

APPENDIX C

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-313/85-23  
50-368/85-24

Licenses: DPR-51  
NPF-6

Dockets: 50-313  
50-368

Licensee: Arkansas Power and Light Company (AP&L)  
P. O. Box 551  
Little Rock, Arkansas 72203

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

Inspection At: ANO Site, Russellville, Arkansas

Inspection Conducted: September 1-30, 1985

Inspectors: *for* D M Hunnicutt  
W. D. Johnson, Senior Resident  
Reactor Inspector  
(pars. 2, 4, 5, 6, 8, 9)

10/24/85  
Date

*for* D M Hunnicutt  
P. H. Harrell, Resident Reactor  
Inspector  
(pars. 2, 3, 4, 5, 6, 7, 8)

10/24/85  
Date

Approved: D M Hunnicutt  
D. M. Hunnicutt, Acting Chief,  
Project Section B, Reactor Project Branch

10/24/85  
Date

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Inspection Summary

Inspection Conducted September 1-30, 1985 (Report 50-313/85-23)

Areas Inspected: Routine, unannounced inspection including operational safety verification, maintenance, surveillance, design change control, followup on previously identified items, followup on a licensee event report, followup on an allegation regarding an emergency diesel generator Technical Specification surveillance, and nonlicensed staff training.

The inspection involved 100 inspector-hours (including 6 backshift hours) onsite by two NRC inspectors.

Results: Within the eight areas inspected, one deviation was identified (failure to implement B&W recommendations for the high pressure injection/makeup nozzles, paragraph 3).

Inspection Summary

Inspection Conducted September 1-30, 1985 (Report 50-368/85-24)

Areas Inspected: Routine, unannounced inspection including operational safety verification, maintenance, surveillance, design change control, followup on previously identified items, followup on an allegation regarding an emergency diesel generator Technical Specification surveillance, and nonlicensed staff training.

The inspection involved 104 inspector-hours (including 5 backshift hours) onsite by two NRC inspectors.

Results: Within the seven areas inspected, two violations were identified (failure to maintain an operating procedure in an up-to-date status, paragraph 4, and failure to maintain a pipe support in its design configuration, paragraph 4); and one deviation was identified (failure to meet a commitment to B&W Safe-End Task Force Recommendation, paragraph 3.)

DETAILS

1. Persons Contacted

- \*J. Levine, ANO General Manager
- R. Ashcraft, Electrical Maintenance Supervisor
- \*B. Baker, Operations Manager
- T. Baker, Technical Analysis Superintendent
- D. Barton, Maintenance Training Supervisor
- D. Bennett, Mechanical Engineer
- R. Blankenship, Nuclear Engineer
- M. Bolanis, Health Physics Superintendent
- \*P. Campbell, Licensing Engineer
- B. Converse, Plant Performance Supervisor
- E. Corliss, I&C Supervisor
- D. Crabtree, Mechanical Engineer
- L. Dugger, Acting I&C Maintenance Superintendent
- R. Dyer, Planning and Scheduling Coordinator
- E. Ewing, Engineering & Technical Support Manager
- E. Force, Unit 1 Operations Training Supervisor
- L. Gulick, Unit 2 Operations Superintendent
- D. Hamblen, Quality Control Engineer
- H. Hollis, Security Coordinator
- \*L. Humphrey, Administrative Manager
- R. Jackson, Lead Administrative Trainer
- D. Johnson, Licensing Engineer
- G. King, Operations Trainer
- J. Lamb, Safety and Fire Protection Coordinator
- D. Lomax, Licensing Supervisor
- A. Massengale, Mechanical Maintenance Supervisor
- J. McWilliams, Unit 1 Operations Superintendent
- J. Montgomery, Human Resources Supervisor
- B. Neal, Lead I&C Trainer
- \*M. Pendergrass, Acting Engineering & Technical Support Manager
- W. Perks, Unit 2 Operations Training Supervisor
- V. Pettus, Mechanical Maintenance Superintendent
- \*D. Provencher, Quality Engineering Supervisor
- E. Rice, Electrical Maintenance Supervisor
- P. Rogers, Plant Licensing Engineer
- L. Sanders, Maintenance Manager
- \*L. Schempp, Nuclear Quality Control Manager
- C. Shively, Plant Engineering Superintendent
- R. Simmons, Planning and Scheduling Supervisor
- M. Snow, Little Rock Licensing Engineer
- A. South, Operations Trainer
- G. Storey, Safety and Fire Protection Coordinator
- C. Taylor, Operations Technical Support
- L. Taylor, Plant Licensing Engineer

B. Terwilliger, Operations Assessment Supervisor  
R. Tucker, Electrical Maintenance Superintendent  
J. Vandergrift, Training Superintendent  
J. Waid, Administrative and Technical Support Training Supervisor  
D. Wagner, Health Physics Supervisor  
\*R. Wewers, Work Control Center Manager  
J. Wilson, Lead Electrical Trainer  
G. Woolf, Operations Technical Support  
C. Zimmerman, Operations Technical Support

\*Present at exit interview.

The inspectors also contacted other plant personnel, including operators, technicians, and administrative personnel.

2. Followup on Previously Identified Items (Units 1 and 2)

(Closed) Severity Level IV Violation 368/8507-01: Failure to install a nonlatching mechanism on fire door (FD) 210 as required by a design change package (DCP).

The licensee has reviewed the requirements for installing a nonlatching mechanism on FD 210 for high energy line break (HELB) considerations. The results of this review indicated that the room enclosed by FD 210 does not contain high energy lines; therefore, HELB considerations for the area are not required. Even though the licensee failed to install a nonlatching door as required by the DCP, the present latchable fire door has been found to be satisfactory.

The licensee stated that the failure to install FD 210 in accordance with the DCP instructions was an isolated case based on confusing information provided in the DCP. The NRC inspector reviewed a random sample of other DCPs to verify correct installation. No problems were noted during this review. The DCPs reviewed by the inspector were installed after the establishment of the AP&L onsite field construction management group. Based on the review by the NRC inspector, it appears that the installation of DCPs is now adequate.

(Closed) Severity Level V Violation 368/8507-02: Failure to wear beta goggles in an area requiring beta protection.

The licensee stated that this event was discussed with the appropriate contractor personnel who agreed to implement a program to ensure that personnel working at sites would follow and abide by plant procedures. The licensee also counseled the AP&L individual present during the radiological infraction

regarding the necessity for ensuring that contractor personnel obey the requirements in plant procedures. In addition, the licensee has agreed to include this incident as an item of discussion in the general employee training and retraining classes.

- (Closed) Open Item 313/8513-02; 368/8513-04: Consistency of training between the operators on each unit.

The licensee has performed an evaluation to determine if inconsistencies exist in the training between operators on each unit. Based on the results of this evaluation, the licensee made changes to the read-and-sign lists of emergency and abnormal procedures provided to licensed operators on both units. This action will ensure that operators on both units receive the same level of training.

- (Closed) Severity Level IV Violation 368/8513-03: Inadequate emergency and abnormal procedure reviews by licensed operators.

The licensee has reviewed the required read-and-sign list of emergency and abnormal procedures for completeness. Based on this review, the list was revised to include all appropriate procedures. To prevent recurrence, the lists for Units 1 and 2 have been removed from the training files and placed under the control of the operator licensing clerk. Prior to issuance, the lists will be reviewed to verify that they are complete, accurate, and up to date.

- (Closed) Deviation 313/8214-24: Failure to make a procedure change for Unit 1 warning against the use of the decay heat removal system during accidents involving significant core damage.

The following two caution notes have been included in the inadequate core cooling section of Unit 1 Emergency Operating Procedure 1201.01:

CAUTION

IF SIGNIFICANT CORE DAMAGE HAS OCCURRED, INITIATION OF SUMP RECIRCULATION MAY CAUSE HIGH RADIATION IN AREAS NEAR DECAY HEAT AND HPI SYSTEM COMPONENTS. IF HIGH RADIATION LEVELS ARE EXPECTED, CARE SHOULD BE TAKEN TO EVACUATE PERSONNEL FROM THE AFFECTED AREAS PRIOR TO ESTABLISHING SUMP RECIRCULATION.

CAUTION

FOLLOWING ANY SIGNIFICANT CORE DAMAGE, THE EFFECTS ON ACCESS TO VITAL AREAS DUE TO HIGH RADIATION LEVELS SHOULD BE CONSIDERED PRIOR TO PLACING THE DECAY HEAT SYSTEM IN SERVICE. IF KNOWN LEAKAGE EXISTS ON A SINGLE LOOP (I.E., DECAY HEAT PUMP SEAL LEAKAGE) PREFERENCE IS TO BE GIVEN THE OTHER LOOP FOR LONG TERM OPERATION AFTER PRESSURIZER COOLDOWN IS COMPLETE.

(Open) Open Item 313/8419-03; 368/8419-03: The health physics superintendent had not reviewed appropriate lesson plans.

The health physics superintendent has completed his review of health physics lesson plans which are being used by the training staff. However, many operations lesson plans have not been reviewed and signed by the operations superintendent. The licensee should ensure that appropriate lesson plan reviews are performed as required by the cognizant plant superintendent. Procedure 1063.01 states that department heads/section leaders and group supervisors/first-line supervisors are responsible for reviewing and approving training sequences and lesson plans to verify that the needs identified by position task analysis or their own internally generated needs have been satisfied.

3. Licensee Event Report (LER) Followup (Unit 1)

Through direct observation, discussions with licensee personnel, and review of records, Unit 1 LER 82-009/01T-0 was reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence has been accomplished in accordance with Technical Specifications.

Problems with high pressure injection/makeup (HPI/MU) nozzles at other Babcock and Wilcox (B&W) plants prompted AP&L to inspect and repair, as appropriate, the HPI/MU nozzles on Unit 1. LER 82-009/01T-0 provided information regarding the inspection and repair of the Unit 1 HPI/MU nozzles. The method of inspection and repairs was performed based on the recommendations of the B&W Owner's Group Safe-End Task Force. AP&L performed the recommended inspections and repairs in accordance with DCP 82-1018. The NRC inspector reviewed the completed DCP and noted no problems.

The Safe-End Task Force also provided recommendations in Section 15 of their report, "Babcock and Wilcox 177 Fuel Assembly Owner's Group Safe End Task Force Report on Generic Investigation of HPI/MU Nozzle Component Cracking," B&W document No. 77-1140611-00, to ensure proper HPI/MU system operation. The recommendations included control of various system parameters that could affect the HPI/MU nozzles, procedure changes for initiating flow through the HPI/MU nozzles during plant startup, and the collection of data for evaluation of any possible future problems.

In response to a request from the NRC's Office of Nuclear Reactor Regulation, AP&L sent a letter (1CAN048501), dated April 22, 1985, to the NRC stating which portions of the task force recommendations would be implemented. The letter stated that all recommendations had been implemented except a bypass flow of 1.0 gpm would be maintained in lieu of the task force recommendation of 1.5 gpm.

The NRC inspector reviewed the licensee's actions to verify that the recommendations had been implemented. During this review, the NRC inspector noted a number of discrepancies. These discrepancies are listed below:

- . The task force recommended that, "A known amount of bypass flow ... should be maintained and checked frequently ... " The NRC inspector found that there is not a licensee procedural requirement for the bypass flow to be checked frequently and that the flow has not been checked. In addition, the NRC inspector also noted that the flowmeter for bypass flow indication has been pegged high since October 1983, as indicated by a deficiency tag installed on the flowmeter. The licensee has failed to meet this recommendation.
- . The task force recommended that, "In the event that future anomalies are discovered, proper logging of HPI initiations will be invaluable. This procedure should include: nozzles used, temperature of borated water storage tank (BWST), temperature of cold leg before and after HPI initiation, pressure, flow rate, and duration of HPI flow." The licensee has not established a formal program to institute this recommendation. Some of the data, such as BWST temperature, temperature of cold leg before and after HPI initiation, pressure, and nozzles used are available from logs or reports that already exist. The licensee has no procedural requirements to record the data for HPI flowrate and duration of HPI flow. The licensee has had one event where HPI flow has been initiated since the issuance of the AP&L letter. In this case, the duration of HPI flow was recorded in the station log by the shift supervisor. The licensee has not fully implemented this recommendation.

The licensee has implemented the remaining recommendations made by the task force. The NRC inspector verified implementation by review of operations logs, procedures, transient reports, inservice inspection plan, and nozzle stress analysis.

The failure of the licensee to fully implement the task force recommendations as committed to the NRC in a letter dated April 22, 1985, is an apparent deviation. (313/8523-01)

4. Operational Safety Verification (Units 1 and 2)

The NRC inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators. The inspectors verified the operability of selected emergency systems, reviewed tagout records, verified proper return to service of affected components, and ensured that maintenance requests had been initiated for equipment in need of maintenance. The inspectors made spot checks to verify that the physical security plan was being implemented in accordance with the station security plan. The inspectors verified implementation of radiation protection controls during observation of plant activities.

The NRC inspectors toured accessible areas of the units to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibration. The inspectors also observed plant housekeeping and cleanliness conditions during the tours. No areas were noted where additional housekeeping attention was required.

The NRC inspectors walked down the accessible portions of the Unit 2 low pressure safety injection (LPSI) system. The walkdown was performed using Procedure 2104.40 and Drawings M-2232 and M-2236. During the walkdown, the NRC inspectors noted minor discrepancies of an editorial nature between the drawings, procedure, and plant as-built conditions. Licensee personnel stated the discrepancies would be corrected.

In addition to the minor discrepancies of an editorial nature discussed above, the NRC inspectors also noted that valves were shown on the piping and instrument drawing (P&ID) but not included on the valve lineup. The NRC inspectors reviewed this discrepancy and noted that the planning and scheduling group had issued a plant engineering action request to onsite plant engineering to eliminate the duplicate use of four valve numbers in the LPSI system. Engineering assigned the four valves new numbers, and changed and reissued the P&ID on June 27, 1985. However, engineering failed to notify operations of the change in valve numbers due to a poorly defined interface between the two groups. For this reason, the valve alignment sheets contained in Procedure 2104.40 did not accurately reflect the as-built status of the plant. The failure to maintain a system operating procedure in an up-to-date status is an apparent violation of Technical Specification 6.8.1. (368/8524-01)

The NRC inspector also walked down portions of the high pressure safety injection (HPSI) system to verify that the 'C' HPSI pump, the swing pump, and its associated auxiliary equipment were properly aligned to the 'B' HPSI pump side. This verification was performed due to the 'B' HPSI pump being out of service. No problems with the alignment were noted.

During a plant tour on September 10, 1985, the NRC inspector observed two pipe supports in an abnormal configuration. Pipe support 2HCC-32-H16 is on the line between the reactor drain tank and the waste management

system. P&ID M-2214 indicates that this portion of line 2HCC-32-3 has been upgraded to seismic class I. There was a chain fall attached between pipe support 2HCC-32-H16 and a nearby wall, applying an unanalyzed horizontal stress on the pipe support. This uncontrolled change to a seismic class I pipe support is an apparent violation. (368/8524-02) Upon notification, the licensee removed the chain fall.

The second discrepancy involved the tailpipe from the 'A' high pressure safety inspection pump discharge relief valve (2HCD-18-1). One pipe support on this line (PS-1 and Figure 295) was disconnected from its anchor bolts. This is a seismic class II hanger. Upon notification, the licensee properly installed the pipe support.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under Technical Specifications, 10 CFR, and administrative procedures.

5. Monthly Surveillance Observation (Units 1 and 2)

The NRC inspector observed the following Technical Specification required surveillance testing:

- . Unit 1 emergency diesel generator monthly test (Procedure 1104.36)
- . Unit 2 reactor building spray pump monthly test (Procedure 2104.05)

The NRC inspector verified that testing was performed in accordance with adequate procedures, test instrumentation was calibrated, limiting conditions for operation were met, removal and restoration of the affected components were accomplished, test results conformed with Technical Specifications and procedure requirements, test results were reviewed by personnel other than the individual directing the test, and any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed portions of the following test activities:

- . Unit 2 plant protective system channel 'C' monthly test (Procedure 2304.39)
- . Unit 1 plant protective system channel 'C' monthly test (Procedure 1304.39)
- . Unit 2 emergency diesel generator 1 monthly test (Procedure 2104.36)
- . Unit 2 emergency diesel generator 2 monthly test (Procedure 2104.36)

No violations or deviations were identified.

6. Monthly Maintenance Observation (Units 1 and 2)

Station maintenance activities of safety-related systems and components listed below were observed to ascertain that they were conducted in accordance with approved procedures, Regulatory Guides, and industry codes or standards; and in conformance with Technical Specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Job orders (JO) were reviewed to determine status of outstanding jobs and to ensure that priority is assigned to safety-related equipment maintenance which may affect system performance.

The following maintenance activities were observed:

- . Repair of discharge check valve on Unit 1 service water pump (JO 702476)
- . Investigate cause of Unit 2 plant protection system trip annunciator alarm (JO 701815)
- . Disassemble and repair Unit 2 high pressure safety injection pump (JO 701354)
- . Repair or replace operator for Unit 2 service water valve 2CV-1419-1 (JO 702158)

No violations or deviations were identified.

7. Design Change Control (Units 1 and 2)

This inspection is a continuation of an inspection initiated during the last inspection period. During this portion of the inspection, the NRC inspector reviewed DCPs that were completed during the recent refueling outages on Units 1 and 2. The DCPs reviewed have not had a final review performed by the onsite plant engineering group. These DCPs, although not processed through the complete review cycle, were reviewed to determine the status of the current design change program at ANO.

This review included verification that design changes were made in accordance with Technical Specifications, industry guides and standards, 10 CFR, and plant procedures.

The DCPs listed below were reviewed by the NRC inspector:

Unit 1

- 83-1052 Install new actuators on valves CV-1054, CV-2215, and CV-2221
- 83-1063 Upper core barrel bolts replacement
- 84-1019 Installation of local manual circuit breakers on emergency diesel generators
- 84-1040 Vital power for control room communications radio

Unit 2

- 82-2019 Installation of service water loop high point vents
- 83-2029A Pressurizer relief line pipe support modifications
- 83-2152 Installation of new emergency feedwater flow transmitters
- 84-2044 Duct modifications to cool panel 2C384
- 85-2007 Installation of local switches for emergency diesel generator room exhaust fans

The DCPs listed above were reviewed for the following, as appropriate:

- . Review and approval was in accordance with the requirements of 10 CFR Part 50.59 and the reviews were technically adequate.
- . Review and approval was in accordance with Technical Specification, quality assurance (QA), and quality control (QC) requirements.
- . Postmodification test records were reviewed by the licensee and an evaluation of the test results was performed.
- . Acceptance criteria was provided and test results met the established criteria.
- . Test deviations were resolved and retesting performed, if required.
- . Appropriate changes were made to operating and surveillance procedures.

- . Drawings were revised to reflect the DCP changes.
- . Field change notices (FCNs) received the proper reviews and approvals.
- . QA and/or QC reviews of the completed DCPs had been performed.

During the review, the NRC inspector noted that FCNs had been reviewed by the plant safety committee (PSC) and the general manager (GM), but had not been reviewed by QC. Under the present program, the onsite plant engineering superintendent determines during his review of an FCN, whether or not the FCN will receive QC, PSC, and/or GM review. Typically, the FCN will receive a review by QC, PSC, and/or the GM if the FCN changes the function, safety, or reliability of the original design change package. The choice of which individual's review the FCN is dependent on the decision made by the onsite plant engineering superintendent. In a discussion with the onsite plant engineering superintendent and in a subsequent separate discussion with the QC manager, the NRC inspector noted a difference of philosophy between the two as to which FCNs should receive a QC review. Based on questions raised by the NRC inspector, the two individuals met and agreed as to what FCNs the onsite plant engineering superintendent would forward for QC review. This previously undefined interface between plant engineering and QC will result in a procedure change that will include a requirement that all FCNs routed to the PSC for review will also receive a QC review. The procedure revision has not yet been issued. The NRC inspector will review this item after the procedure receives final approval to verify that the requirement properly reflects the need for a QC review of appropriate FCNs.

The problem discussed above regarding the interface between plant engineering and QC is the second example of a plant engineering interface problem noted during this inspection period. The first example, discussed in paragraph 4 of this report, resulted in a violation. The licensee should review the interface between plant engineering and other onsite groups to ensure that the necessary information is being provided by plant engineering.

No violations or deviations were identified.

8. Followup on Allegation Number 4-85-A-087 (Units 1 and 2)

An allegation was made that the timing of emergency diesel generator (EDG) starts on the Unit 1 EDGs was not being performed in accordance with the requirements stated in the Technical Specifications. The Unit 1 Technical Specifications require that the EDGs be started and ready for loading within 15 seconds. The allexer stated that the point when the timing of the start was initiated was not correct in that the operators

were not initiating the timing when the start button was depressed. In the case of starts locally in the EDG rooms, the operators were initiating timing when they heard air enter the starting motors. In the case of starts in the control room, the operators were initiating timing when the EDG run indicating light was illuminated.

The NRC inspectors reviewed the allegation by discussion with operations personnel, observation of EDG starts, and a review of the records of past starts.

A review of past Technical Specification surveillance records did not provide any definite conclusions regarding any one shift consistently recording low start times. The data indicated that start times varied from 10.5 to 14.5 seconds. The NRC inspectors also reviewed past results of integrated emergency safeguards features (ESF) tests. When ESF tests are performed, a chart tracing of the time period from the receipt of an EDG start signal to the closing of the EDG output breaker is recorded. The results of the chart tracings indicate that the length of time from start signal initiation to breaker closing is approximately 6 to 7 seconds.

The alleged also contacted licensee management personnel with the concerns regarding performance of EDG start surveillances. The licensee performed a review and reached the conclusion that timing of starts between the Unit 1 crews was not consistent. The licensee found that two crews started timing from the control room when the EDG run light illuminated and stopped the timing when the voltage had cycled twice through 4160 volts. The remaining four crews started timing when the start switch was actuated and stopped timing when the voltage reached 4160 volts. For starts from the EDG rooms, one crew timed from when air entered the starting motors until the voltage cycled twice through 4160 volts. The remaining five crews timed from pushing the start button until the voltage reached 4160 volts. To eliminate the inconsistency between the crews, the licensee changed the surveillance procedure to specify precisely the initiating and ending events for timing EDG starts. The licensee also concluded that the methods used by all the Unit 1 operations crews were conservative when compared to the Technical Specification requirements.

Based on the reviews and observations by the NRC inspectors and a review of the licensee's analysis, it appears that the licensee's timing of diesel generator starts have been technically adequate. Even though the timing of the starts were not consistent between shifts, the method used adequately met the Technical Specification requirements. The revision of the operating procedure should eliminate confusion between operating crews and provide a consistent method of performance.

The NRC inspectors also verified that the timing of EDG starts by the Unit 2 operating crews were being performed satisfactorily. No problems were noted during observations of the Unit 2 EDG starts.

No violations or deviations were noted.

9. Non-Licensed Staff Training (Units 1 and 2)

The objective of this inspection was to evaluate the effectiveness of the training programs for the nonlicensed plant staff. Training programs for the following groups of personnel were included in this review:

- . Principal staff members
- . Maintenance technicians
- . Health physics and chemistry technicians
- . Nonlicensed operators
- . Technical staff members
- . Quality control inspectors

a. General

The licensee's site training staff includes 54 personnel. These are listed below by title:

- . Training Superintendent
- . Maintenance Training Supervisor
  - Instrumentation and Controls Trainers (4)
  - Mechanical Maintenance Trainers (3)
  - Electrical Maintenance Trainers (4)
- . Unit 1 Operations Training Supervisor
  - Lead Classroom Trainer
  - Lead Simulator Trainer
  - Operations Trainers (10)
- . Unit 2 Operations Training Supervisor
  - Lead Classroom Trainer
  - Lead Simulator Trainer (vacant)
  - Operations Trainers (9 + 1 vacant)
- . Simulator Support Supervisor
  - Simulator Engineers (3)
  - Software Specialists (2)

- . Administrative and Technical Support Training Supervisor
  - General Employee Trainers (4)
  - Health Physics and Radioactive Waste Trainers (2)
  - Chemistry/Radiochemistry Trainers (2)
  - Lead Administrative Trainer
  - Graphics Specialist

In addition, the following personnel support the training staff:

- Full-time clerks (5)
- Contract clerks (4)
- Temporary draftsman
- Consultants (2)
- Office Services Personnel (Training Library)

AP&L Energy Supply Skills Center personnel provide basic entry level training in power plant principles and maintenance skills for employees needing this type of training. These courses are conducted, in part, at the ANO training facility and, in part, at the Energy Supply Skills Center.

b. Event Evaluation

The NRC inspector reviewed several recent equipment failures and operating events to evaluate the following items:

- . Whether classroom training or on-the-job-training prior to the event was sufficient to have either prevented or mitigated the event.
- . The qualifications of the personnel involved.
- . Whether responsibility for administering and evaluating the related training was clearly established.
- . Whether any lessons learned from the event were factored into the training program.

Classroom training for nonlicensed personnel involved in the events reviewed (primarily maintenance and operations department personnel) has been quite extensive. However, in most cases, classroom training was too general in nature to have significant potential to prevent or mitigate the events reviewed. For example, a classroom course on centrifugal pump maintenance is given to mechanical maintenance personnel. This course does not include the specific details of properly setting the balance drum clearance on the Unit 1 steam-driven emergency feedwater pump. Laboratory training is provided in which personnel actually perform disassembly and repair

of various types of pumps, but this does not include every specific pump in use at the site. This classroom and laboratory training is intended to provide the craftsman with the basic knowledge and skills necessary to perform his/her assigned tasks. It does not attempt to, nor could it, provide all the knowledge and skills necessary to repair each specific component in the plant. Even well trained and experienced personnel need the guidance of a well-written procedure in order to properly perform complex maintenance tasks. For several of the events reviewed, the licensee had revised and improved the related procedure following the event.

The licensee has recently revised the program for on-the-job training. The new program is quite comprehensive and it should lead to overall improved qualifications of plant personnel. For the events reviewed, the NRC inspector did not find that on-the-job training was a factor. Experienced and qualified personnel were involved, but the guidance and caution statements in the procedure were insufficient in some cases.

A review of the licensee's administrative procedures for station training indicated that responsibility for administering and evaluating training is clearly assigned.

The NRC inspector found that lessons learned from the events had been factored into the training program when appropriate. The primary means of accomplishing this is by use of the Training Evaluation-Action Request (TEAR). The TEAR is initiated by a plant staff member to identify needed changes in lesson plans or a need for new training courses. The training superintendent assigns a training staff member to respond to the request by developing a new course, modifying a lesson plan, or by other means. Feedback on action taken is provided to the originator. The TEARS are logged and tracked to completion by training department personnel.

c. Interviews with Personnel

Several plant personnel were interviewed by the NRC inspector to determine whether their general knowledge in administrative controls, radiological safety, industrial safety, security, the emergency plan, and quality assurance was sufficient for their assigned tasks. Interviews were conducted with new, experienced, and temporary personnel. The general knowledge of these employees in the stated areas was adequate.

The general employee training program covers these topics plus plant organization and plant description in a 40-hour course given to new employees. Refresher training is given to regularly employed personnel each calendar year.

Interviews were conducted with maintenance and nonlicensed operators to determine whether they had received training for specific tasks assigned, such as complicated surveillance tests, major equipment repair, operating procedures, and emergency procedures. Training for complicated surveillance tasks and major equipment repairs is most often accomplished with on-the-job training. Some items, such as reactor coolant pump seal replacement, are covered by specific training courses. In some cases, equipment vendors are contracted to provide specific training on maintenance of their equipment. Classroom and on-the-job training on operating and emergency procedures was provided for nonlicensed operators.

d. Record Review

Training records covering the period of January 1, 1984, through September 1, 1985, were reviewed for 17 plant staff personnel. The NRC inspector found that the training provided met or exceeded regulatory requirements and licensee commitments. In reviewing the records of shift technical advisor (STA) training, the NRC inspector found that examinations have been given following the annual requalification training, but no minimum acceptable score has been established and no remedial training has been required for an STA receiving a low score on the test. Licensee training staff personnel were aware of this weakness in their program, and stated that this will be corrected in the new STA training program which is under development.

e. Training Program Accreditation Status

The NRC inspector reviewed the status of the licensee's efforts to gain accreditation of its training programs by the Institute of Nuclear Power Operations (INPO). The training programs and their status are listed below.

- Nonlicensed operator, licensed operator, licensed senior operator, and licensed operator requalification: Accreditation was awarded in January 1984.
- Shift technical advisor: The self-evaluation report (SER) is scheduled to be submitted in June 1986.
- Instrumentation and controls technicians, electrical maintenance personnel, and mechanical maintenance personnel: The SERs were submitted to INPO in June 1985. The INPO accreditation team visited the site in August 1985.
- Health physics technicians and chemistry technicians: The SERs are scheduled to be submitted to INPO in January 1986.
- Onsite technical staff and managers: The SER is scheduled to be submitted to INPO in June 1986.

f. Conclusions

The licensee has made a large commitment to training, as evidenced by the large staff and the modern and spacious training facilities. The NRC inspector did not find indications that inadequate classroom or on-the-job training was a factor in the events reviewed. Methods have been established to update the training program in response to lessons learned from abnormal events, procedure changes, design changes, and regulatory changes. Personnel interviews indicated general satisfaction with the current training program, and the experienced personnel interviewed noted training program improvements over the past 2 years. Several of the laboratory courses were mentioned as being particularly beneficial. No significant discrepancies were identified during the records review portion of this inspection. The licensee is aggressively pursuing a realistic schedule to obtain INPO accreditation of its various training programs.

No violations or deviations were identified.

10. Exit Interview

The NRC inspectors met with Mr. J. M. Levine (AND General Manager) and other members of the AP&L staff at the end of this inspection. At this meeting, the inspectors summarized the scope of the inspection and the findings.