

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Reports: 50-313/83-11  
50-368/83-11

Licenses: DPR-51  
NPF-6

Dockets: 50-313  
50-368

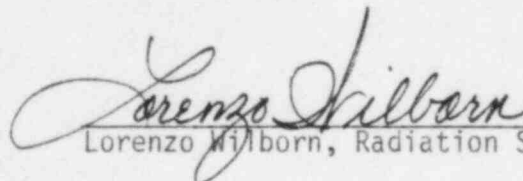
Licensee: Arkansas Power and Light Company (AP&L)  
P. O. Box 551  
Little Rock, AR 72203

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

Inspection At: ANO Site, Russellville, AR

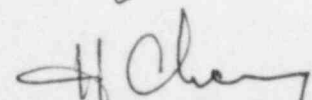
Inspection Conducted: May 16-20, 1983

Inspector:

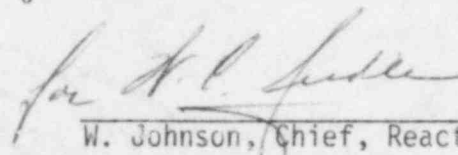
  
Lorenzo Wilborn, Radiation Specialist

6/16/83  
Date

Approved:

  
for Blaine Murray, Chief, Facilities Radiation  
Protection Section

6/16/83  
Date

  
for W. Johnson, Chief, Reactor Project Section C

6/20/83  
Date

Inspection Summary

Inspection conducted May 16-20, 1983 (Reports 50-313/83-11 and 50-368/83-11)

Areas Inspected: Routine, unannounced inspection of the licensee's radioactive waste systems including: management organization; radiochemistry personnel selection, qualification, and training; radioactive liquid and gaseous effluent releases; records and reports of radioactive effluents; procedures for controlling effluent releases; testing of air cleaning systems; instrumentation; reactor coolant water quality; radiochemistry quality control; and licensee audits of radiochemistry activities. Additionally, Mr. Wilborn discussed the awareness of and preparations for compliance with 10 CFR Part 61, to be effective December 27, 1983. The inspection involved 35 inspector-hours by one NRC inspector.

Results: Within the ten areas inspected, no violations or deviations were identified.

DETAILS1. Persons ContactedArkansas Power and Light Company

\*J. M. Levine, General Manager  
 \*B. A. Baker, Operations Manager  
 \*E. C. Ewing, Engineering and Technical Support Manager  
 \*L. J. Dugger, Special Projects Manager  
 \*E. L. Sanders, Maintenance Manager  
 \*L. W. Schempp, Nuclear Quality Control Manager  
 \*T. C. Baker, Technical Analysis Superintendent  
 \*J. D. Vandergrift, Training Superintendent  
 \*C. N. Shirley, Plant Engineering Superintendent  
 \*G. Fiser, Radiochemistry Supervisor  
 M. Frala, Assistant Radiochemistry Supervisor  
 R. Pool, Assistant Radiochemistry Supervisor  
 R. McCormick, Senior Radiochemistry Technician  
 L. Hodges, Radiochemistry Technician  
 C. Halbert, Mechanical Engineering Supervisor  
 H. Carpenter, Instrument and Control Supervisor  
 J. Roberson, Instrument and Control Supervisor  
 T. Pugh, Lead Trainer

Others

\*L. J. Callan, NRC Senior Resident Inspector

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

\*Denotes those present during the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (313/8212)/(368/8225)-(01): Radiochemistry Organization - This item was discussed in NRC Inspection Reports 50-313/82-12 and 50-368/82-25 and involved the licensee not having developed job/position descriptions for radiochemistry personnel or implemented procedures governing functional area assignments. The licensee, at the time of this inspection, had developed and implemented a Position Task Analysis (PTA), "Position Description for ANO Radiochemist," December 6, 1982. The PIA also described the functional area assignments. This item is considered closed.

(Open) Open Item (313/8212)/(368/8225)-(03): Radiochemistry Personnel Training - This item was discussed in NRC Inspection Reports 50-313/82-12 and 50-368/82-25, and involved the licensee not having developed a formal

training and retraining program for radiochemistry personnel. The NRC inspector noted during this inspection that the licensee was continuing efforts in the developmental stage of this program; therefore, this item remains open.

(Closed) Open Item (313/8212)/(368/8225)-(04): Licensee's Internal Audits - This item was discussed in NRC Inspection Reports 50-313/82-12 and 50-368/82-25, and involved the licensee not including a member on the audit team for chemistry/radiochemistry that was knowledgeable in radiochemistry procedures and activities at nuclear power facilities. The licensee records indicated, during this inspection, that the licensee did include a member knowledgeable in the radiochemistry area on the audit team for the audit performed by the licensee during October 27, 1982, through January 25, 1983, of radiochemistry activities. This item is considered closed.

(Closed) Open Item (313/8212)/(368/8225)-(05): Instrument Calibration and Performance Checks - This item was discussed in NRC Inspection Reports 50-313/82-12 and 50-368/82-25, and involved the licensee not having developed detailed radiochemistry analytical instrument calibration and performance check procedures. At the time of this inspection, the licensee had revised the radiochemistry analytical instrument calibration and performance check procedures to independently address such topics as instrument calibration, instrument performance checks, and analytical measurements and calculations. This item is considered closed.

### 3. Organizational Staffing

The NRC inspector reviewed the ANO staff functional area assignments regarding radiochemistry responsibilities involving radioactive waste system operations. During the period of this inspection, the ANO organizational structure and radiochemistry staffing appeared to be sufficient to meet the requirements for routine performance of radioactive waste system activities. The radiochemistry staff was reported at capacity with one radiochemistry supervisor, two assistant radiochemistry supervisors (one for each unit), one senior radiochemistry technician, and fifteen radiochemistry technicians.

The duties and responsibilities were described in the position descriptions for the radiochemistry supervisor and assistant supervisors. The job/position descriptions and functional area assignments for radiochemistry technicians had been established by the licensee's PTA.

No violations or deviations were identified.

### 4. Radiochemistry Personnel Qualifications and Training

The NRC inspector reviewed the qualifications and training of radiochemistry personnel to determine agreement with the recommendations of NRC Regulatory Guide 1.8 and ANSI N18.1-1971.

a. Qualifications

The NRC inspector reviewed radiochemistry personnel experience resumes and noted that the radiochemistry personnel had obtained academic education through a Bachelor of Science degree, except one, who had approximately 12 years nuclear experience, of which, approximately 50 percent was commercial nuclear operating plant experience. The following interoffice memoranda described the licensee's selection and qualification criteria for radiochemistry personnel:

- . Memorandum, November 5, 1981, to J. Levine from T. Baker, subject: Chemistry and Radiochemistry Employment Guidelines
- . Memorandum, August 18, 1982, to E. W. Ewing from T. C. Baker, subject: Shift Qualification Criteria for Chemistry and Radiochemistry

The selection and qualification criteria appeared to satisfy the recommendations of Regulatory Guide 1.8 and ANSI N18.1-1971.

No violations or deviations were identified.

b. Training Program

The NRC inspector reviewed training records for the radiochemistry personnel. The records indicated that all of the radiochemistry staff had completed training as follows: initial site, general employee, and plant procedures and systems. The records also indicated that the radiochemistry technicians had either completed or were in some phase of the on-the-job training program.

Three radiochemistry technicians were in some phase of the retraining program during this inspection.

An open item (313/8212)/(368/8225)-(03) was identified and discussed in NRC Inspection Reports 50-313/82-12 and 50-368/82-25, and involved the licensee not having established a written (formal) training and retraining program which included defined goals, objectives, schedules, and a method of evaluating the effectiveness of the training. During this inspection, the licensee was in the process of developing the written program. This item is considered to remain open pending the licensee's completion of the written program and a review by the NRC during a future inspection.

No violations or deviations were identified.

## 5. Radioactive Effluent Releases

### a. Liquid

The NRC inspector reviewed records of liquid effluent releases to determine compliance with items 2.4, 2.4.1, and Table 2.2, and items 2.2, 2.2.1, and Table 2.1 of the Technical Specifications for ANO Units 1 and 2, respectively.

The licensee's records of liquid effluent releases appeared to be properly maintained and showed no indications that liquid releases exceeded the Technical Specification limits during the period June 25, 1982, through May 20, 1983.

No violations or deviations were identified.

### b. Gaseous

The NRC inspector reviewed records of gaseous effluent releases to determine compliance with items 2.4, 2.4.2, and Table 2.2, and items 2.2, 2.2.2, and Table 2-1 of the Technical Specifications for ANO Units 1 and 2, respectively.

The licensee's records of gaseous effluent releases appeared to be properly maintained and showed no indications that radioactivity concentration in the releases exceeded the Technical Specification limits during the period June 25, 1982, through May 20, 1983.

No violations or deviations were identified.

### c. Discussion

The NRC inspector noted that ANO used a computer-generated release report that provided for calculation of liquid and gaseous radioactivity concentrations in the releases, based on established site/system parameters. The NRC inspector and radiochemistry personnel discussed the licensee's ability to manually perform the necessary calculations for ensuring that radioactivity concentrations in liquid and gaseous effluent releases were within applicable limits. The discussions indicated that there were radiochemistry personnel that were knowledgeable in the required inputs to the computer programs such that these calculations could be manually performed.

No violations or deviations were identified.

## 6. Records and Reports of Radioactive Effluents

The NRC inspector reviewed the licensee's records and reports to determine if the content and format complied with the requirements of 10 CFR 50.36a(a)(2),

Technical Specifications 5.6.1 and 6.9.1.4 for ANO Units 1 and 2, respectively, and the recommendations of NRC Regulatory Guide 1.21.

The NRC inspector noted that the content and format of the licensee's records and reports appeared to comply as required.

No violations or deviations were identified.

7. Procedures for Effluent Release Control

The NRC inspector reviewed the licensee's procedures for controlling liquid and gaseous releases to determine compliance with Technical Specifications 5.5 and 6.8.1. These procedures provided for the following:

- . Technical Specification limits
- . Radiochemistry analyses results
- . Function tests of liquid/gas monitors and isolation valves
- . Allowable release rate
- . Dilution flow rate
- . Valve lineup verification
- . Total volume released
- . Total activity released
- . Duration of release
- . Authorization signatures

No violations or deviations were identified.

8. Testing of Air Cleaning Systems

The NRC inspector reviewed the licensee's procedures, surveillance, and test results for the air cleaning systems containing HEPA filters and carbon adsorbers to determine compliance with Technical Specifications 3.9, 3.13, 3.14, 3.15, 3.22, 4.10, 4.11, 4.12, 4.17, and 4.25 for Unit 1; 3/4.7.6 for Unit 2; and the recommendations of NRC Regulatory Guides 1.52 and 1.140, ANSI/ASME 509-1976, and ANSI N510-1975.

The licensee's procedures appeared to adequately provide for the required periodic functional checks of system components, tracking of system operating hours, evaluation of the iodine removal efficiency of the carbon adsorbers,

and inplace testing of certain filter systems, either annually, during a refueling outage, or when necessary. A review of the licensee's records indicated that the requirements of the Technical Specifications had been met in a timely manner. An outside consultant performed the inplace DOP tests of HEPA filters and the iodine removal efficiency of the carbon adsorbers for the air cleaning systems.

The licensee was performing checks and tests on installed air cleaning systems not specifically listed in the Technical Specifications on a periodic frequency consistent with the systems required by the Technical Specifications.

No violations or deviations were identified.

#### 9. Instrumentation

The NRC inspector reviewed the licensee's liquid and gaseous effluent control instrumentation to determine compliance with Technical Specifications 2.4.2.1, 2.4.2.2, and Table 4.1-1, and the recommendations provided in NRC Regulatory Guides 1.21, 4.15, and 8.25, and industry standards ANSI N13.1-1969 and ANSI N323-1978.

The NRC inspector noted that the licensee's process and effluent monitors, readily accessible during reactor operating periods, were calibrated annually using standard liquid and gaseous concentrations. The other process and effluent monitors were calibrated using standard liquid and gaseous concentrations during refueling outages. Response checks were performed quarterly using standard check sources. The instrument and control section of the maintenance department was responsible for the calibrations and functional tests associated with the process and effluent control instrumentation.

The process and effluent monitors appeared to have met the requirements of the Technical Specifications.

No violations or deviations were identified.

#### 10. Reactor Coolant Water Quality

The NRC inspector reviewed the licensee's program and sampling and analysis records for the monitoring and controlling of reactor coolant water quality to determine compliance with Technical Specifications 3.1.4, 3.1.5, 3.10, and Table 4.1-3.

The NRC inspector reviewed selected records of reactor coolant water quality for the period June 25, 1982, through May 20, 1983. The records indicated that the chemical conditions, sampling frequency, and sample analysis met the requirements of the Technical Specifications.

No violations or deviations were identified.

### 11. Radiochemistry Quality Control

The NRC inspector reviewed the licensee's quality control program for radiological analytical measurements of liquid and gaseous effluents to determine compliance with the Technical Specifications and the recommendations of NRC Regulatory Guide 4.15.

The NRC inspector noted that the licensee had revised various radiochemistry analytical procedures which appeared to resolve the NRC's concerns specified in NRC Inspection Reports 50-313/82-12 and 50-368/82-25 as open item (313/8212)/(368/8225)-(06). The licensee's procedures and records appeared to be in order and indicated that the licensee had maintained an adequate quality control program.

No violations or deviations were identified.

### 12. Audits

The NRC inspector reviewed the licensee's audits of radiochemistry activities associated with liquid and gaseous effluent releases to determine compliance with 10 CFR 50 Appendix B and Technical Specification 6.5.2.8.

The NRC inspector noted that the quality assurance department had performed an audit of those radiochemistry activities during the period October 27, 1982, through January 25, 1983. This audit was conducted under the cognizance of the safety review committee and replaced the safety review committee audit. The quality assurance audit including a team member knowledgeable in radiochemistry procedures and activities appeared to improve the scope and depth of the audit and followup actions on audit findings. The audit report did not reveal any significant problem areas in radiochemistry and indicated that response to audit findings had been in a timely manner.

No violations or deviations were identified.

### 13. ANO and 10 CFR Part 61

The NRC inspector discussed the licensee's awareness of and preparation for compliance with 10 CFR Part 61 to be effective December 27, 1983. The licensee had a copy of Federal Register/Volume 47, Number 248/Monday, December 27, 1982/Rules and Regulations, 57463. The NRC inspector gave the licensee a copy of 10 CFR Part 61 dated December 30, 1982. The NRC inspector noted that the licensee was in the process of negotiating a contract with an outside commercial vendor to provide a sampling and analysis program for compliance with 10 CFR Part 61. The licensee representative stated that radiochemistry will evaluate its inhouse capabilities for waste classification and that all radioactive waste will be shipped offsite.

14. Exit Interview

The NRC inspector met with the licensee representatives denoted in paragraph 1 at the conclusion of the inspection on May 20, 1983. The NRC inspector discussed the scope and findings of the inspection.