APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-313/88-26
50-368/88-26

Operating Licenses: DPR-51
NPF-6

Dockets: 50-313
50-368

Licensee: Arkansas Power & Light Company (AP&L)

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

Inspection At: ANO, Russellville, Arkansas

Inspection Conducted: August 15 through September 2, 1988

Inspectors:

L. E. Ellershaw, Reactor Inspector, Materials and Quality Programs Section, Division of Reactor Safety — Date: 9/19/88

L. D. Gilbert, Reactor Inspector, Materials and Quality Programs Section, Division of Reactor Safety — Date: 9/19/88

R. G. Taylor, Reactor Inspector, Materials and and Quality Programs Section, Division of Reactor Safety — Date: 9/16/88

Approved:

I. Barnes, Chief, Materials and Quality Programs Section, Division of Reactor Safety — Date: 9/21/88

Inspection Summary

Inspection Conducted August 15 through September 2, 1988 (Report 50-313/88-26; 368/88-26)

Areas Inspected: Routine, unannounced inspection including the program for design changes and modifications; design changes and modifications - reactor coolant pump pressure sensing line failure; inservice inspection activities for Unit 1; selection of welding and nondestructive examination processes in design change activities; and an annual review of the quality assurance program including audits, the control of procurement, and receipt, storage, and handling of components and materials.

Results: Within the eight areas inspected, four violations (failure to revise procedures to reflect the abolishment of an organization performing design change functions, paragraph 2; failure to submit a relief request to the NRC when required, paragraph 4.a; failure to have a procedure for conduct of QA/QC receiving inspections, paragraph 6; and failure to have a qualification file for an auditor of record, paragraph 7) were identified.

DETAILS

1. Persons Contacted

AP&L Personnel

#*J. M. Levine, Executive Director, Nuclear Operations
*L. W. Humphrey, General Manager, Nuclear Quality (NQA)
#*R. D. Lane, Plant Engineering Manager
*R. Wewers, Work Control Center
*J. Connors, Modifications Group
#*D. B. Lomax, Plant Licensing Supervisor
#*P. L. Michalk, Plant Licensing
#*H. T. Greene, QA Superintendent
*G. T. Jones, General Manager, Design Engineering
W. A. Eaton, Manager of Mechanical, Civil and Structural Design Engineering
G. D. Provencher, QA Audit and Surveillance Group Supervisor
W. Michalk, Plant Engineer
J. M. Ray, QA Engineer
D. R. Howard, Licensing Manager
J. L. Taylor-Brown, Quality Control (QC)/Quality Engineering (QE) Superintendent
B. A. Baker, Manager Plant Modifications
E. C. Ewing, General Manager Plant Support
W. M. Butzlaff, QA Engineering Supervisor
D. R. Payne, Inservice Inspection Coordinator
M. W. Hall, Welding Engineer
G. M. Goodson, Supervisor Project Engineering
B. M. Durst, Superintendent of Project Engineering

NRC Personnel

*R. C. Haag, Resident Inspector
W. D. Johnson, Senior Resident Inspector

The NRC inspectors also interviewed other licensee and contractor personnel during the inspection.

*Denotes those persons that attended the exit interview on August 19, 1988.
#Denotes those persons that attended the exit interview on September 2, 1988.

2. Design Changes and Modifications Program (37702)

The purpose of this area of the inspection was to ascertain whether the licensee is implementing a QA program for the control of design changes and modifications that is in conformance with NRC requirements and the

commitments contained in the Safety Analysis Reports for the ANO facilities. The apparent primary document that broadly defines the overall program is Generation and Transmission Major Program Number 20, "ANO Plant Modifications Manual." Appendix C to this document provides an activities flow chart that begins with problem identification and culminates in implementation of a Design Change Package (DCP). The flow chart indicates that five different organizations within the licensee's overall nuclear organization are involved in one or more aspects of the program. The implementing procedures that flow from the program manual indicate that the engineering group could be either Little Rock General Office Engineering or Plant Engineering, the latter group being located onsite. The NRC inspector initially identified eight procedures in the engineering area [illegible] or [illegible]de substantial detail on how the program is to be implemented. The [illegible]ng procedures were reviewed in detail by the NRC inspector:

- Procedure 1000.103, "Plant Modification Process Procedure," Revision 2, dated September 23, 1987
- Procedure 1032.01, "Plant Engineering Action Requests and Plant Changes," Revision 9, dated November 16, 1987
- Procedure 6000.10, "Design Control Process," Revision 0, dated April 15, 1987
- Procedure 6010.001, "DCP Developement," Revision 0, dated November 16, 1987
- Procedure 6000.20, "Design Document Control," Revision 3, dated August 25, 1988
- Procedure 6000.30, "Control of Installation," Revision 1, dated July 24, 1988
- Procedure 6030.01, "Installation Plan," Revision 2, dated July 23, 1988
- Procedure 6030.002, "Field Change Request (FCR) Preparation and Control," Revision 3, dated August 16, 1988
- Procedure 6030.100, "Modification Implementation Procedure Program," Revision 0, dated December 7, 1987

The above procedures also reference a number of other procedures, generally in relation to departments other than engineering that are involved in the design change and modification processes. The NRC inspector reviewed the following of the many referenced procedures in less detail since they largely appeared to involve an organization entitled Nuclear Services that had little apparent involvement in the generation of engineering requirements for plant changes:

- o GTEP-201, "Design Change Initiation and Control," Revision 16
- o GTEP-202, "Design Process Procedure," Revision 10
- o GTEP-203, "Document Preparation, Change and Review," Revision 7
- o GTEP-204, "Design Deficiency/Corrective Action," Revision 6

The flow chart and the procedures indicate a very complex program that requires many checks and balances by several different groups. Several of the checks and balances are utilized to assure that any given change is warranted, will be safe, and is feasible. Other checks involve financial considerations and scheduling. It appeared during the initial review that the Nuclear Services organization played a very substantial part in the overall program. During discussions of the complexity of the program with the NRC Senior Resident Inspector, the NRC inspector learned that the Nuclear Services organization had been abolished early in 1988. An interview with the General Manager of Design Engineering established that Nuclear Services had been abolished during a major reorganization in which nuclear related engineering activities were transferred from the Generation and Transmission Engineering group to a Nuclear Operations group. The reorganization was said to have been undertaken because nuclear related engineering actions were not provided with sufficient priority in the earlier organization. The General Manager indicated that the functions and responsibilities of the Nuclear Services group had been reassigned to other groups. He further stated that it is intended that the procedures for design change and modification control will be revised and streamlined at a future time, such as by the end of 1989. The NRC inspector was provided with copy of a memorandum dated March 11, 1988, which stated that it was an update of the summary of disposition of Nuclear Service functions due to the reorganization. It was not determined during any subsequent discussions just what was being updated nor did the reassigned functions in an attachment to the memorandum directly connect with any identified existing procedure. Since the procedures for control of design changes and modifications were complex and difficult to follow as they existed before the reorganization, the situation has been compounded by the reassignment of functional activities inherent within the procedures by memoranda that are not relatable to the procedures. The NRC inspector would note that output product of the design change process, the DCPs, appear to be quality products that are consistent with NRC requirements. It appears that the licensee has violated the intent of Criteria I, II, and V of Appendix B to 10 CFR Part 50 by failing to revise the procedures listed above, as a minimum, when the reorganization mentioned earlier took place. (313/8826-01; 368/8826-01)

3. Design Changes and Modifications - Reactor Coolant Pump Pressure Sensing Line Failure (37700)

The purpose of this area of the inspection was to verify that the licensee

has properly reviewed and analyzed a series of design changes implemented during the period of August 1-15, 1988, with due consideration to the requirements of 10 CFR 50.59. The design changes involved were related to an incident that occurred on or about August 1, 1988, in which a small instrument line originating on the Reactor Coolant Pump "A" seal cartridge in Unit 2 severed. Following the severance, reactor coolant leakage of an estimated 40 gallons per minute occurred, but was fully contained within the reactor building.

The following is a brief description of the principal piping and tubing associated with the reactor pump seal provided to assist in understanding the balance of the information provided herein. Each of the four reactor coolant pumps is provided with a seal cartridge secured to the pump casing through which passes the prime mover shaft connection to the pump impeller. Each cartridge has four external connections that do or could see full reactor operating pressure of 2250 psig. Each of the four connections has a 1/4-inch orifice within the seal casing to restrict any coolant outflow in the event that one of the connecting lines should fail. The 1/4-inch orifice will restrict any such unintended outflow to a calculated 37 gallons per minute at full reactor operating pressure. Each of the connections to a cartridge is made of 3/4 inch, schedule 160 stainless steel pipe. The highest normal pressure connection is associated with seal injection inlet water which is provided only during initial filling and venting of the reactor. The pressure involved is whatever the reactor pressure is at a given stage of system startup. The next two lines, which operate at approximately 2/3 and 1/3 of reactor pressure respectively, provide a means of sensing the pressure between the seal stages to allow the operators to assess the performance of each stage. These particular lines leave the cartridge as indicated above but are then reduced to 3/8-inch tubing for the balance of their runs to their respective instruments. The final line is a controlled bleedoff line which normally operates in the 50 to 100 psig range at about one gallon per minute flow.

The line which severed was one of the two pressure sensing lines from pump "A" cartridge. The severance occurred in the 3/8-inch tubing immediately adjacent to a fillet weld securing the tubing to the pipe through an adapter. A licensee metallurgist reported that, in his opinion, the appearance of the metals was typical of vibration induced fatigue failure.

Licensee data indicated a long history of problems with the above connecting lines to the seal cartridges, beginning shortly after the original startup of ANO-2 facility. It was noted that pump "D" had never experienced any of the reported problems. The balance of the problems were primarily shared between the "A" and "B" pumps except for the repetitive cracked welds in the seal injection line to the "C" pump. Prior to the recent incident outlined above, none of the problems had resulted in severance of either a pipe or tube and generally involved cracked welds in the 3/4-inch piping or at the junction weld to the tubing.

The licensee apparently had determined that the only reasonable course of action in response to the above incident would be to attempt to absorb tne vibration in the lines and tubing to some degree, since he could not eliminate the vibration at its source. Such vibrations are inherent to varying degrees with large rotating machinery such as the pumps. Toward that end, the licensee generated three Plant Change (PC) documents and a DCP to make modifications to various lines either in the configuration of line or in the supports of the lines. The NRC inspector reviewed each of the changes, as listed below, to assure that the changes met NRC requirements.

- PC 88-2538: This change affected two sensing lines on the "A" pump and one on the "B" pump. The changes essentially involve the installation of an 18 inch, four turn coil of tubing in place of the previous tubing configuration. One end of the tubing coil is clamped to a structural, nonvibrating beam with the other end connected to the associated pipe through a compression type tubing adapter, as opposed to previously used welded connection.

- PC 88-2608: This change affected the remaining sensing line on the "B" pump. The licensee history data indicated that the line in question generally had experienced problems at a tubing bend immediately adjacent to the tube-to-pipe transition with distress of the tubing in the bend or at the weld. The modification installed a pipe elbow to replace the tubing bend. The now straight tubing was again connected to the pipe via a compression fitting. The tubing run was also rerouted to provide the ability to absorb the vibration as well as the thermal movement of the pump assembly.

- PC 88-2666: This change was made to a pipe support on one of the 3/4-inch lines on the "A" pump that was observed to be restricting thermal movement of the pump assembly.

- DCP 88-2083: This change affected the supports for the seal injection line to "C" pump that had experienced repetitive cracked welds. The support scheme was changed to provide more support to the vent valve arrangement near the middle of the pipe run. The cracks which had been experienced were at the welds of the tee branch in the line where the vent valve arrangement attaches.

In addition to the above engineering changes, the licensee, through his maintenance procedures, applied weld overlays on 37 fillet welds in the 3/4-inch lines on all four pumps. The overlays were applied to those welds, based on engineering inspection, that had configurations that increased the concentration of stresses at the weld toe interface with the pipe. Typical would be the case were some weld convexity exists which provides a sharper angled interface. The licensee, in conjunction with personnel from the NUTECH Corporation and Wylie Laboratories, instrumented selected lines in "C" and "D" pumps to obtain information on the frequency and intensity of the vibrations involved. Such data is necessary to make

estimates of the probable life of vibrating components. The test data indicated stress levels and frequencies such that lines would have a predicted life of approximately 20 years. The tests were made after the support modifications to the "C" pump line that had the previously mentioned failure history.

The NRC inspector questioned the use of the compression type tubing fittings in the engineering changes applied to the "A" and "B" pumps since industry experience with such fittings in locations of vibration has not been acceptable. One of the principal manufacturers has cautioned against the use of their product in such environments. The licensee provided the NRC inspector with data from the Parker Hannifin Corporation which indicated that their brand of fittings known as Parker-CPI were more suitable than fillet welded connections and other brands of compression fittings in regard to acceptance of vibration due to the design of the ferrule system inside the fitting. The licensee's engineer stated that he had substantial telephonic communication with Parker Hannifin engineers who had indicated good broad industry experience with the fittings in vibrating environments. The licensee also had documentation of a vibration test performed for Parker Hannifin utilizing a simulation of several different tubing sizes and materials in typical installations. The mockup was placed on a vibration table and cycled at different amplitudes and frequencies for approximately 5 million cycles. The test report indicated that where copper tubing was used the simulations failed, but those installed with stainless steel tubing in the size involved at ANO survived the test. The NRC inspector did note that the tubing used in the test was of a lighter wall and was not carrying a pressure during the test consistent with the application at ANO. The design change documentation did not include an evaluation of the effect these differences might have on the life of the fittings.

The NRC inspector also questioned the use of the tube coil arrangement, since the Bechtel standard design drawing from which they were derived indicated that the coils were one of the standard methods for accepting thermal movements without overstressing the components. The standard drawings, however, made no mention of their tolerance to vibrational loads. The NRC inspector interviewed a plant engineer that was identified as having had a major role in the installation of the above changes. The engineer offered that he had observed the behavior of the coils with the pumps running and was confident that the coils would absorb the vibration for at least a substantial period of time. The engineer stated that both the coils and the compression fittings were only expected to last until the next refueling outage for the unit. The present plan of the licensee is to replace all of the lines at that time with high pressure flexible hoses, which by experience at other nuclear power stations, has been shown to be a successful solution to the vibration problem with the reactor coolant pumps. The licensee's Executive Director of Operations confirmed that the information obtained from the engineer was correct.

The NRC inspector did not identify any violations of NRC requirements (since the facility design basis and Technical Specifications are unchanged), or deviations from the licensee's commitments during the inspection of the above activities.

4. Inservice Inspection

a. Review of Program (73051)

The NRC inspector reviewed the licensee's program pertaining to the inservice inspection (ISI) of Unit 1 for the second 10-year interval. NRC approved the second 10-year ISI plan on January 13, 1986, for the interval of December 19, 1984, to December 19, 1994. The following documents were reviewed for conformance with the requirements of 10 CFR Part 50a(g) and ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition and Addenda through Winter 1981:

- ISI Program Requirements, Procedure No. 1092.25, Revision 1
- ISI Technical Manual for Arkansas Nuclear One-Unit 1, Volume 2, Revision 4

To verify conformance with the examination requirements specified in the ISI Technical Manual examination plan, the NRC inspector reviewed the records of ultrasonic examinations performed on the reactor vessel head to flange weld. The extent of the examination was clarified by the examination records. The NRC inspector noted that a limited examination was reported for ultrasonic examination of the vessel head-to-flange weld. The weld, as reported in Examination 02-001 for the second 10-year interval, could not be ultrasonically examined from at least one direction as required by paragraph T-441.5 of Section V of the Code. Examination 02-001 reported that the percentage of examination performed was 50 percent because of obstruction from lifting lugs, superstructure, and flange configuration. These same limitations were reported for the ultrasonic examination of this weld during the first 10-year interval. The licensee indicated that limited examinations were not submitted as relief requests, even though it was determined that conformance with certain code requirements was impractical. This is an apparent violation of 10 CFR Part 50.55a(g)(5)(iii) for failure to obtain relief from NRC where the licensee has determined that conformance with certain code requirements is impractical. (313/8826-02)

b. Review of Procedures (73052)

The NRC inspector reviewed the following Babcock & Wilcox (the contractor performing the ISI) procedures:

- Administrative Procedure for the Written Practice of Personnel Qualification in Liquid Penetrant Examination, ISI-22, Revision 9

- o Administrative Procedure for Processing Nondestructive Examination Data, ISI-69, Revision 16

- o Technical Procedure for Sulfur Content Analysis, ISI-55, Revision 3

- o Technical Procedure for Halogen Content Analysis, ISI-56, Revision 2

- o Ultrasonic Examination of Piping and Vessel Welds Joining Similar and Dissimilar Materials, ISI-120, Revision 25

- o Ultrasonic Examination of Vessel Welds and Nozzle Inside Radius Sections, ISI-130, Revision 20

- o Penetrant Examination of Welds and Base Materials, including Studs and Nuts, ISI-240, Revision 20

- o Wet or Dry Method of Magnetic Particle Examination of Welds, Studs, Bolts, and Pump Motor Flywheels, ISI-270, Revision 21

In the areas reviewed, the procedures were consistent with the requirements specified in Section XI of the ASME Boiler and Pressure Vessel Code.

5. Welding and Nondestructive Testing Activities Related to Plant Modifications (55050, 57060, 57070, and 57090)

The NRC inspector selected the following design change packages for review for the purpose of determining whether proper considerations had been applied to the selection of welding processes and nondestructive examination of welds to be made during plant modifications:

- o Design Change Packages

  DCP 85-1022, ANO-1 Containment Sump Drain Valve and Operator Replacement

  DCP 87-1101, CV-1221, Letdown Isolation Valve Replacement

  DCP 86-1106, Pressurizer Spray Line Modification

  DCP 87-D-1013, Service Water System-Piping and Valve Replacement

The following welding and nondestructive examination procedures were identified within the above packages for use in field work associated with the modifications:

o Welding Procedures (55050)

WPS P8-T-Ag, Revision 6

WPS P8-AT-Ag, Revision 5

o Nondestructive Examination Procedures (57060, 57070 and 57090)

ANO Volumetric United States Testing Examination, Procedure No. 1402.172, Revision 0

ANO Surface United States Testing Examination, Procedure No. 1402.171, Revision 0

Within the design change packages reviewed, the welding and nondestructive processes and procedures selected were appropriate for the modifications involved. Each procedure was consistent with the requirements of ASME Code Section IX for welding and Section V for nondestructive examination.

No violations or deviations were identified.

6. Annual Quality Assurance Program Review (35701)

The purpose of this area of the inspection was to verify that the ongoing implementation of the QA program is in conformance with Technical Specifications, regulatory requirements, and commitments and industry standards.

The licensee's quality program description is contained in the QA Manual Operations which forms a part of the Updated Safety Analysis Reports for both Units 1 and 2 by reference. Revisions to the QA Manual Operations are submitted on an approximately annual basis for NRC review and approval. The current docketed revision is Revision 9. The NRC inspector obtained a copy of Revision 8 for the purpose of determining the extent and nature of the changes made in Revision 9, as indicated by the change bar indicators, and whether the changes had been reflected in the licensee's implementing procedures. This review indicated that nearly all of the changes had occurred as a result of the creation of the position of Executive Director of Nuclear Operations. The NRC inspector then reviewed licensee's various QA/QC procedures to determine the extent and nature of changes made to the implementing procedures since the previous annual review during August 1987 (IR 50-313/87-23;368/87-23). This review established that a total of 28 procedures had been revised during the past year. The NRC inspector reviewed all of the revisions except for 12 procedures which are detailed procedures for the conduct of audits in specific areas. Several of the audit procedures were subsequently reviewed during the inspection of the licensee's audit program as discussed below. Most of the changed procedures were revised to reflect minor titular changes both in the QA/QC and other organizations. The most significant changes are briefly discussed as follows:

- NQA-10, "Deficiency Trending," revised to add a second level of action where trends of little safety significance are identified in audits and inspections.

- QAO-5, "Vendor/Contract Surveillance," revised to add surveillance of onsite contractor activities.

- QAO-10, "Corrective Action," revised to formalize a management escalation process for QA/QC findings.

The NRC inspector noted during the review that Procedure QCO-5, "Purchase Requisition Review, Receipt Inspection, and Independent Material Test," was indicated has having been deleted from the program on or about July 21, 1988. Further examination indicated that the procedure had been replaced by Procedures QAO-2, "QA Review of Procedures and Documents," and QAO-11, "Receipt Inspection and Independent Testing." It was found, however, that the latter procedure had, as of the end of this inspection, not been issued nor was it clearly established when it would be, since it is understood that administrative issues are involved that are holding up approval. It is understood that the reason for the cancellation of QCO-5 was the reassignment of the entire function from the QC group to the QA group. Based on an interview with the involved personnel, it appears that the same personnel are currently doing the same functions in the same manner as they had before the cancellation. The licensee has, however, apparently been in violation of Criterion V of Appendix B to 10 CFR Part 50 for a period of approximately 5 weeks since it did not have an approved procedure issued for the performance of the QA/QC receiving inspection activities. (313/8826-03;368/8826-03)

The NRC inspector also reviewed the qualification records for persons that had replaced other persons as supervisors since the last inspection. These were the positions of:

- Quality Assurance Superintendent

- Quality Control Engineering Supervisor

- Quality Control Inspection Supervisor-Modifications

- Quality Assurance Supervisor-LRGO

Each of the incumbents were found to be well qualified based on Regulatory Guide (RG) 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel."

Except as noted, no violations or deviations were identified in this area of the inspection.

7. Audit Program Review and Audit Program Implementation (40702 and 40704)

The purpose of this area of inspection was to ascertain whether the licensee has developed and is implementing a quality assurance program relating to audits of activities that is in conformance with the Technical Specifications, regulatory requirements, and commitments in the Safety Analysis Reports for Units 1 and 2.

The NRC inspector reviewed the following documents in relation to the licensee's audit program:

- Unit 1 Technical Specification, Amendment 99, and Unit 2 Technical Specification, Amendment 73. Paragraph 6.5.2.8 of both documents defines those elements of operational activities that are to be audited and at what frequency.
- Section 18.00, "Audits," Revision 8, of the Quality Assurance Manual Operations
- Procedure QAO-9, "Internal QA Surveillance," Revision 2, dated July 26, 1988
- Procedure QAO-6, "Internal Audits," Revision 3, dated July 11, 1988
- Procedure NQA-2, "Indoctrination and Training of Nuclear Quality Personnel," Revision 0, dated April 20, 1987
- Procedure QAO-1, "QA Personnel Qualification, Certification and Training," Revision 1, dated April 15, 1988

The procedures identified above outline a broad audit program which involves the formal audits as identified in the Technical Specifications and a surveillance program with the QA personnel observing actual ongoing work activities in a planned, systematic manner. The surveillances, when coupled with the formal audits, should provide a complete picture of the compliance of any given activity with the requirements for that activity. The formal audit program is based on RG 1.144, "Auditing of Quality Assurance Programs for Nuclear Power Plants. The requirements for the qualifications of personnel are based on RG 1.146, "Qualification of Quality Assurance Audit Personnel for Nuclear Power Plants."

The NRC inspector selected six records of audits performed during the past year. The audit reports as identified below were reviewed in conjunction with the applicable audit procedure which is the audit report number less the year suffix:

- Audit QAP-18D-88, "Unit 2 Instrumentation," conducted June 16 through July 8, 1988

- o Audit QAP-4-87, "Training," conducted April 27 through August 19, 1987
- o Audit QAP-6-87, "Procurement/Materials Control," conducted March 17 through July 1, 1987
- o Audit QAP-15-87, "Control of Measuring and Test Equipment," conducted July 22 through December 15, 1987
- o Audit QAP-18H-88, "Unit 2 Tech. Spec. Audit," conducted January 21 through April 22, 1988
- o Audit QAP-10-88, "Corrective Action," conducted June 29 through July 26, 1988

Each of the audits resulted in either Audit Findings (AFRs) or audit recommendations or both. The former are findings which identify that some element of a requirement has not been complied with, while the latter are auditor observations that some element stands in need of improvement. Most of the AFRs and recommendations had been acted upon within the time frames requested by QA. The NRC inspector did note that two AFRs from QAP-4-87 were still open nearly a year after they were issued. AFR 506 reported that management required Position Task Analyses for certain positions had not been issued, while AFR 507 reported that training requirements for persons in supervisory Health-Physics positions were not being conducted as required. The delays in responding had been requested and approved in both cases.

During the review of the audit reports, the NRC inspector noted the identification of the auditors involved in each audit. Nine auditors in all were involved. The NRC inspector reviewed the auditor qualification files on eight of the auditors and found that all had experience, education, and training sufficient to meet the requirements of Procedure QAO-1 and RG 1.146 as either a lead auditor or as an auditor. The file for the ninth person could not be located by the licensee and therefore no assessment of that persons qualifications could be made. The failure to have a training and qualifications file for an auditor is an apparent violation of Criterion XVII of Appendix B to 10 CFR Part 50. (313/8826-04; 368/8826-04)

8. Procurement Program (38701)

The NRC inspector reviewed the following documents to verify that administrative controls exist and that they provide measures to assure that necessary technical and quality requirements are included in procurement documents for safety-related items or services. The documents were also reviewed to verify that controls exist for the selection, approval, and use of vendors. These documents were further reviewed to assure that responsibilities for implementing the established measures were delineated in writing.

Title	Document No.	Revision	Date
Arkansas Nuclear One Unit 1 Updated Safety Analysis Report.	Section 1.6	Amend. 4	10/15/86
QA Manual Operations	Section 4.0	9	7/22/87
Nuclear Procurement	ESP-213	0	3/30/86
Control of Procurement	1000.00	14	9/22/87
Control of Procurment Process (for Plant Modifications)	6000.50	1	11/5/87
Purchase Requisition Preparation & Control	1000.11	23	1/28/88
Procurement Technical Assistance	1032.006	10	2/22/88
Plant Engineering Action Requests and Plant Changes	1032.01	9	10/1/87

To assess the implementation of these documents, the NRC inspector selected the following purchase orders and components, and verified that documented evidence was available to support the conformance of the items to the requirements of the procurement documents. It should be noted that all of these items had been procured for implementation of design changes/modifications scheduled to be performed during the current outage of Unit 1. All of the design changes/modifications are controlled by DCPs of which two were reviewed by the NRC inspector (DCPs 87-1013 and 87-1042) and are noted with the applicable items listed below. These packages were reviewed to assure that: (1) all required approvals had been obtained; (2) responsibilities had been established to implement the DCP; (3) detailed descriptions of the changes were delineated; (4) affected drawings and pending DCPs which might affect the design changes were identified; (5) design bases, considerations, and calculations were addressed and performed, and (6) the methodology was consistent and appeared to be proper.

Purchase Order No.	Component Ordered	Quantity
20544	Durametallic Cartridge Mechanical Seals	6
	Gland Studs	16
	Gland Nuts	6

49957	Synchronism Check Relays	5	
179774	1/8 inch weld rod, SFA 5.27	100 pounds	
175232	6-inch SA-312 Pipe	20 lin. ft.	DCP 87-1013
	4-inch SA-312 Pipe	220 lin. ft.	"
	3-inch SA-312 Pipe	340 lin. ft.	"
	4-inch SA-403 45° Elbows	4	"
	3/4-inch SA-182 90° Elbows	2	"
	3/4-inch SA-182 Tees	5	"
	1 1/2-inch SA-182 Coupling	2	"
	4-inch X 3-inch X 3/4-inch SA-182 Sockolet	9	"
	3-inch SA-182 Flange	10	"
	6-inch X 6 inch X 3-inch SA-403 Tees	1	"
180746	4-inch X 4-inch X 2-inch A-403 Tees	5	DCP 87-1013
181670	1 1/8-inch X 5 3/4-inch SA-193 Studs	36	DCP 87-1042
	1 1/8-inch Hex Nuts	72	"
179832	Timing Relays	5	

The procurement dates for the above items occurred between May 2, 1986, and August 15, 1988. While some of the controlling procedures were revised subsequent to the procurement dates, this had no impact in terms of performance relative to these purchases. For the above items, the NRC inspector reviewed all purchase requisitions, purchase orders, and any applicable revisions for QA review and approval, and verified that technical requirements were either contained in the text of the document or referenced. It was also verified that these documents did impose 10 CFR Part 21 and either Appendix B to 10 CFR Part 50 or Subarticle NCA-3800 of Section III of the ASME Code. The NRC inspector verified that, with the exception of items on Purchase Order 181670 above which had not been received, all required supplier documentation had been received and that, as a minimum, it complied with the requirements of the purchase order. In addition, a review of all material manufacturers certified material test reports was performed of those components listed for Purchase Orders 179774, 175232, and 180746 above. The qualification package required for the components under Purchase Order 179832 was reviewed. This information, which included test data sheets, showed that the components had been environmentally qualified in accordance with IEEE 323-1974 and seismically qualified in accordance with IEEE 344-1975. The NRC inspector verified that the manufacturers from whom these procurements

had been made were on the Qualified Vendors List. The procurement program was found to be effective with respect to meeting the committed objectives, and no violations or deviations were identified during review of this area.

9. Receipt, Storage, and Handling of Equipment and Materials Program (38702)

The NRC inspector reviewed the following documents in order to verify that administrative controls exist, and that they provide measures to assure that received materials will be examined for conformance with requirements specified in the procurement documents. The documents were reviewed to verify that acceptance criteria and responsibilities were clearly established and that requirements for documenting the performance of receipt inspections were delineated.

Title	Document No.	Revision	Date
Arkansas Nuclear One Unit 1 Updated Safety Analysis Report	Section 1.6	Amend. 4	10/15/86
QA Manual Operations	Section 7.0	9	7/22/87
Receipt Inspection	1033.01	19	12/21/87

In order to assess the implementation of the program, the NRC inspector reviewed all applicable receiving inspection documentation associated with the components identified in paragraph 8 above, except for Purchase Order 181670, which had not been received. The reviewed documentation consisted of material receiving reports, receipt inspection instructions, item acceptance instructions, and receipt inspection reports. All of the documents identify the specific item(s), the purchase order number, the attributes to be inspected and their acceptability, the inspector, and the date on which the inspector signed the inspection report. With exception of Purchase Order 181670 (not received), and the 6-inch pipe on order 175232 (issued for installation), the NRC inspector was able to observe the storage and identification maintenance of one or more of all of the other listed components. Material/component issue slips existed for all of the components which had been issued for installation. The program for receiving inspection and storage appears to be effective with respect to meeting the committed objectives, and no violations or deviations were identified during review of this area.

10. Exit Interview

The NRC inspectors met with the licensee personnel identified in paragraph 1 on August 19 and September 2, 1988, to discuss the scope and findings of the inspection.