remaining RACs that had not been, or had just recently been, converted into Condition Reports (CRs) under the licensee's new corrective action program. The licensee also informed the inspectors that there were approximately 10 other old RACs that had been converted to CRs in which a reportability determination had not been made. The team noted that some of these events were documented as early as 1985.

In view of this backlog of pending LERs, the team was concerned about the licensee's ability to determine the reportability of plant events and report such events in a timely manner. The team was also concerned that the extent of this problem was not fully addressed by the licensee during the April 3, 1989, management meeting and the April 7, 1989, response to Violation 313; 368/8902-02. During the inspection, discussions with licensee personnel revealed that the plant licensing section workload was so great that the licensee was unable to propose a new schedule for the submission of these overdue reports. The team considered the overall scope of these reporting problems to be indicative of a programmatic breakdown in the licensee's reporting system. The licensee was informed at an exit meeting on May 19, 1989, of this conclusion, and that a management meeting would be scheduled to discuss this issue.

On June 12, 1989, a management meeting was held in the Region IV office with representatives of AP&L to discuss the problems with the licensee's reporting system. During this meeting, the licensee informed Region IV that all the overdue LERs identified during the inspection had been submitted. The licensee also discussed a recently implemented procedure that requires an operability determination to be made within 24 hours for all newly initiated CRs. The licensee expressed that a rapid determination of operability would facilitate a timely determination of reportability, thereby reducing the likelihood of repeating the problems that the licensee experienced under the RAC corrective action system. Further enhancements to prevent the recurrence of late reporting, as discussed at the management meeting, included additional management oversight of the commitment tracking system and a Plant Review Committee (PRC) review of issued LERs rather than a review of all draft LERs. The licensee also discussed the possibility of increasing the plant licensing section staffing as well as centralizing the reportability determination process.

NRC Inspection Report 50-313/89-22; 50-368/89-22 was extended through the period June 13-16, 1989, to perform additional followup of LERs. During this period of inspection, the licensee reported that several additional RACs had been determined reportable in accordance with 10 CFR Part 50.73. Discussions with licensee personnel also revealed that further enhancements had been recently implemented to improve the process for meeting NRC reporting requirements. In particular, the licensee had written an internal letter of understanding between the plant licensing section and the Engineering Department. The purpose of this letter is to expedite the notification of the plant licensing section by the engineering disciplines of operability determinations that were finalized after the completion of engineering analyses. In the past, one cause for the late reporting of some plant deficiencies appears to have been an apparent breakdown in communication interfaces between the responsible department that was performing the operability/reportability determination and the plant licensing section which was responsible for issuing LERs to the NRC. Subsequent to the final onsite inspection period, the licensee informed NRC Region IV of additional events that would be reported late. On the basis of the ongoing problem of late reporting, the inspectors concluded that the licensee's response to Example 1 of Violation 313; 368/8902-02 was not sufficient to prevent further recurrence of this violation. As a result, Example 1 of this violation will remain open, and the licensee has been requested to resubmit their response to this part of the violation.

With respect to Example 2 of Violation 313; 368/8902-02, the licensee had been reporting all Unit 2 control room emergency ventilation system actuations subsequent to the identification of this violation. Example 2 of this violation is closed.

In AP&L's May 5, 1989, response to Example 3 of Violation 313; 368/8902-02, the licensee denied that part of the violation. The basis for the denial was that special reporting of EDG failures was no longer required after the revision of 10 CFR Part 50.72 and 10 CFR Part 50.73 on January 1, 1984. The inspector reviewed the basis for this denial and found that it was correct. Accordingly, Example 3 of Violation 313; 368/8902-02 is withdrawn. The team further understands, however, that a recently approved Technical Specification (TS) amendment (No. 91) requires the annual reporting of all valid EDG failures. At the conclusion of the inspection, the licensee committed to report all EDG failures (valid and nonvalid) from 1984 through 1988 providing this data is available. The date for the submission of this data had not been established prior to the end of the inspection, but the licensee agreed to submitting it prior to the submission of the report for the 1989 valid EDG failures in accordance with TS 4.8.1.1.3.

4. Program to Implement 10 CFR 50.59 (37702)

The purpose of this area of the inspection was to determine the adequacy of the licensee's program for performing safety evaluations required by 10 CFR Part 50.59 (50.59 reviews). The inspection included a review of applicable procedures, completed 50.59 determinations and evaluations, and the training of licensee personnel who perform 50.59 reviews. Although several weaknesses were noted, the overall program appeared to be adequate.

In the discussion below, the term "50.59 review" refers to both a Jetermination of the need for a safety evaluation (a 50.59 determination) and if necessary, a safety evaluation (a 50.59 evaluation).

a. Procedures

The team reviewed ANO Licensing Procedure 1062.04, Revision 2, "10 CFR 50.59 Review Program." A draft of Revision 3 to this procedure was also reviewed. Included in the procedure, as Attachment I, is the AP&L Policy Statement on application of 10 CFR 50.59, dated July 14, 1986. This policy statement was revised on January 13, 1988, to establish a permanent 50.59 Review Subcommittee of the licensee's Safety Review Committee (SRC). This subcommittee is responsible for review of 50.59 evaluations within 90 days after approval by the Plant Safety Committee (PSC), with review by the full SRC at its next regularly scheduled meeting. This was consistent with the meeting frequency and review responsibility requirements in the TS for ANO-1 and ANO-2. The licensee stated that the SRC review of 50.59 evaluations was current (i.e., no backlog). The team found that the guidance in the policy statement was consistent with 10 CFR 50.59 and if properly followed, should result in adequate and consistent 50.59 determinations and evaluations.

The draft of Revision 3 to Procedure 1062.04 proposed instructions in the procedure to initiate necessary changes to any licensing basis documents (LBD) that may be identified by a 50.59 evaluation. The team found this would be beneficial. The team discussed with the licensee the benefits of also including, in Revision 3, changes to reflect the licensee's impending reorganization and to redesignate Procedure 1062.04 under Plant Administration, rather than Licensing, because it is used by nearly all parts of the licensee's nuclear organization.

The team discussed with the licensee two weaknesses regarding the 50.59 review process as defined by Procedure 1062.04. One weakness involved the situation where a licensee certified 50.59 reviewer had to obtain assistance from another certified reviewer to complete a 50.59 determination and/or evaluation because, in the reviewer's judgment, his/her technical or functional expertise was inadequate to complete the review without assistance. The team considered this to be an acceptable practice, but was concerned that the 50.59 reviewer providing assistance was apparently not accountable for contributing because the participation was not required to be documented, and this person was not required to sign the 50.59 review form (Form 1062.04A). Only the initiating 50.59 reviewer was required to sign. The inspector stated his opinion to the licensee that when assistance is obtained to complete a 50.59 review, whether it is another licensee employee, a contractor, or another certified 50.59

reviewer, it should be noted in the 50.59 review documentation for the purpose of accountability.

A second weakness noted was the lack of supervisor review responsibility to verify the adequacy of 50.59 reviews prior to PSC review. Although a 50.59 review is normally included with the proposed change documentation (such as for a procedure revision or a plant modification), which is required to be reviewed by the appropriate supervisor, Procedure 1062.04 does not specifically list 50.59 review verification as a supervisor responsibility. Although holding the cognizant departmental or sectional supervisor responsible for verifying the adequacy of each review might require additional supervisors to be 50.59 review certified, the team noted that it would be beneficial because fewer unsatisfactory reviews would reach the PSC, which is required to review 50.59 reviews by the TS. Also, the supervisor would be better able to judge the 50.59 review capabilities of the certified reviewers under his cognizance. This is important because Procedure 1062.04 states that the Department Managers are responsible for making recommendations for biannual regualification of their 50.59 reviewers to the Training Department. Requiring a supervisor to screen 50.59 reviews would also enable him to recognize reviewers who may require additional training in order to perform adequate reviews. (Examples of poorly prepared 50.59 determinations which were awaiting PSC review are described in paragraph 4.b.)

The team concluded that Procedure 1062.04 and the "AP&L Guidance for Implementation of 10 CFR 50.59" were adequate, although two weakness, as noted above, were identified.

b. Review of 50.59 Determinations and Evaluations

The team reviewed a number of 50.59 determinations for proposed procedure revisions, which concluded that 50.59 evaluations were not required because neither the TS nor any LBDs were affected by the proposed changes. Although none of the conclusions reached in the 50.59 determinations appeared to be incorrect, a number of problems were noted.

Written documentation on Form 1062.04A of the basis for the 50.59 determination is required by Procedure 1062.04. Also required is a listing of the sections of the TS and LBDs that were checked in making the determination. The team noted examples of the following documentation problems:

 Several determinations indicated that an extensive LBD search had been conducted, even though the procedure revisions were purely administrative in nature, with no potential for impact on the LBD or TS. In some cases the written basis for the determination was essentially a rephrasing of Questions 1.1 and 1.2, of Form 1062.04A, as negative statements, without addressing the nature of the proposed procedure revision. In effect, those determinations were reduced to completing a check list.

The licensee had developed a computerized Licensing Document Review System (LDRS) which contains most licensing basis documents and is word searchable. Although it is designed to assist a reviewer in making a 50.59 determination or evaluation, the reviewer must still consult the hard copy of the sections of the LBDs that were flagged by the LDRS. This is because the LDRS is not controlled to the extent the LBDs are. Some determinations had simply attached a printout of the results of a word search on the LDRS to document the LBD review, with no indication that the LBDs themselves had been consulted.

Because it was not clearly required by Procedure 1062.04, the team expressed the view that a 50.59 reviewer should consult and list on Form 1062.04A any NRC related correspondence which is referenced in a procedure proposed for revision, to verify continued compliance with regulatory requirements or previous commitments to NRC, even though the author of the proposed changes (often the 50.59 reviewer) is also required to do this.

The team also reviewed two completed 50.59 evaluations. The first evaluation, approved by the PSC on April 28, 1989, was done for licensee Standing Order 3000.008, "Interim Administration and Functional Responsibilities," and was needed because the standing order rendered information in several LBDs inaccurate. (The purpose of this standing order was to describe temporary reassignment of ANO administrative and functional responsibilities needed by the licensee pending issuance of operating license amendments approving the planned reorganization at ANO.) The team found that the evaluation was adequate.

The second evaluation, approved by the PSC on November 16, 1988, encompassed two plant design changes (DCP). These were DCP 85-2075 regarding the hardware upgrade of the Core Protection Calculators (CPC) (Unit 2), and DCP 85-2075A regarding the new CPC room. This evaluation was very detailed; however, the team had two concerns with this evaluation:

On page 20, the evaluation stated a conclusion that "the man-machine interface of the new 3205 CPC system is equal to, or superior to, the original 7/16 based CPC system." This conclusion seemed to be premature, because on page 13, the evaluation stated that "the acceptability of the human factors elements of this design [the use of plasma displays in the control room as part of the new CPC operator

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modules] will be verified by a human factors evaluation." The licensee acknowledged that the conclusion was out of place, but provided a completed human factors review, dated April 14, 1989, which concluded that the new CPCs would be acceptable from a human factors standpoint. The team informed the licensee that in their review of a 50.59 evaluation the PSC should verify that all conclusions have a written basis in the evaluation. The team did not evaluate the adequacy of the human factors evaluation as it was outside the scope of the inspection. However, the evaluation appeared to be brief and superficial.

Regarding the postinstallation electrical and physical isolation fault testing and the general acceptability of the new CPC hardware, page 15 of the evaluation references the Palo Verde, Unit 1, Safety Evaluation Report as justification for doing fault analysis instead of fault testing for the new CPC hardware at ANO-2. The team discussed this with the NRR Instrumentation and Controls Branch and determined that because fiber optics were to be utilized, the use of fault analysis was probably acceptable. However, the staff requested that the licensee submit the 50.59 evaluation for review because of the extensive effort that was expended to review the CPCs prior to the licensing of ANO-2. The NRC staff made a preliminary conclusion that the proposed CPC hardware change was within the scope of changes allowed under 10 CFR 50.59, but wanted to review the change further to reach a final conclusion. This was discussed with the licensee by telephone on June 2, 1989, and the licensee agreed to submit the CPC design change 50.59 evaluation and other relevant documentation to NRR for review. This issue will be addressed as a licensing action by NRR.

c. Training and Certification Program for 50.59 Reviewers

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Since the 50.59 Reviewer Certification program began in 1987, approximately 199 licensee personnel have gone through the 16-hour training class. Out of these, about 12 persons were not certified. ANO departments with certified reviewers were Plant Modifications, Plant Support, Plant Engineering, Licensing, Quality Assurance, Design Engineering, Maintenance, Training, Operations, and Administration. At the time of the inspection, the licensee had just begun the 2-year recertification process which included classroom lectures and a written examination.

The team reviewed the lesson plan used for the certification training, Course No. AS-10800-050, dated August 12, 1986. No problems were noted. A good aspect of the lesson plan was the workshop portion in which the students gain familiarity with the LBs and the LDRS through hands on exercises, judging examples of 50.59 evaluations, and doing 50.59 determinations and evaluations.

The team reviewed the test question bank which was used to make the initial certification tests. It appeared that it required updating because many of the questions were written in the context of Rancho Seco rather than ANO-1 and -2. (It was explained that the licensee employee who had set up the ANO training program had also done so for other utilities.) Although the team did not compare this question bank to the ANO Training Department requirements, it appeared that they had not been prepared and reviewed in a manner consistent with normal licensee practice. The licensee training representative with principal responsibility for the 50.59 Certification training program indicated his intention to correct this problem. The team reviewed a copy of a recently given requalification examination and found that it appeared to be adequate.

One weakness noted in the training program was the lack of a feedback process to improve the training quality by incorporating lessons learned from poorly written or unsatisfactory 50.59 reviews into the lesson plan. Such a process could also facilitate the identification of consistently poor reviewers, so that appropriate action could be taken. The team noted that an informal effort to obtain examples of unsatisfactory reviews had begun.

The team concluded that the licensee had implemented a 50.59 reviewer certification program that was consistent with the requirements of Procedure 1062.04, but that improvements, as noted above, were needed. The licensee acknowledged the team's concerns, and stated that improvements were planned.

No violations or deviations were identified.

5. Exit Meeting (30703)

Exit meetings were conducted on May 19 and June 16, 1989, with the licensee representatives identified in paragraph 1 of this report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during this inspection. During these meetings, the inspectors summarized the scope and findings of the inspection.